



THIS FILING LETTER DOES NOT CONTAIN ANY PRIVILEGED OR CONFIDENTIAL INFORMATION. REPORT SECTIONS II AND III DO NOT CONTAIN ANY PRIVILEGED OR CONFIDENTIAL INFORMATION. THE BODY OF REPORT SECTION I AND ATTACHMENT II, AND ATTACHMENTS V THROUGH VII DO NOT CONTAIN ANY PRIVILEGED OR CONFIDENTIAL INFORMATION. ATTACHMENT I, ATTACHMENT III AND ATTACHMENT IV CONTAIN PRIVILEGED AND CONFIDENTIAL INFORMATION, AND ARE CLEARLY MARKED.

December 14, 2018

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Annual Report in Docket Nos. ER01-3001-000, ER03-647-000 and
Request for Privileged Treatment of Attachments I, III, and IV

Dear Ms. Bose:

Enclosed for filing in the above-referenced dockets is the New York Independent System Operator, Inc.'s ("NYISO's") Annual Installed Capacity Report on the NYISO's Capacity Market, Possible Withholding, New Generation Projects, and Net Revenue Analysis (the "Report").¹ By Order dated February 3, 2010, the Commission directed the NYISO to file this report for informational purposes only.²

¹ *New York Indepen. Sys. Operator, Inc.*, 117 FERC ¶ 61,086 (2006); *New York Indepen. Sys. Operator, Inc.*, 103 FERC ¶ 61,201 (2003), 108 FERC ¶ 61,280 (2004), 121 FERC ¶ 61,090 (2007), 123 FERC ¶ 61,206 (2008). In Docket ER03-647, the NYISO files an annual report regarding its Demand Side Management programs on January 15, and a semi-annual report on its Demand Side Management programs and new generation projects on June 15 each year.

² *New York Indepen. Sys. Operator, Inc.*, Order, Docket Nos. ER01-3001 and ER03-647 (Feb. 3, 2010).

I. List of Documents Submitted

The NYISO submits with this letter, and the below request for confidential treatment, a public version of the Report, with Attachments I, III, and IV redacted. Separately, the NYISO is submitting as confidential, Attachments I, III and IV (the “Confidential Attachments”).

As with prior annual Installed Capacity Reports, the Report is comprised of the following separate sections: Section I: Capacity Market Report and Withholding Analysis, Section II: Report on New Generation Projects, and Section III: New Generation Projects and Net Revenue Analysis.

II. Request for Confidential Treatment of Attachments I, III, and IV

In accordance with Sections 388.107 and 388.112 of the Commission’s Regulations,³ Article 6 of the NYISO’s Market Administration and Control Area Services Tariff, Sections 1.0(4) and 4.0 of the NYISO’s Code of Conduct, the NYISO requests Privileged and Confidential treatment of the contents of the Confidential Attachments. The NYISO also requests that the Confidential Attachments be exempted from public disclosure under the Freedom of Information Act (“FOIA”), 5 U.S.C. §522.⁴

The Confidential Attachments contain privileged, commercially sensitive, and trade secret information that is not made public by the NYISO and that could cause competitive harm to the affected Market Participants,⁵ and could adversely affect competition in the markets administered by the NYISO, if publicly disclosed. This information includes the identity of Installed Capacity Suppliers and their respective offering behavior, and the basis therefor. This confidential, commercially sensitive information is exempt from disclosure under 5 U.S.C. §522(b)(4). For this reason, the NYISO requests that the contents of Confidential Attachments receive Privileged and Confidential treatment and be exempt from FOIA disclosure.

A public version of the contents of Attachment I is set forth in Report Section 1.5.4.2. A public version of Confidential Attachment III, summarizing and masking the contents of Attachment III, is included in the Report as Attachment II. A masked and aggregated version of Confidential Attachment IV is set forth in Report Section 1.5.4.4.

The NYISO requests waiver of any obligation it may have under the Commission’s regulations or the Secretary’s rules to submit a redacted version of the Confidential Attachments. The NYISO incorporated into the body of Report Section I a masked or aggregated version of

³ 18 C.F.R. §§ 388.107, 388.112.

⁴ The information provided by the NYISO for which the NYISO claims an exemption from FOIA disclosure is labeled “Contains Privileged Information – Do Not Release.”

⁵ Terms with initial capitalization not defined herein have the meaning set forth in the NYISO’s Market Administration and Control Area Services Tariff.

the information that is contained in the Confidential Attachments and thereby makes publicly available the information contained in Attachment III that is not confidential and commercially sensitive. In that regard, the NYISO has provided a redacted version of the information contained in the Confidential Attachments.

The Confidential Attachments are identified and marked in accordance with the Commission's regulations and rules published by the Secretary's Office for submitting Privileged information.

III. Correspondence

Copies of correspondence concerning this filing should be addressed to:
gkavanah@nyiso.com

Karen G. Gach, Acting General Counsel
Raymond Stalter, Director of Regulatory Affairs
*Gloria Kavanah, Senior Attorney
New York Independent System Operator, Inc.
10 Krey Boulevard
Rensselaer, N.Y. 12144
Tel: (518) 356-6000
Fax: (518) 356-4702
kgach@nyiso.com
rstalter@nyiso.com

* Person designated to receive service.

Respectfully submitted,

/s/ Gloria Kavanah
Gloria Kavanah
Counsel for
New York Independent System Operator, Inc.

cc:	Nicole Buell	David Morenoff
	Anna Cochrane	Daniel Nowak
	James Danly	Larry Parkinson
	Jiagnasa Gadani	Douglas Roe
	Jette Gebhart	Kathleen Schnorf
	Kurt Longo	Gary Will

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in this proceeding in accordance with the requirements of Rule 2010 of the Rules of Practice and Procedure, 18 C.F.R. §385.2010.

Dated at Rensselaer, NY this 14th day of December 2018.

/s/ Joy A. Zimmerlin

Joy A. Zimmerlin
New York Independent System Operator, Inc.
10 Krey Blvd.
Rensselaer, NY 12144
(518) 356-6207

2018 Annual Installed Capacity Report

*Report on the NYISO's Capacity Market, Possible Withholding,
New Generation Projects, and Net Revenue Analysis*

December 14, 2018

Contents

I. Capacity Market Report	1
I.1. Overview	1
I.2. Market Design and Regulatory Developments	4
I.2.1. Class Year Bifurcation.....	4
I.2.2. Reliability Must Run	4
I.2.3. External to Rest of State Deliverability Rights	5
I.2.4. Rules to Establish Locational Minimum Installed Capacity Requirements	5
I.3. Recent Installed Capacity Auction Results.....	6
I.4. Capacity Withholding Analysis.....	18
I.4.1. All Capacity Areas in the NYCA	18
I.4.2. Unoffered and Unsold Capacity	19
I.4.3. New York City and G-J Localities	23
I.4.4. Rest of State	28
II. NYISO Report on New Generation Projects.....	36
III. New Generation Projects and Net Revenue Analysis.....	37
III.1. Overview	37
III.2. Market Design Developments to Enhance ICAP Demand Curve Performance	37
III.3. Interconnection Queue Projects.....	37
III.4. Proposed Resource Additions	39
III.5. Net Revenue Analysis	40
III.5.1. Quantification of “Need”	40

Attachments

Attachment I: Confidential Unoffered Capacity: Market Participant Explanations	i
Attachment II: Unsold Capacity Offers (Masked).....	ii
Attachment III: Confidential Unsold Capacity Offers (Unmasked).....	iii
Attachment IV: Confidential Unsold Capacity Offers: Market Participant Explanations.....	iv
Attachment V: Interconnection Queue.....	v
Attachment VI: Status Key for Interconnection Queue.....	ix
Attachment VII: November 1999 – October 2018 Installed Capacity Auction Activity	x

Charts

Chart 1: UCAP Available Reserve and Spot Market Clearing Price.....	3
Chart 2: NYCA Market Clearing Prices	7
Chart 3: NYCA Offered MW	8
Chart 4: NYC Market Clearing Price.....	9
Chart 5: NYC Offered MW	10
Chart 6: G-J Market Clearing Price	11
Chart 7: G-J Offered MW	12
Chart 8: Long Island Market Clearing Price	13
Chart 9: Long Island Offered MW	14
Chart 10: Average Percent of Unoffered MW	20
Chart 11: Average Percent of Unsold MW	21
Chart 12: NYC Mitigation Results.....	24
Chart 13: NYC Generator and SCR UCAP	25
Chart 14: G-J Locality Mitigation Results.....	26
Chart 15: G-J Locality Generator and SCR UCAP	27
Chart 16: Rest of State Capacity: Available, Offered, Sold, Exported.....	28
Chart 17: NYISO Interconnection Queue Projects.....	38
Chart 18: UCAP based Revenue Margins	44
Chart 19: UCAP based Capacity Margins	45
Chart 20: Capacity Market Revenues Relative to CONE Requirements	45

Tables

Table 1: List of Mothballed and Retired Units.....	15
Table 2: Minimum Installed Capacity Requirements (%)	22
Table 3: Unoffered and Unsold MW	23
Table 4: ROS Unoffered and Offered but Unsold Capacity MW by Type of MP.....	29
Table 5: Maximum Price Impact of ROS Unoffered Capacity	31
Table 6: Maximum Price Impact of ROS Unsold MW	32
Table 7: Going Forward Cost Definitions.....	33
Table 8: ROS Unsold MW with reported GFCs costs above ICAP Spot Auction Prices (15MW+)	34
Table 9: ROS ICAP Spot Auction Price Impact Analysis Results	35
Table 10: Capacity Resource Changes since the publication of the 2018 NYISO Gold Book	40
Table 11: Current Status of Tracked Market-Based Solutions and Transmission Owner Plans .	40
Table 12: Summer Available Capacity vs. Required Capacity	41
Table 13: Annual Revenue Requirements in UCAP terms (\$/MW)	42
Table 14: Benchmark Annual Revenues in UCAP terms (\$/MW)	43
Table 15: Revenue Margins	43

I. Capacity Market Report

I.1. Overview

This report (the “December 2018 Report”) reviews the outcomes of the Installed Capacity (“ICAP”) market administered by the New York Independent System Operator (“NYISO”); assesses the effectiveness of the ICAP Demand Curves¹ (“Demand Curves”) in attracting investment in new and existing capacity resources; and examines potential withholding activity in the NYISO-administered Capacity auctions for the New York Control Area (“NYCA”) within its three Localities, New York City (“NYC”), the G-J Locality (“G-J”), and Long Island (“LI”), and the remaining area that comprises the NYCA, the Rest of State (“ROS”) (referred to in this report as “capacity areas”).² The December 2018 Report covers the Winter 2017-2018 and Summer 2018 Capability Periods, which span from November 2017 through October 2018. Similar NYISO reports filed in previous years cover earlier periods.

With the exception of the NYCA capacity prices, during the Winter 2017-2018 Capability Period capacity prices were higher, on average, than those of the previous Winter Capability Period. The average ICAP Spot Market Auction (“Spot Market Auction”) prices over the Winter 2017-2018 Capability Period were \$0.26/kW-month, \$3.53/kW-month, \$3.53/kW-month, and \$0.73/kW-month, for NYCA, the G-J Locality, NYC, and LI, respectively. These prices compare with \$0.47/kW-month, \$3.48/kW-month, \$3.48/kW-month and \$0.47/kW-month during the previous winter for NYCA, the G-J Locality, NYC, and LI respectively.

Capacity prices during the Summer 2018 Capability Period in NYCA, G-J and LI Localities were higher on average than those of the previous (2017) Summer Capability Period. The average Spot Market Auction prices were \$3.42/kW-month compared to \$2.35/kW-month, \$10.00/kW-month compared to \$9.85/kW-month and \$6.70/kW-month compared to \$6.66/kW-month in NYCA, G-J and LI Localities, respectively. The average Spot Market Auction prices over the Summer 2018 Capability Period were lower for NYC with \$10.00/kW-month compared to \$10.04/kW-month during the previous Summer Capability Period.

The average Spot Market Auction prices for Summer 2018 were higher than the Summer 2017 average by \$1.07/kW-month in NYCA; by \$0.15/kW-month in G-J; and by \$0.04/kW-month in the LI Locality. The average Spot Market Auction Price for Summer 2018 compared to Summer 2017 were lower by \$0.04/kW-month in the NYC Locality. These price changes were driven primarily by changes in Capability Year inputs such as Locational Minimum Installed Capacity Requirements (“LCRs”) and load forecast throughout NYCA, as well as by the changes in available capacity. These dynamics are depicted in Table 1.

For the Winter 2017-2018 and Summer 2018 Capability Periods, there was minimal change in the proportion of Load Serving Entity (“LSE”) Unforced Capacity (“UCAP”) requirements met through purchases in the NYISO-administered capacity auctions versus bilateral transactions

¹ Terms in upper case not defined herein shall have the meaning set forth in the NYISO's Market Administration and Control Area Services Tariff (“Services Tariff”), with the exception of Rest of State (“ROS”) when such term refers to a period before the Summer 2014 Capability Period. Consistent with the Services Tariff revision to establish the G-J Locality beginning with the Summer 2014 Capability Period and change the definition of Rest of State accordingly, when ROS refers to Winter 2013-2014 or a prior period, it means Load Zones A through I. Any other terms not so defined have the meaning set forth in the Open Access Transmission Tariff (“OATT”).

² The NYISO's Capacity auctions have four Market-Clearing Prices: NYCA, New York City, Long Island and the G-J Locality.

when compared to previous Capability Periods. In the Winter 2017-2018 Capability Period, 32.52% of LSE Capacity requirements were met through bilateral transactions (34.78% in the previous Winter Capability Period), while the remaining percent of LSE requirements were met through purchases in the NYISO-administered auctions. Similarly, in the Summer 2018 Capability Period, 35.22% of LSE capacity requirements were met through bilateral transactions (39.16% in Summer 2017), while the remaining LSE requirements were satisfied through purchases made in the NYISO-administered auctions.

The seasonal averages, Winter 2017-2018 and Summer 2018 quantities of unoffered capacity constituted under 1% of available supply in the NYC, LI, and the G-J Localities and NYCA (see Chart 10). The seasonal averages, Winter 2017-2018 and Summer 2018 quantities of unsold capacity (*i.e.*, capacity that was offered but went unsold) was also under 1% for each of the three Localities (see Chart 11) and NYCA.³ Total unsold and unoffered capacity quantities from ROS resources were below 0.5% in the Winter 2017-2018 and in the Summer 2018 Capability Periods. The UCAP offered and purchased in each of the three Localities exceeded the LCRs (translated to UCAP) and in the NYCA exceeded the NYCA Minimum Unforced Capacity Requirement; therefore, prices were below the base reference point on the respective ICAP Demand Curves.

Overall, the Market-Clearing Prices in the ICAP Spot Market Auctions support the conclusion that the ICAP Spot Market Auctions continue to be attractive to Installed Capacity Suppliers. Previously the NYISO stated that it is difficult to correlate the effect of the ICAP Demand Curves on the level of investment in the NYCA, partially because in the past NYC has had capacity in excess of the LCR, and partially due to the lead-time required to site, develop, and construct a new generator. The ICAP Demand Curves provide transparent capacity market price signals that developers consider in their projections of anticipated future revenues when making near-term investment decisions. Capacity market outcomes are reviewed to ensure market signals are aligned with reliability needs. When market changes are identified, the NYISO works with its stakeholders on prioritizing the need for and developing a suitable market rules.

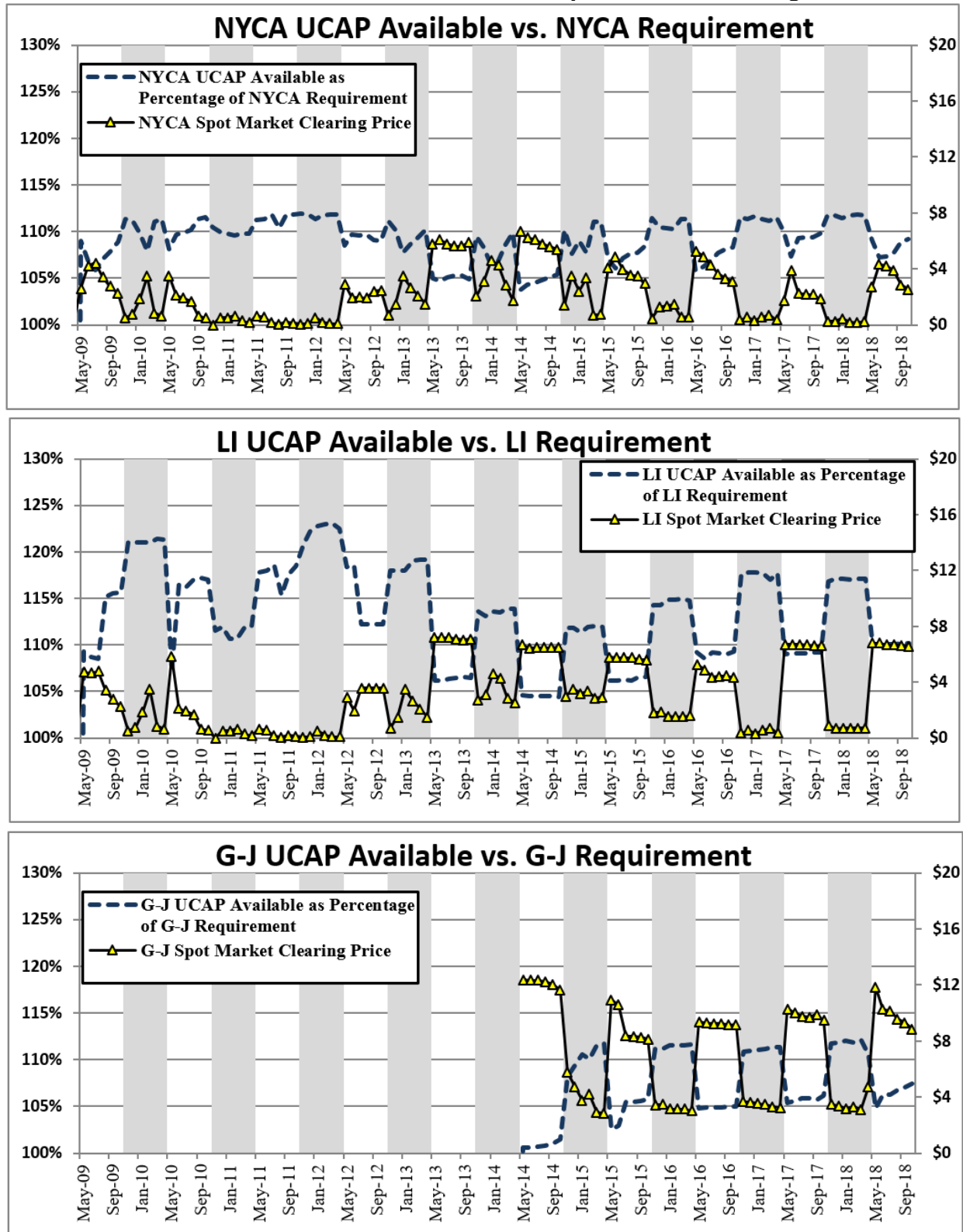
The NYISO continues to monitor potential reliability risks and other issues that may affect the reliability outlook for New York's bulk electric system. On October 16, 2018, the NYISO Board of Directors approved the 2018 Reliability Needs Assessment ("RNA") Report ("2018 RNA Report"),⁴ which is the first step in preparing the 2019 Comprehensive Reliability Plan. The 2018 RNA Report's key finding is that there are no Reliability Needs on the Bulk Power Transmission Facilities (BPTF) through the 10-year study period (2019-2028). On April 11, 2017, the NYISO issued the Comprehensive Reliability Plan Final Report ("CRP") from the 2016-17 biennial planning cycle.⁵ The CRP concluded that the Bulk Power Transmission Facilities will meet all applicable Reliability Criteria over the 2017 through 2026 Study Period, and confirmed that reliability concerns identified in RNA were resolved. The 2019 Comprehensive Reliability Plan is on schedule to be completed next year.

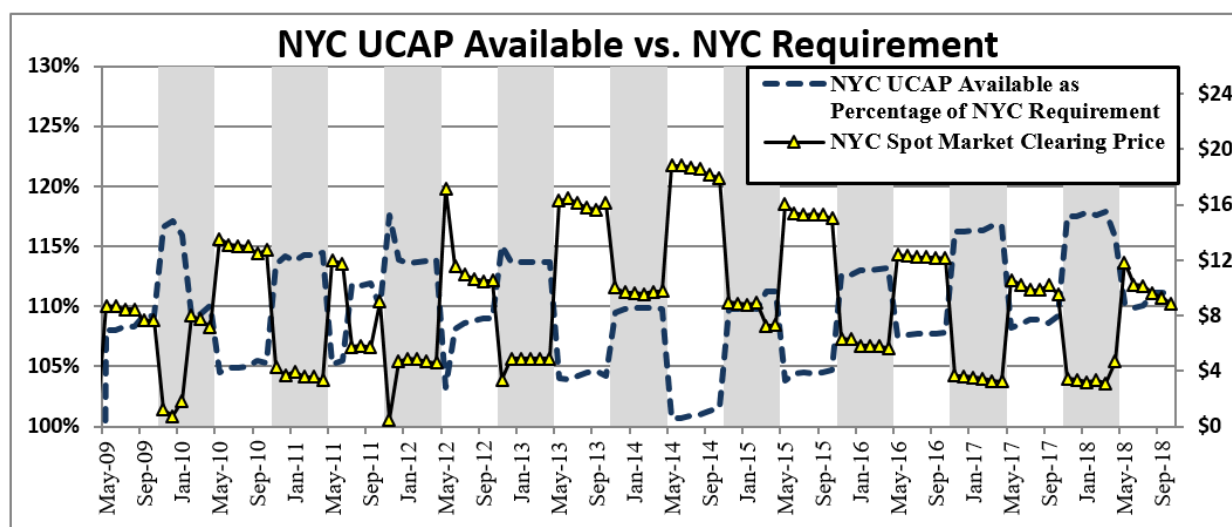
³ Section I.4.2 of this report provides information and analysis of the unoffered and unsold capacity.

⁴ The 2018 RNA Report is available at: <<https://www.nyiso.com/documents/20142/2248793/2018-Reliability-Needs-Assessment.pdf/c17f6a4a-6d22-26ee-9e28-4715af52d3c7>>.

⁵ See New York Independent System Operator, "2016 Comprehensive Reliability Plan issued on April 11, 2017, available at: <https://www.nyiso.com/documents/20142/2248481/2016CRP_Report_Final_Apr11_2017.pdf/fd840e2d-e98e-cec9-83ae-5a56f2f2e883>.

Chart 1: UCAP Available Reserve and Spot Market Clearing Price





I.2. Market Design and Regulatory Developments

Over the past year there have been several ICAP market design initiatives and regulatory developments pertaining to the NYISO's Installed Capacity market. The significant developments are described below.

I.2.1. Class Year Bifurcation

On October 16, 2017, pursuant to Section 205 of the Federal Power Act ("FPA") the NYISO filed proposed revisions to its Open Access Transmission Tariff ("OATT") and its Market Administration and Control Area Services Tariff ("Services Tariff") as part of a comprehensive interconnection process improvement initiative. The revisions were designed to improve the efficiency of the interconnection process while maintaining necessary reliability evaluations and ensuring the equitable treatment of developers. The NYISO proposed a bifurcated Class Year structure allowing projects that do not require additional System Deliverability Upgrade ("SDU") studies to complete the Class Year earlier. A bifurcated Class Year would have two separate decision/settlement phases; one phase in Class Year X-1 and another in Class Year X-2. On December 7, 2017, FERC issued a Letter Order accepting the filing.

I.2.2. Reliability Must Run

On January 16, 2018, as amended on March 15, 2018, the NYISO filed OATT and Services Tariff revisions to comply with the Commission's November 16, 2017 Order which directed the NYISO to submit a further compliance filing to make a limited number of additional revisions concerning: (i) the anti-toggling requirements, (ii) the eligibility of certain generators to address a reliability need resulting from a Generator's deactivation, and (iii) which solutions identified in the Generator Deactivation Process will be included in the base case for the RNA performed by the NYISO in its biennial reliability planning process. On April 24, 2018, FERC issued an order accepting the compliance revisions effective October 20, 2015.

I.2.3. External to Rest of State Deliverability Rights

On May 22, 2018, the NYISO made an FPA Section 205 filing of OATT and Services Tariff revisions designed to allow entities that fund transmission upgrades on External Interfaces sinking into the Rest of State (“ROS”) region to receive Capacity Resource Interconnection Service (“CRIS”) commensurate with the incremental transfer capability created by the transmission upgrade if determined to be deliverable under applicable procedures. The proposed new rules also establish a new product, “External-to-ROS Deliverability Rights” (“EDRs”), by which such CRIS can be utilized to import capacity from External resources, and include associated qualification requirements, interconnection procedures, and market rules. On July 13, 2018, FERC issued an Order accepting the proposed revisions.

I.2.4. Rules to Establish Locational Minimum Installed Capacity Requirements

On June 5, 2018, the NYISO made an FPA Section 205 filing proposing revisions to Services Tariff Sections 2.12 and 5.11 to establish a new methodology to determine LCRs. The new methodology uses an economic optimization algorithm to minimize the total cost of capacity for the NYCA, which is designed to result in lower NYCA-wide total ICAP costs than the methodology that had been used. On October 5, 2018 FERC accepted revisions to the Services Tariff.

I.3. Recent Installed Capacity Auction Results

Capacity committed through self-supply, bilateral transactions, and the NYISO-administered auctions (referred to herein as “committed” capacity) remains above the NYCA Locality minimum unforced capacity requirements. In general, the amount of capacity available from many generators in the NYCA increases in the Winter Capability Period because of higher possible output at lower ambient temperatures. Capacity imports from External Control Areas fluctuate both seasonally and monthly. The NYCA ICAP Demand Curve price can decline to zero when supply exceeds the NYCA Minimum Unforced Capacity Requirement by 12 percent or more. Accordingly, the NYCA Market-Clearing Prices have been consistently below forty percent of the NYCA ICAP Demand Curve reference price⁶, particularly in the Winter Capability Period when prices were consistently below \$1/kW-month.

The amount of Capacity committed to the NYCA, including imports, continues to be high relative to the minimum requirements, which were established using the Installed Reserve Margin of 18 percent. The monthly average import levels into the entire NYCA including into NYC and LI using UDRs was about 1,237 MW in the Winter 2017-2018 Capability Period and about 1,392 MW in the Summer 2018 Capability Period. Those values represent approximately a 154 MW decrease in the monthly average over the amount imported in the previous Winter Capability Period and a 634 MW monthly average decrease relative to the 2017 Summer Capability Period.

ICAP Market-Clearing Prices and auction activity levels from November 1999 through October 2018 for the NYCA, G-J Locality, NYC, and LI are summarized in tabular form in Attachment VII. Market-Clearing Prices are depicted graphically in Chart 2, Chart 4, Chart 6 and Chart 8, and the amount of capacity committed, MW that were offered, and unsold MW are depicted in Chart 3⁷ Chart 5, Chart 7⁸, Chart 9.

⁶ The reference price when the ICAP Demand Curve is translated to UCAP.

⁷ Previous years' Reports presented only ROS unsold data in Chart 3. This year's Report presents in Chart 3 the NYCA-wide unsold data.

⁸ The previous year's Report presented only Load Zone G, H and I unsold data in Chart 7. This and the previous year's Report presents in Chart 7 the Zones G, H, I, and J unsold data.

Chart 2: NYCA Market Clearing Prices

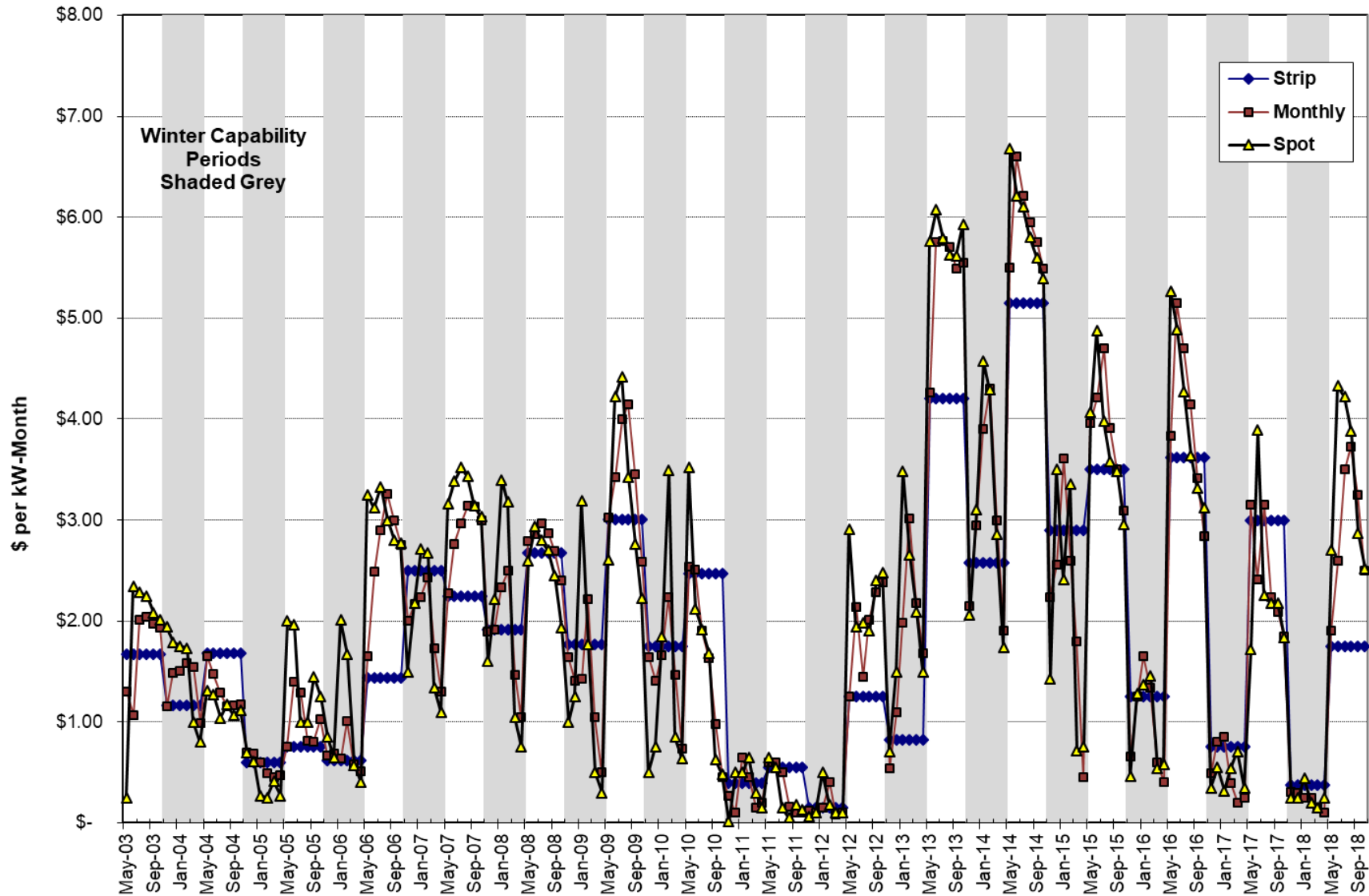


Chart 3: NYCA Offered MW

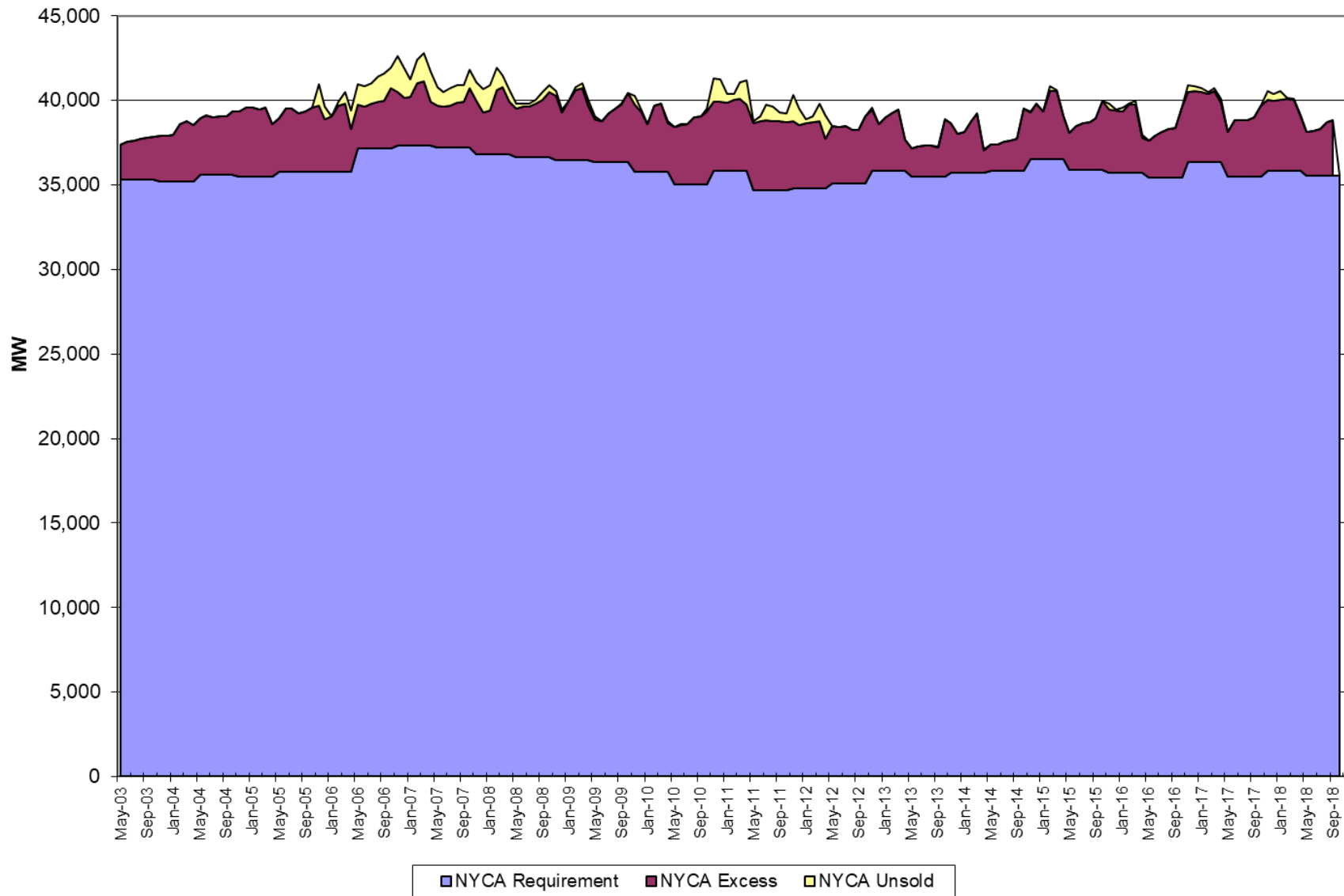


Chart 4: NYC Market Clearing Price

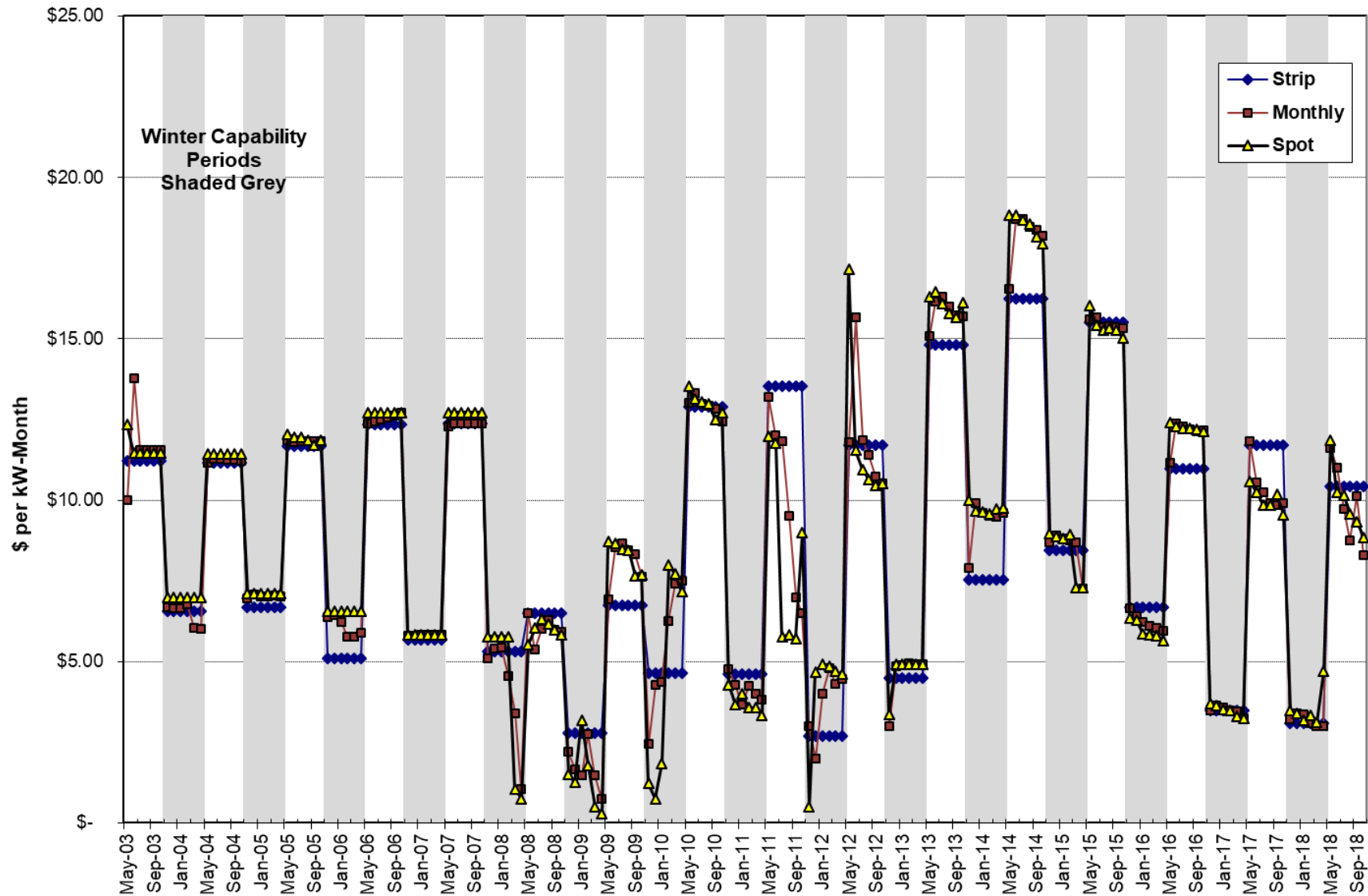


Chart 5: NYC Offered MW

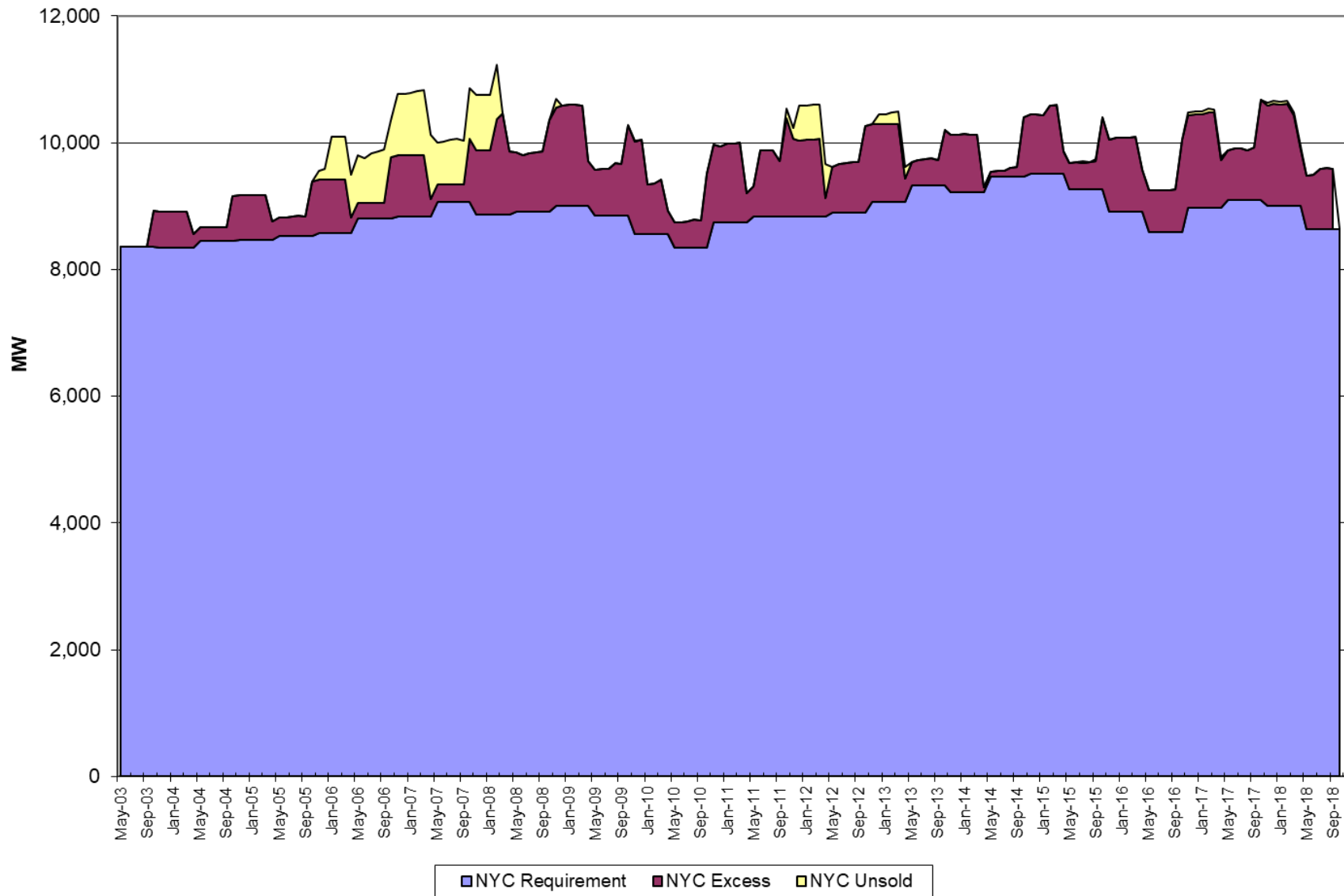


Chart 6: G-J Market Clearing Price

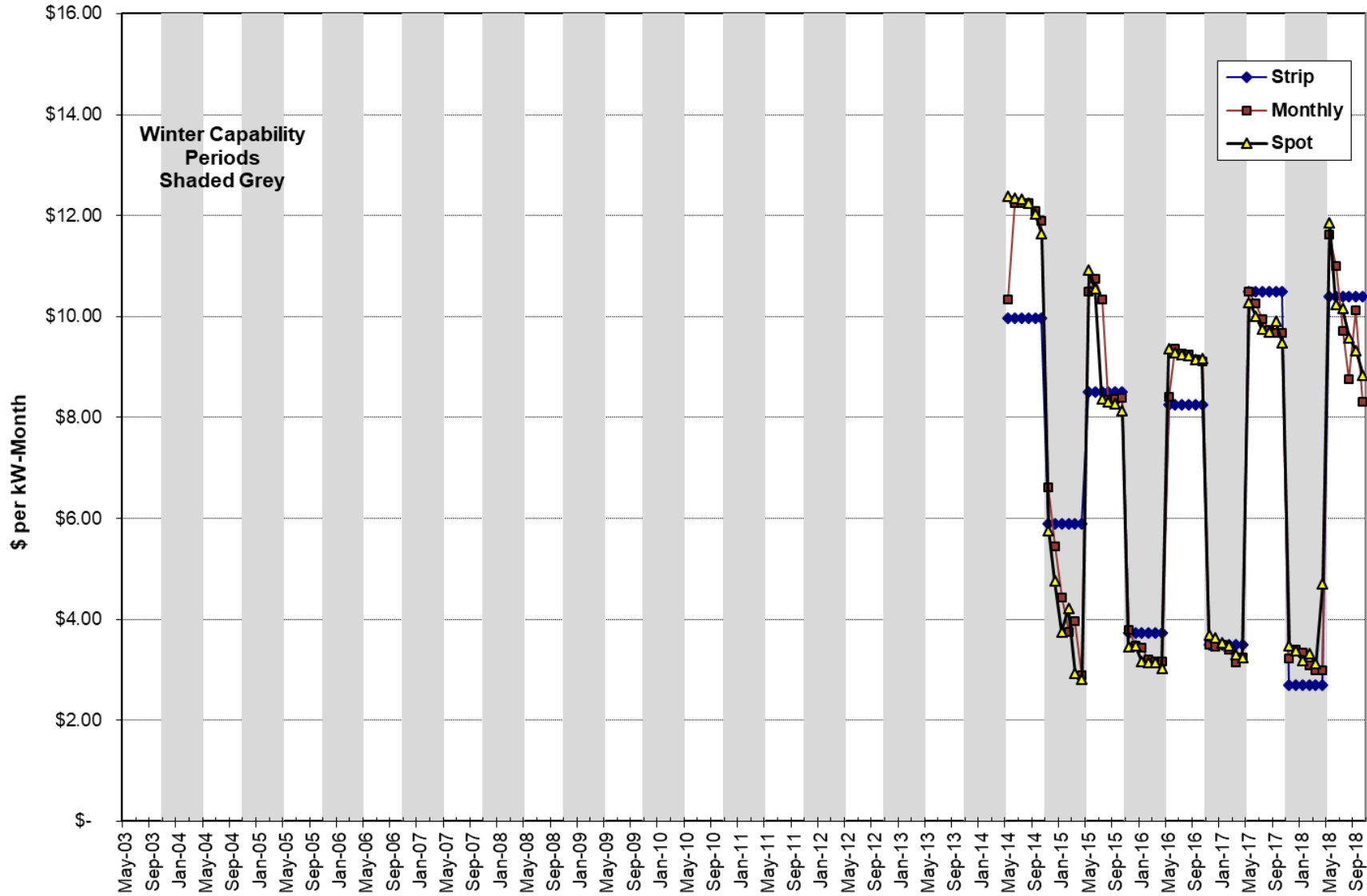


Chart 7: G-J Offered MW

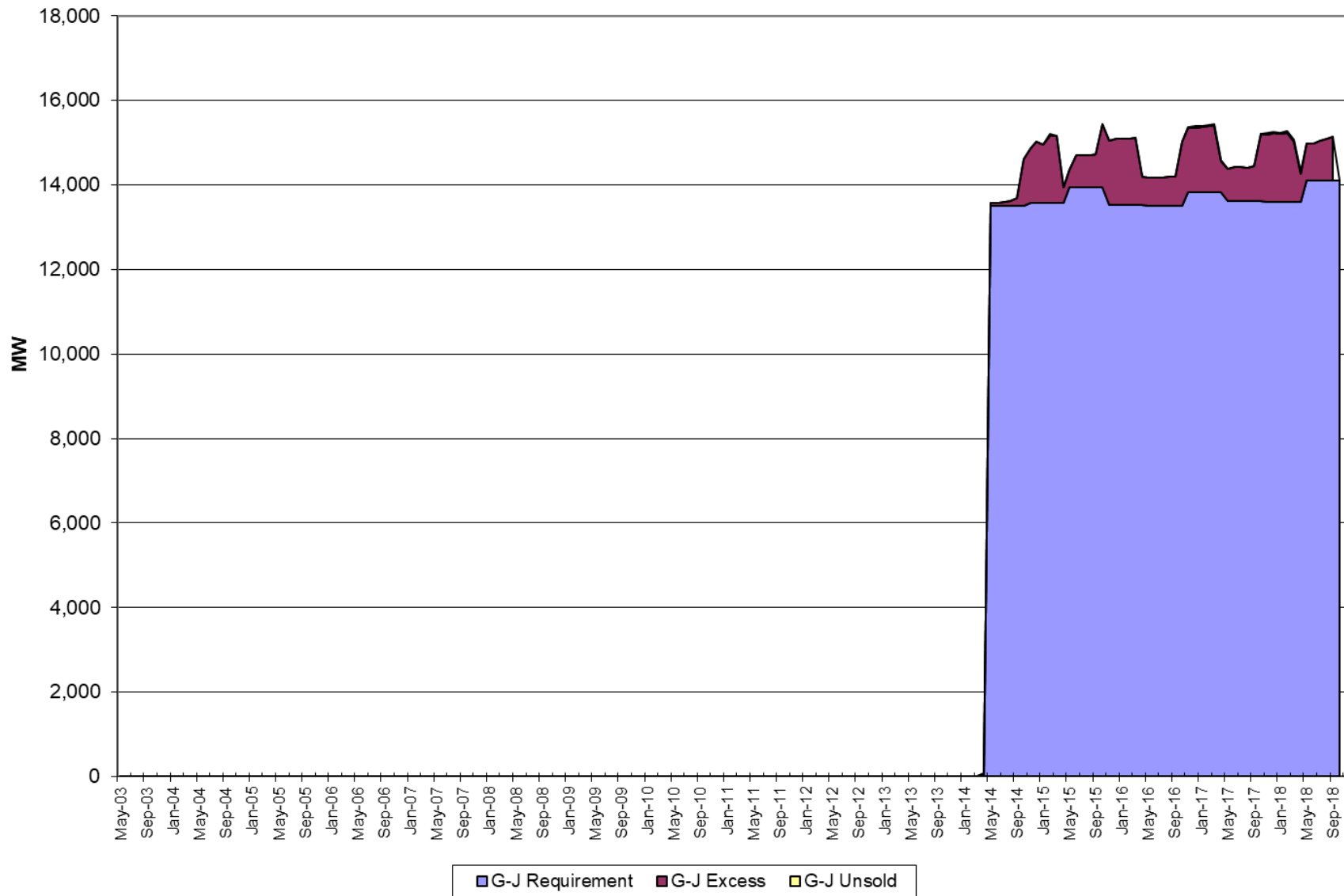


Chart 8: Long Island Market Clearing Price

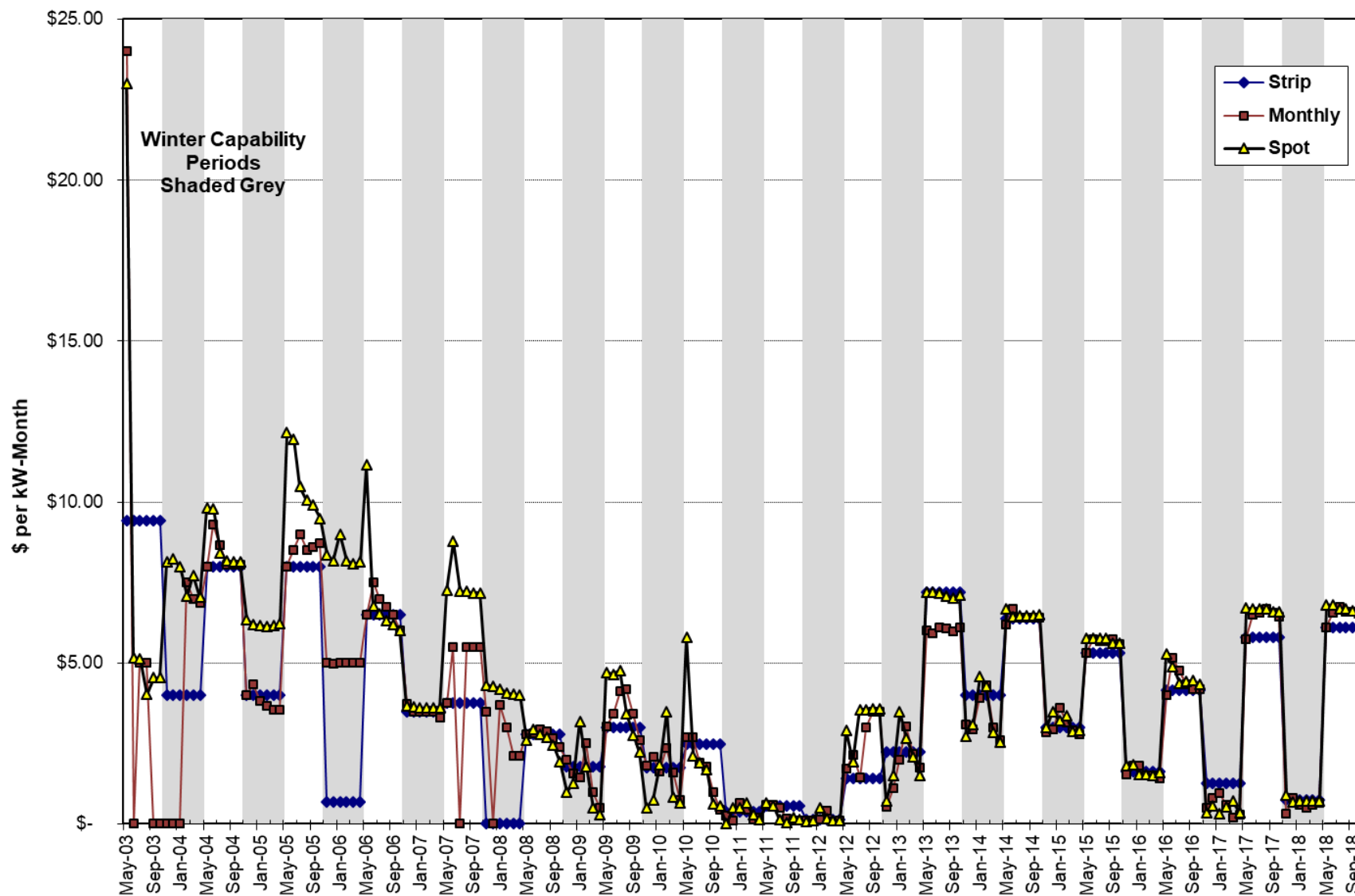


Chart 9: Long Island Offered MW

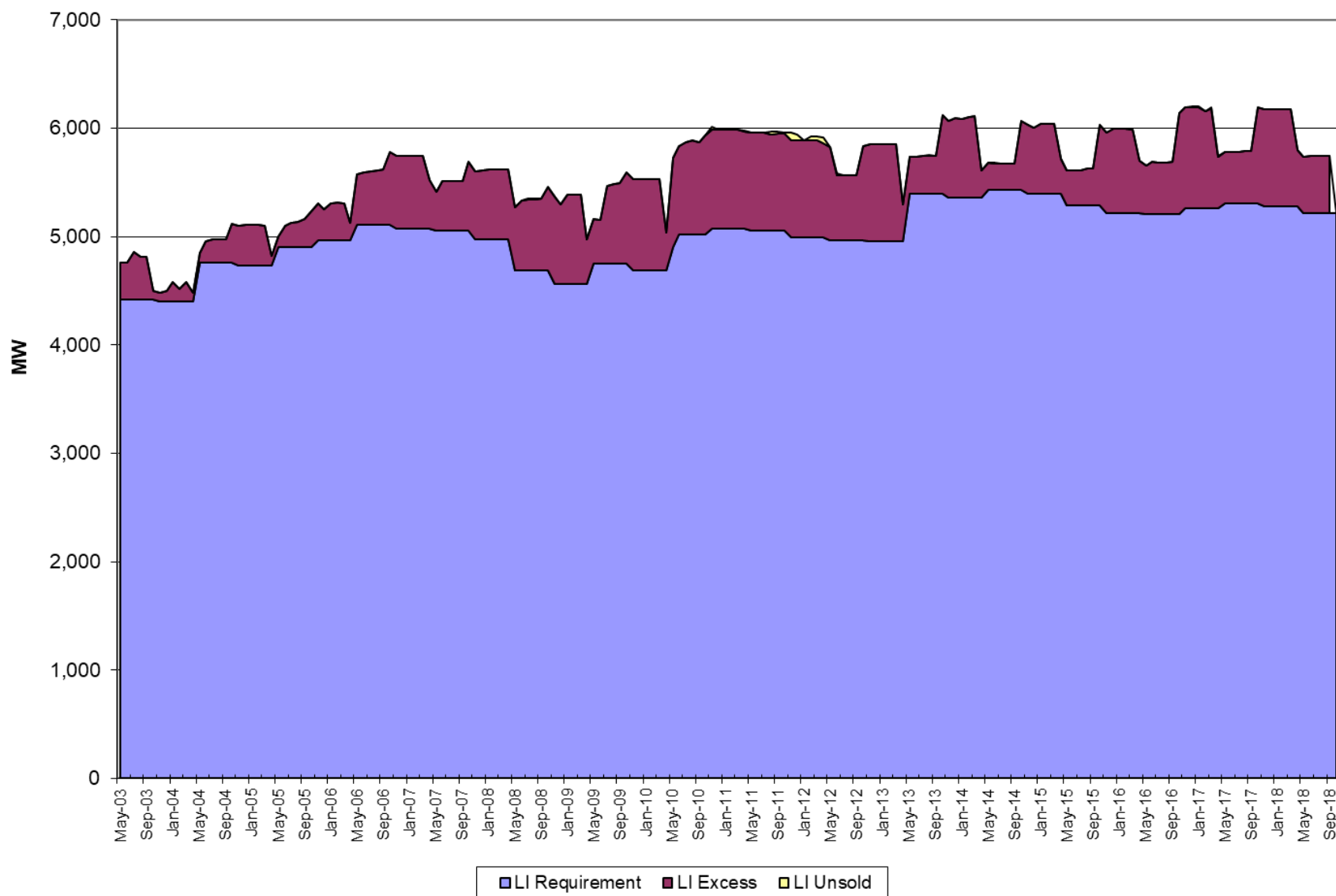


Table 1 summarizes the amount of generating capacity throughout the NYCA that has deactivated during Winter 2009/2010 through Summer 2018. Over this period, 62 generators (counted by PTID) accounted for 76 instances of generators (counted by PTID) entering or switching between a retired, laid-up, IIFO, or mothballed state. These instances sum to a total of 4,897.6 MW. Of the 62, five generators exited the market (*i.e.*, entered one of the preceding states) and reentered the market, then exited the market again; and eight generators exited the market one time then reentered and remain in the market. These 13 generators total 967.8 MW. A net of 3,929.8 MW exited the Capacity Market during this timeframe.

Table 1: List of Mothballed and Retired Units

Organization Name	Unit Name	Zone	MW ¹	Status ²	Period
AES Eastern Energy, LP	AES Westover Unit 7	C	43.5	R	Winter 2009-2010
AES Eastern Energy, LP	AES Greenidge Unit 3	C	52.8	R	Winter 2009-2010
AES Eastern Energy, LP	Greenidge 4	C	106.1	M	Winter 2010-2011
AES Eastern Energy, LP	Westover 8	C	83.8	M	Winter 2010-2011
AES ES Westover LLC	Westover LESR	C	0	R	Summer 2013
Astoria Generating Company, LP	Astoria 4	J	375.6	M	Winter 2011-2012
Astoria Generating Company, LP	Astoria 2	J	177	M	Winter 2011-2012
Astoria Generating Company, LP	Astoria 2	J	-177	RTS	Winter 2014-2015
Binghamton BOP, LLC	Binghamton Cogen Plant	C	43.8	R	Winter 2011-2012
Binghamton BOP, LLC	Binghamton Cogen Plant	C	-43.8	RTS	Winter 2014-2015
Binghamton BOP, LLC	Binghamton Cogen Plant	C	43.8	R	Winter 2017-2018
Cayuga Operating Company, LLC	Cayuga 2	C	154.7	IIFO	Summer 2018
Danskammer Energy, LLC	Danskammer 1	G	-67	RTS	Summer 2014
Danskammer Energy, LLC	Danskammer 2	G	-62.7	RTS	Summer 2014
Danskammer Energy, LLC	Danskammer 3	G	-137.2	RTS	Winter 2014-2015
Danskammer Energy, LLC	Danskammer 4	G	-236.2	RTS	Winter 2014-2015
Dynegy Danskammer, LLC	Danskammer 1	G	67	R ³	Winter 2012-2013
Dynegy Danskammer, LLC	Danskammer 2	G	62.7	R ³	Winter 2012-2013
Dynegy Danskammer, LLC	Danskammer 3	G	137.2	R ³	Winter 2012-2013
Dynegy Danskammer, LLC	Danskammer 4	G	236.2	R ³	Winter 2012-2013
Dynegy Danskammer, LLC	Danskammer 5	G	2.5	R	Winter 2012-2013
Dynegy Danskammer, LLC	Danskammer 6	G	2.5	R	Winter 2012-2013
Emera Energy U.S. Subsidiary No. 1, Inc.	Greenidge Unit #4	C	-106.1	RTS	Winter 2016-2017
Energy Systems North East LLC	Energy Systems NE	A	82	R	Winter 2010-2011
Erie Blvd. Hydro - Lower Hudson	Johnsonville 2	F	0	R	Summer 2010
Erie Blvd. Hydro - Lower Hudson	Johnsonville 2	F	0	RTS	Winter 2013-2014
Erie Blvd. Hydro - North Salmon	Hogansburg	D	0.3	R	Winter 2014-2015
Erie Blvd. Hydro - Seneca Oswego	Baldwinsville 2	C	0.2	R	Summer 2012
Erie Blvd. Hydro - Seneca Oswego	Baldwinsville 2	C	-0.2	RTS	Summer 2013
Erie Blvd. Hydro - Seneca Oswego	Fulton 1	C	0.7	R	Summer 2013
Erie Blvd. Hydro - Seneca Oswego	Fulton 2	C	0.3	R	Summer 2013

Organization Name	Unit Name	Zone	MW ¹	Status ²	Period
Freeport Electric Municipality	Freeport 1-1	K	0	R	Summer 2013
Helix Ravenswood, LLC	Ravenswood GT 2-1	J	40.4	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood GT 2-2	J	37.6	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood GT 2-3	J	39.2	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood GT 2-4	J	39.8	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood GT 3-1	J	40.5	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood GT 3-2	J	38.1	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood GT 3-4	J	35.8	IIFO	Winter 2017-2018
Helix Ravenswood, LLC	Ravenswood 09	J	21.7	IIFO	Winter 2017-2018
Innovative Energy Systems, Inc.	Auburn LFG	C	0	IIFO	Summer 2016
Innovative Energy Systems, Inc.	Auburn LFG	C	0	IIFO to R	Winter 2016-2017
Lyonsdale Biomass, LLC	Lyonsdale	E	20.2	IIFO	Winter 2017-2018
National Grid Generation LLC	Far Rockaway ST 04	K	110.6	R	Summer 2012
National Grid Generation LLC	Glenwood ST 04	K	118.7	R	Summer 2012
National Grid Generation LLC	Glenwood ST 05	K	122	R	Summer 2012
National Grid Generation LLC	Barrett 07	K	17.3	R	Summer 2011
National Grid Generation LLC	Montauk 02	K	2	R	Summer 2013
National Grid Generation LLC	Montauk 03	K	2	R	Summer 2013
National Grid Generation LLC	Montauk 04	K	2	R	Summer 2013
New York Power Authority	Poletti 1	J	891	R	Winter 2009-2010
New York Power Authority	Kensico 1	I	1	R	Summer 2012
New York Power Authority	Kensico 2	I	1	R	Summer 2012
New York Power Authority	Kensico 3	I	1	R	Summer 2012
Niagara Generation, LLC	Niagara Bio-Gen	A	50.5	M	Summer 2013
Niagara Generation, LLC	Niagara Bio-Gen	A	-50.5	RTS	Winter 2013-2014
Niagara Power Marketing, LLC	Niagara Bio-Gen	A	50.5	IIFO	Winter 2015-2016
NRG Energy, Inc. (Dunkirk Power LLC)	Dunkirk 1	A	96.2	M	Summer 2013
NRG Energy, Inc. (Dunkirk Power LLC)	Dunkirk 3	A	201.4	M	Summer 2012
NRG Energy, Inc. (Dunkirk Power LLC)	Dunkirk 4	A	199.1	M	Summer 2012
NRG Power Marketing, LLC	Huntley 67	A	196.5	R	Winter 2015-2016
NRG Power Marketing, LLC	Huntley 68	A	198	R	Winter 2015-2016
NRG Power Marketing, LLC	Dunkirk 2	A	97.2	MO	Winter 2015-2016
NRG Power Marketing, LLC	Astoria GT 05	J	16	IIFO	Winter 2015-2016
NRG Power Marketing, LLC	Astoria GT 07	J	15.5	IIFO	Winter 2015-2016
NRG Power Marketing, LLC	Astoria GT 08	J	15.3	M	Summer 2016
NRG Power Marketing, LLC	Astoria GT 10	J	24.9	M	Summer 2012
NRG Power Marketing, LLC	Astoria GT 10	J	-24.9	RTS	Summer 2013
NRG Power Marketing, LLC	Astoria GT 10	J	24.9	M	Summer 2016
NRG Power Marketing, LLC	Astoria GT 11	J	23.6	M	Summer 2012

Organization Name	Unit Name	Zone	MW ¹	Status ²	Period
NRG Power Marketing, LLC	Astoria GT 11	J	-23.6	RTS	Summer 2013
NRG Power Marketing, LLC	Astoria GT 11	J	23.6	M	Summer 2016
NRG Power Marketing, LLC	Astoria GT 12	J	22.7	IIFO	Winter 2015-2016
NRG Power Marketing, LLC	Astoria GT 13	J	24	IIFO	Winter 2015-2016
Project Orange Associates	Project Orange 2	C	44	R	Winter 2010-2011
Project Orange Associates	Project Orange 1	C	43.6	R	Winter 2010-2011
ReEnergy Chateaugay LLC	Chateaugay Power	D	18.6	M	Summer 2013
ReEnergy Chateaugay LLC	Chateaugay Power	D	18.6	M to R	Summer 2016
Rochester Gas & Electric	Station 9	B	15.8	R	Winter 2013-2014
Rochester Gas & Electric Corp.	Beebee GT	B	15	R	Winter 2011-2012
Syracuse Energy Corporation	Syracuse Energy ST1	C	11	R	Summer 2013
Syracuse Energy Corporation	Syracuse Energy ST2	C	58.9	R	Summer 2013
TC Ravenswood, LLC	Ravenswood 3-3	J	37.7	M	Summer 2014
TC Ravenswood, LLC	Ravenswood 3-4	J	35.8	M	Summer 2011
TC Ravenswood, LLC	Ravenswood 3-4	J	-38.6	RTS	Summer 2014
TC Ravenswood, LLC	Ravenswood 04	J	15.2	MO	Summer 2016
TC Ravenswood, LLC	Ravenswood 06	J	16.7	MO	Summer 2016
TC Ravenswood, LLC	Ravenswood 05	J	15.7	MO	Summer 2016
TC Ravenswood, LLC	Ravenswood 07	J	16.5	M	Winter 2013-2014

Notes to Table 1:

Note 1: The capacity values listed are the CRIS MW values stated in the NYISO's Load and Capacity Data Report (referred to as the "Gold Book").

Note 2: "IIFO" means ICAP Ineligible Forced Outage, "R" indicates "retired" (including "Retired,") "M" indicates "mothballed", MO means "Mothball Outage", and "RTS" indicates returned to service after being M, MO, or R. "RTS" Changes in status of generators that were IIFO and subsequently changed their status are indicated on this table. Services Tariff provisions defining the terms ICAP Ineligible Force Outage, Mothball, and Retire apply to outages pursuant to the rules effective May 1, 2015.

Note 3: Helios Power Capital, LLC, et al., Joint Petition for Expedited Approval for the Lease, Sale and Operation of the Danskammer Generating Facility Under Lightened Regulation and for Related Relief, PSC Case No. 14-E-0117 (Jun. 27, 2014).

I.4. Capacity Withholding Analysis

I.4.1. All Capacity Areas in the NYCA

This section of the report addresses potential withholding issues in the NYISO-administered capacity auctions for all four capacity areas during the period of November 2017 to October 2018: ROS, NYC, the G-J Locality, and LI. For purposes of this report, in order to identify whether any potential withholding occurred, the NYISO analyzed the differences between available capacity⁹ and the supply committed through self-supply, bilateral transactions, and the NYISO-administered auctions. In particular, the NYISO examined:

- The NYCA capacity that was available to be offered into the ICAP Spot Market Auctions, but was not offered (“unoffered capacity”),
- Available NYCA capacity that was offered into the ICAP Spot Market Auctions but was not sold (“unsold capacity”),
- Unoffered capacity as a percentage of available capacity, and
- Unsold capacity as a percentage of offered capacity.

When capacity is available but not offered, it is an indication that physical withholding may have occurred. Similarly, if available capacity is offered at a price that causes it to not clear, it is an indication of possible economic withholding. The amounts of unoffered and unsold capacity are determined from the ICAP Spot Market Auction results because this auction is the last opportunity for an Installed Capacity Supplier to sell its available capacity. The existence of unoffered and unsold capacity, however, does not necessarily imply the intent to manipulate market prices.

As reflected in the NYISO’s previous reports on the Installed Capacity Demand Curves, patterns of unsold capacity have varied across the three Localities and the NYCA. For the entire NYCA, there generally has been more unsold capacity in Winter months than Summer months, due in part to lower prices in the Winter months. The seasonal monthly average of unsold MW for the Winter 2017-2018 Capability Period for the entire NYCA was 276 MW compared 227 MW in the Winter 2016-2017 Capability Period. The seasonal monthly average amount of unsold MW for the Summer 2018 Capability Period for the entire NYCA was zero MW, while it was also zero MW in the Summer 2017 Capability Period.

In Long Island, there was a monthly average of 0.02 MW of unsold capacity in the Winter 2017-2018 Capability Period, compared to 4 MW in the Winter 2016-2017 Capability Period; and zero MW in the Summer 2018 Capability Period compared to also zero MW in the Summer 2017 Capability Period.

In NYC, the seasonal monthly average amount of unsold MW for the Winter 2017-2018 was 43 MW, compared to 51 MW for Winter 2016-2017 Capability Period. For the Summer 2017 and 2018 Capability Periods the seasonal monthly average is zero MW.

⁹ Available capacity is defined as the lesser of the NYISO-accepted DMNC and the Capacity Resource Interconnection Service (“CRIS”) MW value, with the Equivalent Demand Forced Outage Rates (“EFORd”) reduction applied.

In the G-J Locality there was no unsold capacity in Summer 2017 or 2018. In Winter 2016-2017 the monthly average of unsold capacity was 31 MW and in Winter 2017-2018 the monthly average was 38 MW.

There are three types of capacity auctions in each Capability Period: a Capability Period Auction (also referred to as the “strip auction”), six Monthly Auctions, and six ICAP Spot Market Auctions. Available capacity may be offered into any or all of the auctions. There are three distinct minimum ICAP requirements: one each for the NYC, G-J, and LI Localities, as well as one for the NYCA as a whole. LSEs with Load in NYC, G-J, or LI Localities are required to procure minimum levels of capacity that is electrically located within the respective Locality – the “LCRs” in terms of Unforced Capacity, *i.e.*, the Locational Minimum Unforced Capacity Requirement. Such capacity is also credited toward each NYC, LI, and G-J LSE’s overall NYCA obligation. The NYISO establishes the NYCA Minimum Installed Capacity Requirement and the LCRs annually.

The Services Tariff does not require Installed Capacity Suppliers to offer UCAP into the ICAP markets except for certain suppliers in Mitigated Capacity Zones (*i.e.*, NYC and the G-J Locality). Until the implementation of the ICAP market power mitigation measures set forth in Attachment H of the Services Tariff, which were effectuated in May 2008, the majority of capacity in NYC – that of the “Divested Generation Owners” – had been subject to Commission-approved ICAP mitigation measures that imposed bid caps and required the units’ capacity to be offered into the ICAP auctions. The Commission’s March 7, 2008 Order¹⁰ removed the requirements unique to the Divested Generation Owners and approved mitigation measures applicable to all In-City capacity. The March 7, 2008 Order effectuated new In-City mitigation measures, based on Pivotal Supplier determinations combined with offering conduct and price impact thresholds, to determine whether market power had been exercised. ICAP market power mitigation measures became effective for the G-J Locality concurrent with its implementation. These measures for NYC and G-J Locality are set forth in Section 23.4.5 (Attachment H) of the Services Tariff (as revised over time, “Supply-side Mitigation Measures”).

In developing the information for this report, the NYISO examined auction outcomes of the Capability Periods from Summer 2007, which began May 1, 2007, through Summer 2018, which ended October 31, 2018. Since the capacity product transacted in the NYISO-administered ICAP auctions is UCAP, the following information was examined:

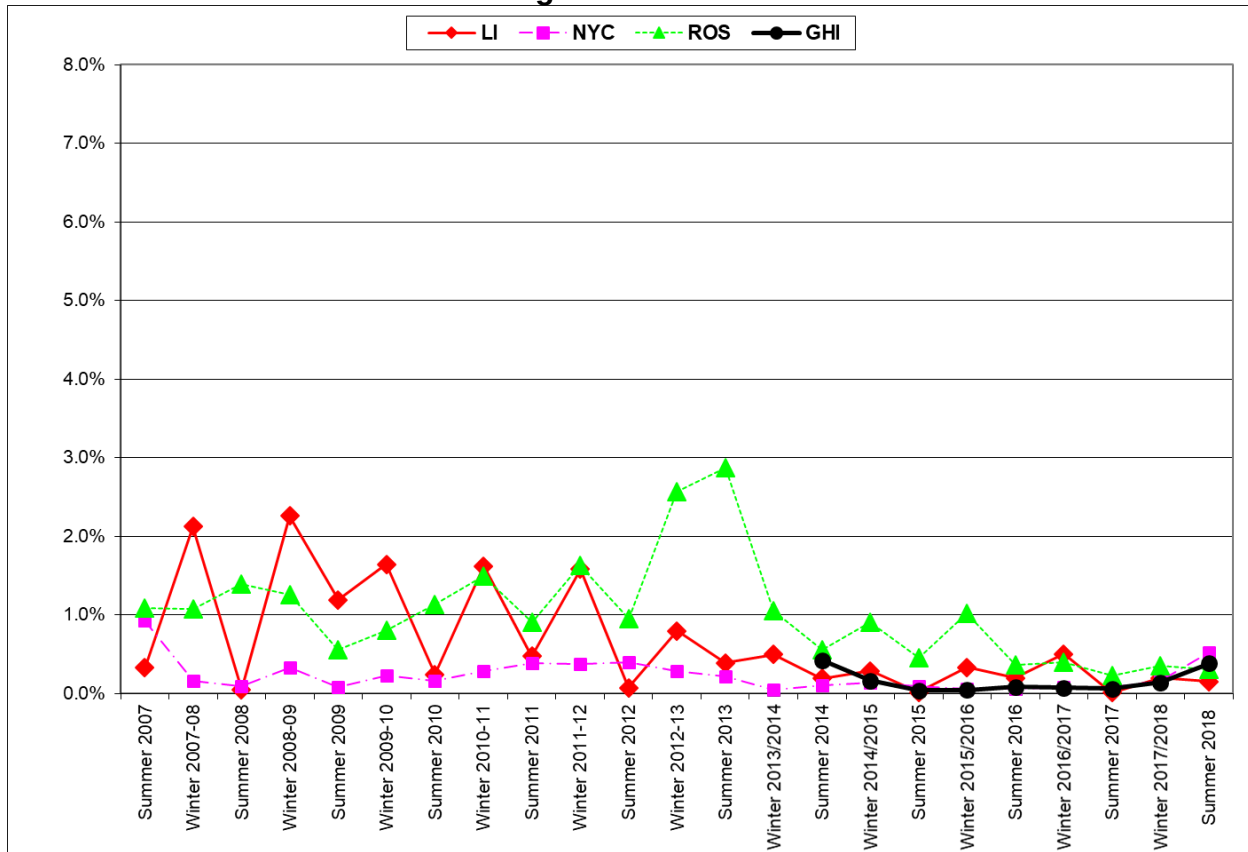
- Certification data, reflecting all certified MW of UCAP electrically located in New York available to supply capacity to the NYCA.
- The amount of UCAP supplied, which includes UCAP sold in any of the NYISO ICAP auctions, UCAP certified as self-supplied against an LSE’s Unforced Capacity obligation, and UCAP committed through bilateral transactions. This includes external capacity that was supplied in any of the foregoing manners.

I.4.2. Unoffered and Unsold Capacity

Chart 10 presents seasonal averages of unoffered capacity as a percentage of available Capacity for each of the four capacity areas.

¹⁰ See *New York Independent System Operator, Inc.*, Docket No. EL07-39-000, Order Conditionally Approving Proposal, 122 FERC ¶ 61,211 (2008).

Chart 10: Average Percent of Unoffered MW



The LI Locality has fairly consistent seasonal fluctuations in the amounts of unoffered capacity, which can be seen in Chart 10. The LI Locality is characterized by procurement chiefly through bilateral transactions and self-supply. The amount of unoffered capacity in the LI Locality fluctuates between 0.01% and 2.3%. A portion of that unoffered capacity is not actually available due, in some instances, to site permit restrictions. Another portion arises from purchases due to bidders for NYCA capacity (*i.e.*, not requiring capacity located in Long Island) in the Capability Period and Monthly Auctions.¹¹ The NYISO has observed that these NYCA bidders that were awarded LI capacity sometimes fail to offer the Long Island capacity in the ICAP Spot Market Auction.

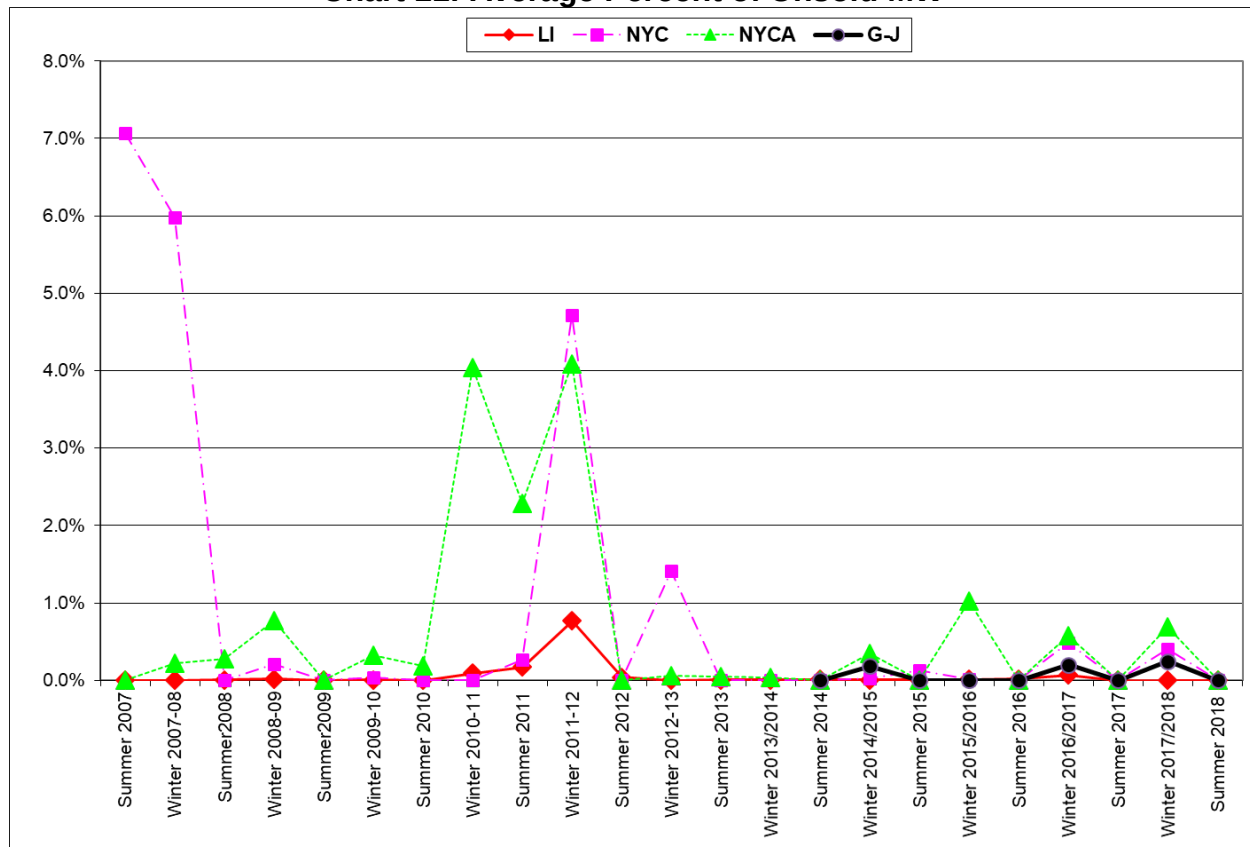
In the NYC Locality, prior to the Summer 2008 Capability Period, the low level of unoffered capacity was principally due to the offer requirement applicable to the Divested Generation Owners. Beginning with the Summer 2008 Capability Period, the near absence of unoffered capacity can be attributed to the Supply-side Mitigation Measures effectuated in 2008.

The G-J Locality became effective beginning in May 2014. Initially, the level of unoffered capacity was at the level of that in ROS, but fell to near zero.

¹¹ When the Market-Clearing Price in these auctions is the same for NYCA and Long Island capacity, offers of capacity located in the Long Island Locality is used to meet NYCA bids.

In ROS the unoffered MW for the Winter 2017-2018 and Summer 2018 Capability Periods was consistently below 0.5%.¹² Chart 11 displays unsold capacity as a percent of available UCAP in each of the four capacity areas, which has been below 1% for the past nine Capability Periods.¹³

Chart 11: Average Percent of Unsold MW



For all Capability Periods beginning with the Summer 2007 Capability Period, nearly all Long Island offered capacity was sold, except for Winter 2011-2012. In NYC, the average amount of unsold capacity as a percentage of available capacity trended at near zero levels from the start of the Summer 2008 Capability Period, except for the Winter 2011-2012, and Winter 2012-2013 Capability Periods when some offered capacity did not clear because it was offered at a price greater than the UCAP Offer Reference Level. The UCAP Offer Reference Level is the price at which the ICAP Spot Market Auction would clear if all available capacity in a Mitigated Capacity Zone was offered and sold in the ICAP Spot Market Auction. For the Winter 2017-2018 and Summer 2018 Capability Periods, NYC and G-J Locality had less than 0.5% unsold capacity. The increase in unsold capacity in the G-J Locality from the prior Capability Year is due in part to offers from particular resources that cleared in prior years but did not clear in Winter 2017-2018.

¹² As noted in n. 1, the definition of Rest of State prior to the Summer 2014 Capability Period was Load Zones A through I, and beginning with the Summer 2014 Capability Period is Load Zones A through F.

¹³ Section I.4.4.3 of this report provides information and analysis of the unsold capacity in ROS.

The NYCA Minimum Installed Capacity Requirement and LCRs minimally increased for each capacity area except for LI since last Capability Year. Table 2 summarizes these values for NYC, G-J, LI, and the NYCA over the past 12 years.

Table 2: Minimum Installed Capacity Requirements (%)¹⁴

Capability Year	NYC	G-J	LI	NYCA
2007/2008	80	-	99	116.5
2008/2009	80	-	94	115
2009/2010	80	-	97.5	116.5
2010/2011 (May)	80	-	102	118
2010/2011 (June-April)	80	-	104.5	118
2011/2012	81	-	101.5	115.5
2012/2013	83	-	99	116
2013/2014	86	-	105	117
2014/2015	85	88	107	117
2015/2016	83.5	90.5	103.5	117
2016/2017	80.5	90	102.5	117.5
2017/2018	81.5	91.5	103.5	118
2018/2019	80.5	94.5	103.5	118.2

Table 3 displays the breakdown of unsold capacity for each Locality and NYCA. These unsold MW were not cleared in the Spot Market Auction. As part of the NYISO's August 24, 2010 ICAP compliance filing,¹⁵ the NYISO stated that it would include unoffered and unsold capacity in the NYC Locality in its annual Installed Capacity Demand Curves reports. Table 3 also displays the unoffered capacity values for MW that came from NYC, GHI, LI, and ROS to give a full representation of the data that underlies this report.

Beginning with November 2017, the amount of unoffered MW remained low in NYC, LI, and G-J Locality, totaling 198 MW in the Winter 2017-2018 and 401 MW in the Summer 2018, compared to 256 MW in Winter 2016-2017 and 57 MW in Summer 2017.

The total amount of unsold MW in NYC, G-J and LI was 487 MW in the Winter 2017/2018, compared to 518 MW in Winter 2016-2017, and zero MW in both Summer 2018 and Summer 2017.

Section I.4.4.2 discusses explanations provided by Market Participants for unoffered MW in ROS in Winter 2017-2018. There were no offered and unsold MW in NYCA in the Summer

¹⁴ The New York State Reliability Council issues an annual IRM Study Report, which presents a base case calculating the lowest feasible amount of capacity for the NYCA in conformance with the resource adequacy criterion. Each report includes a comparison of the IRM and LCR values to the previous year along with an explanation of each parameter that contributed to the changes. The NYISO determines the actual LCRs for each Locality taking into consideration changes that have occurred since the Reliability Council approved the IRM Study Report. The 2016 IRM Study Report covering the period of May 2017 through April 2018 is available at: http://www.nysrc.org/NYSRC_NYCA_ICR_Reports.html.

¹⁵ See *New York Independent System Operator, Inc.*, Resubmittal of August 24, 2010 Filing, Docket Nos. ER10-2210-000, EL07-39-000, and ER08-695-0004 at p. 16.

2018. Section I.4.4.3 presents the Market Participant explanations for and an analysis of unsold MW in ROS in the Winter 2017-2018.

Table 3: Unoffered and Unsold MW

Month	Unoffered				Unsold			
	NYC	GHI	LI	ROS	NYC	G-J	LI	NYCA
Nov-17	21.3	4.0	18.4	94.9	42.9	37.8	0.0	520.2
Dec-17	18.5	3.9	10.9	83.5	45.2	37.8	0.1	452.8
Jan-18	0.1	4.1	10.9	110.1	42.2	37.8	0.0	466.5
Feb-18	21.6	3.9	11.4	136.0	42.4	37.8	0.0	69.0
Mar-18	26.1	0.0	10.9	87.4	49.2	37.8	0.0	81.1
Apr-18	16.3	5.2	10.9	126.3	37.8	37.8	0.0	69.2
May-18	9.4	0.0	0.0	33.0	0.0	0.0	0.0	0.0
Jun-18	53.4	0.0	16.0	43.5	0.0	0.0	0.0	0.0
Jul-18	47.5	0.0	9.0	18.1	0.0	0.0	0.0	0.0
Aug-18	59.1	27.8	9.0	86.3	0.0	0.0	0.0	0.0
Sep-18	57.2	0.0	9.0	61.9	0.0	0.0	0.0	0.0
Oct-18	74.3	19.4	9.4	53.4	0.0	0.0	0.0	0.0

I.4.3. New York City and G-J Localities

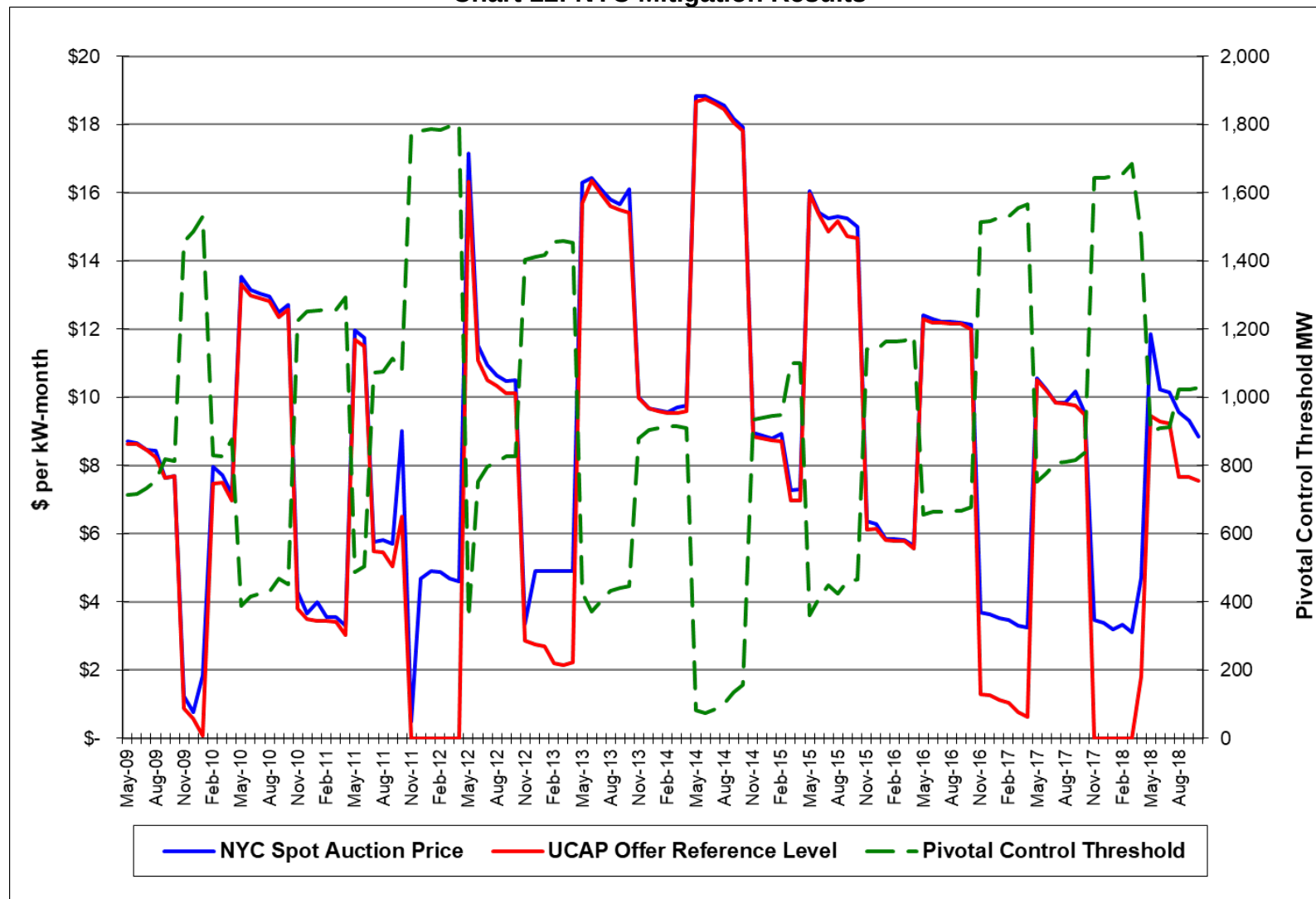
To administer the Supply-side Mitigation Measures, the NYISO identifies Pivotal Suppliers by examining the NYC UCAP and G-J Locality UCAP that each ICAP Supplier, along with its Affiliated Entities, Controls in excess of the pivotal control threshold.¹⁶ The UCAP under the Control of Pivotal Suppliers (“Mitigated UCAP”) must be offered into the ICAP Spot Market Auction at a price at or below the lesser of the UCAP Offer Reference Level or the ICAP Supplier’s Going-Forward Costs determined by the NYISO (“GFCs”). Chart 12 and Chart 14 illustrate the effects of the Supply-side Mitigation Measures. The UCAP Offer Reference Level, as shown in these Charts, becomes the price cap that the Pivotal Supplier must offer at or below in the ICAP Spot Market Auction, unless the Pivotal Supplier’s GFCs are higher.

The level of unoffered and unsold MW can be inferred from Chart 12 and Chart 14 by comparing the Locality Spot Market Auction price to the UCAP Offer Reference Level, while Chart 13 and Chart 15 depict the levels of available generator and SCR UCAP in the Locality. The difference between the ICAP Spot Market Auction clearing price and UCAP Offer Reference Level can be attributed to Locality capacity that is either not offered or is offered at a price above the UCAP Offer Reference Level. Note that the Locality Spot Market Auction price will diverge from the UCAP Offer Reference Level when the NYCA ICAP Spot Market Auction sets the Locality ICAP Spot Market Auction price.¹⁷ This divergence is the result of the auction rules, and is not caused by unoffered or unsold Locality Capacity.

¹⁶ See Market Services Tariff Sections 23.2.1 and 23.4.5.

¹⁷ In the 2015/2016 Capability Year, the NYCA ICAP price set the Long Island ICAP price in May 2016 and June 2016.

Chart 12: NYC Mitigation Results¹⁸



¹⁸ Per Services Tariff Section 23.2, a "Pivotal Supplier" in NYC needs to control at least 500 MW of Unforced Capacity, and a specified portion of the capacity necessary to meet the NYC LCR in an ICAP Spot Market Auction.

Chart 13: NYC Generator and SCR UCAP

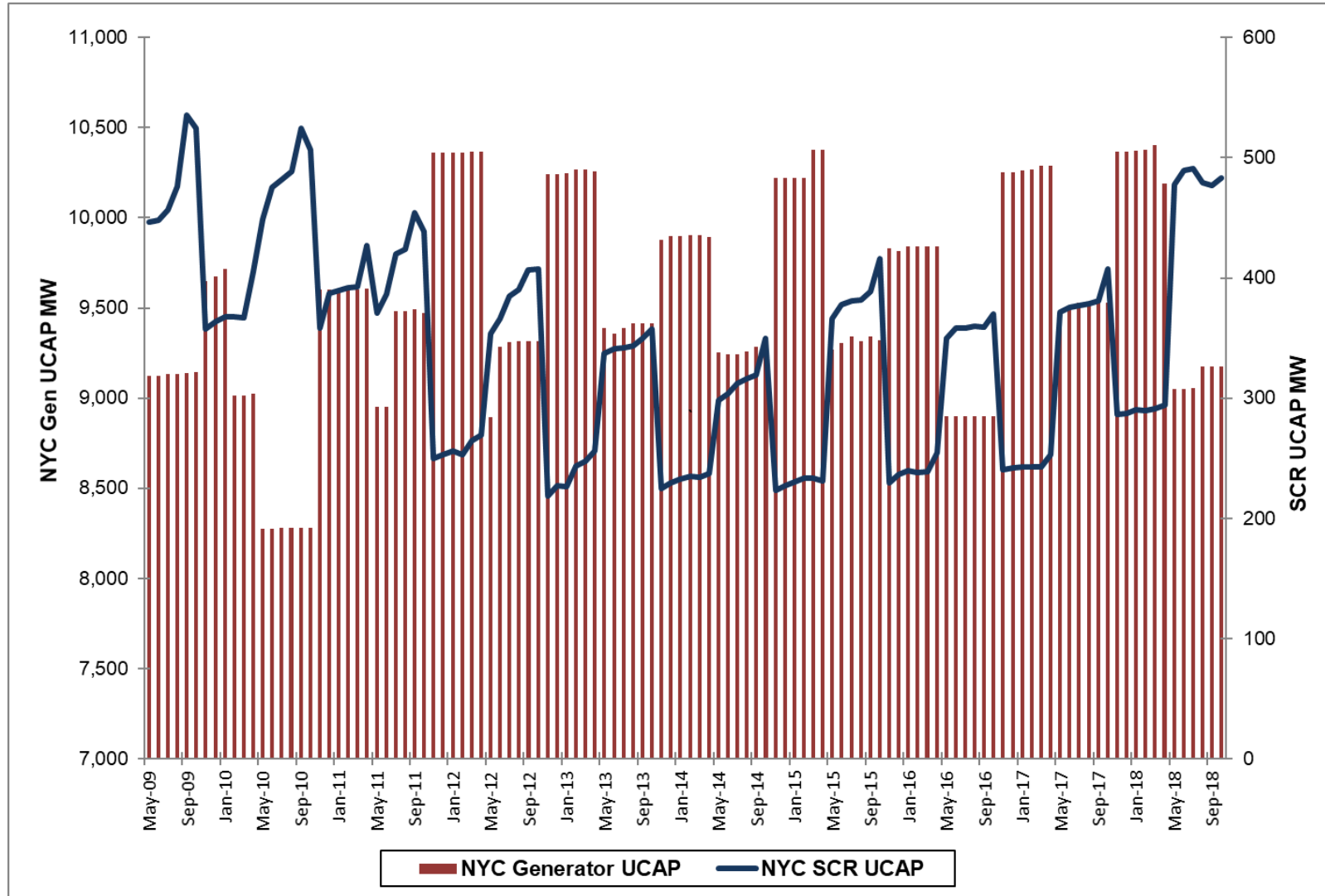
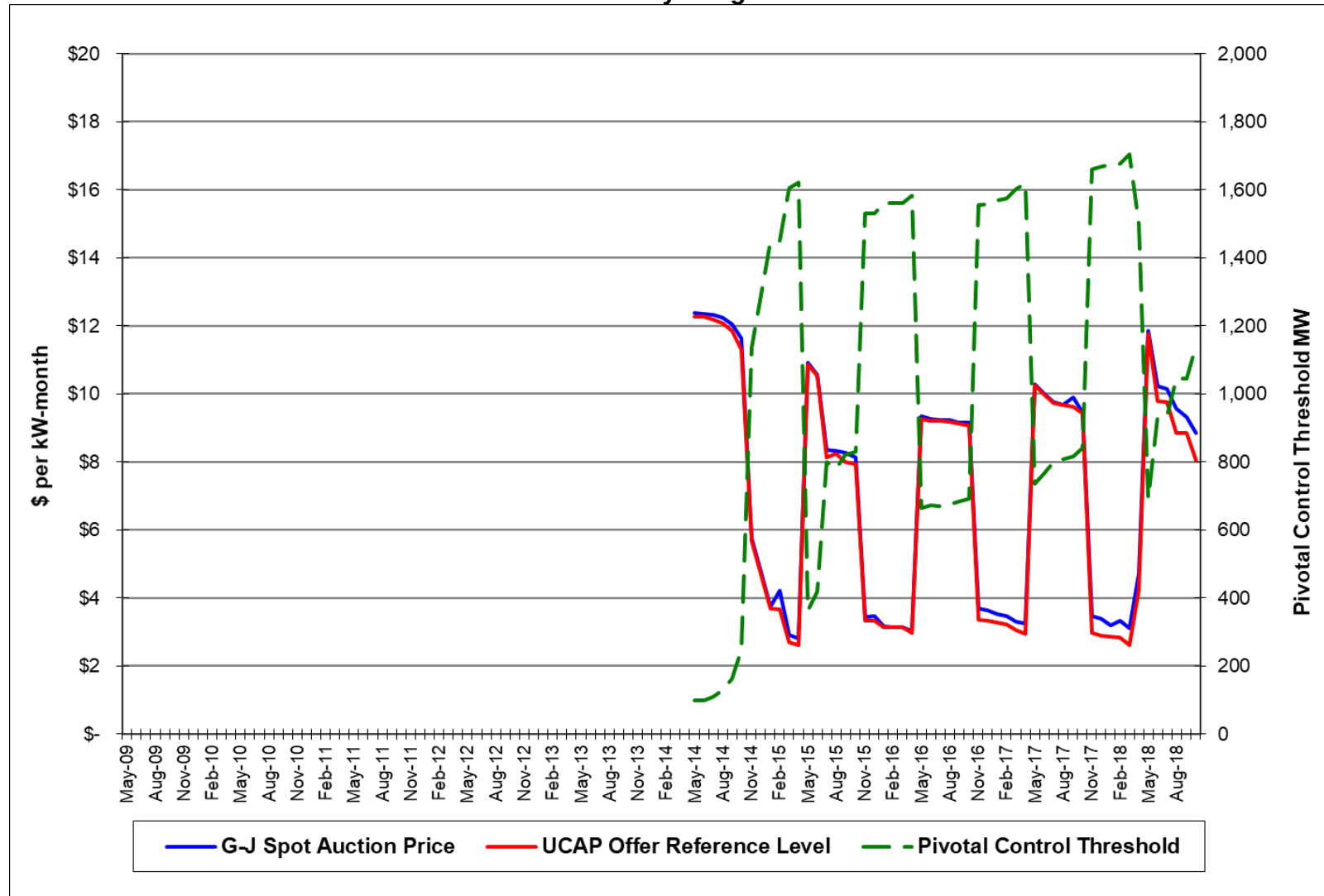
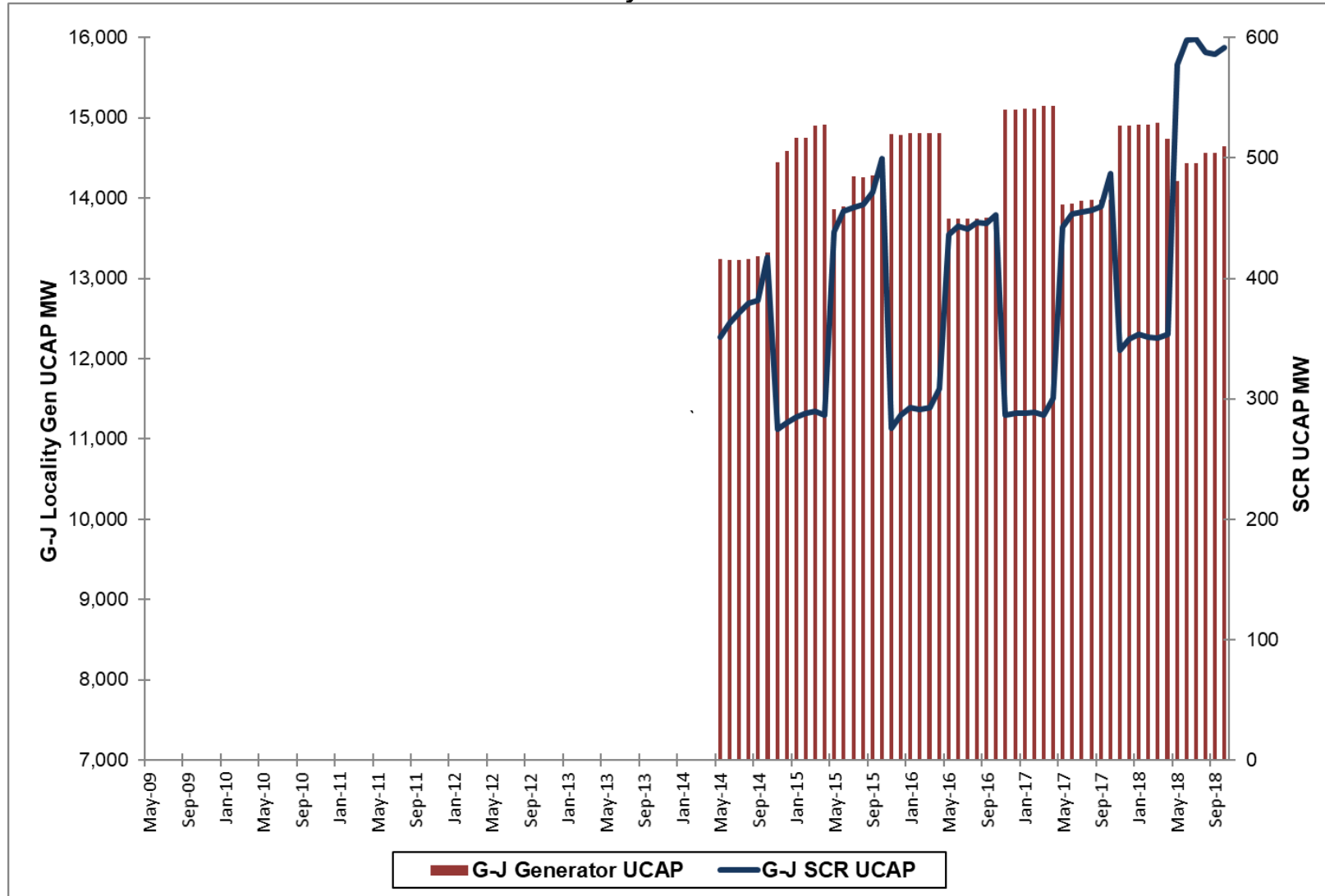


Chart 14: G-J Locality Mitigation Results¹⁹



¹⁹ Per Services Tariff Section 23.2, a "Pivotal Supplier" in the G-J Locality needs to control at least 650 MW of Unforced Capacity, and a specified portion of the capacity necessary to meet the G-J Locality LCR in an ICAP Spot Market Auction.

Chart 15: G-J Locality Generator and SCR UCAP



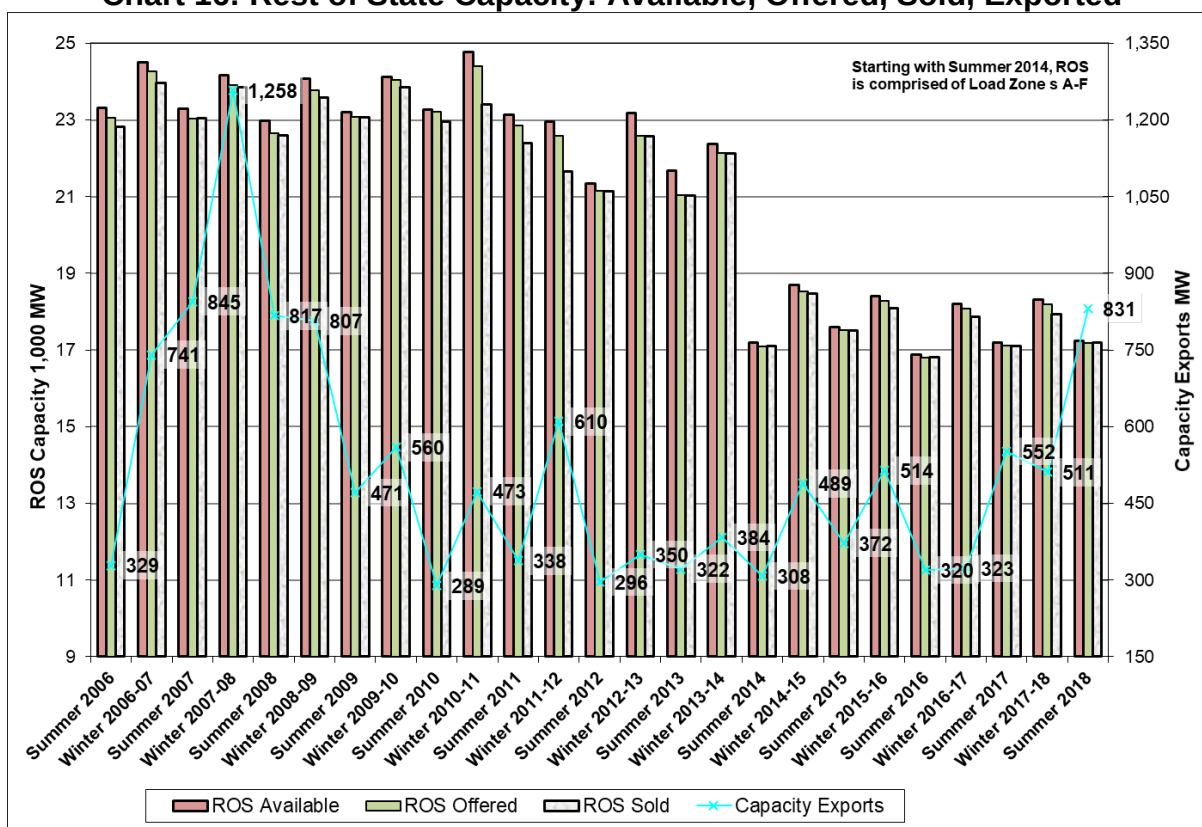
I.4.4. Rest of State

I.4.4.1. Overview

This section of the report addresses possible withholding of Capacity located in the Rest of State²⁰ from November 2017 through October 2018. For this review, the NYISO conducted a detailed analysis of unoffered and unsold capacity. This section of the report pertains primarily to the NYCA but also contains some explanations for unoffered capacity in NYC, the G-J Locality, and Long Island.

Chart 16 shows the monthly average values over each Capability Period for four ROS capacity types: available, offered, sold, and exported MW.

Chart 16: Rest of State Capacity: Available, Offered, Sold, Exported



Examination of Rest of State capacity data pertaining to individual Market Participants revealed general patterns in unsold and unoffered capacity. The patterns suggest a three-way classification of suppliers by market sector: all generation-owning transmission owners, ROS generation owners, and other suppliers (a category which includes SCRs.) Table 4 of this December 2018 Report summarizes the monthly averages of unoffered and unsold capacity for each Capability Period since Summer 2008.

²⁰ Prior to the Summer 2014 Capability Period, ROS consisted of transmission zones A through I; starting May 2014, ROS is defined as transmission zones A through F.

Table 4: ROS Unoffered and Offered but Unsold Capacity MW by Type of MP

ROS Monthly Average Unoffered Capacity MW by Type of MP							
	GenCo	% of GenCo	Other	% Other	TO	% TO	Capability Period Monthly Average
Summer 2008	114.2	32.74%	30.3	8.69%	204.4	58.57%	348.9
Summer 2009	49.2	41.06%	1.4	1.18%	69.3	57.76%	119.9
Summer 2010	98.1	37.13%	7.9	2.98%	158.2	59.90%	264.2
Summer 2011	54.1	25.80%	76.7	36.56%	79.0	37.64%	209.8
Summer 2012	60.1	29.48%	75.3	36.96%	68.4	33.56%	203.8
Summer 2013	486.6	78.28%	64.2	10.33%	70.8	11.39%	621.5
Summer 2014	58.9	62.03%	24.2	25.52%	11.8	12.45%	95.0
Summer 2015	21.3	26.97%	30.7	38.98%	26.9	34.05%	78.9
Summer 2016	6.6	10.78%	15.9	25.85%	38.8	63.26%	61.4
Summer 2017	45.2	59.75%	18.4	24.39%	12.0	15.86%	75.6
Summer 2018	21.0	42.54%	13.2	26.77%	12.9	26.13%	49.4

ROS Monthly Average Unoffered Capacity MW by Type of MP							
	GenCo	% of GenCo	Other	% Other	TO	% TO	Capability Period Monthly Average
Winter 2008-2009	236.8	78.54%	0.6	0.19%	64.1	21.27%	301.5
Winter 2009-2010	93.3	48.14%	9.5	4.88%	91.0	46.98%	193.7
Winter 2010-2011	212.6	57.39%	30.4	8.19%	127.5	34.41%	370.4
Winter 2011-2012	138.5	36.98%	93.7	25.00%	142.4	38.02%	374.6
Winter 2012-2013	437.3	73.43%	21.0	3.52%	137.3	23.05%	595.5
Winter 2013-2014	118.2	50.12%	54.1	22.94%	63.6	26.94%	235.9
Winter 2014-2015	70.6	41.63%	47.0	27.72%	52.0	30.65%	169.6
Winter 2015-2016	82.6	57.89%	6.8	4.76%	51.0	35.76%	142.7
Winter 2016-2017	38.2	32.70%	32.5	27.86%	46.1	39.45%	116.7
Winter 2017-2018	64.3	60.40%	10.4	9.79%	28.5	26.83%	106.4

ROS Monthly Average Offered but Unsold Capacity MW by Type of MP							
	GenCo	% of GenCo	Other	% Other	TO	% TO	Capability Period Monthly Average
Summer 2008	61.6	99.49%	0.3	0.51%	0.0	0.00%	61.9
Summer 2009	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2010	15.4	35.56%	27.8	64.44%	0.0	0.00%	43.2
Summer 2011	479.9	91.01%	44.9	8.52%	2.5	0.47%	527.3
Summer 2012	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2013	11.6	100.00%	0.0	0.00%	0.0	0.00%	11.6
Summer 2014	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2015	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2016	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2017	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2018	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0

ROS Monthly Average Offered but Unsold Capacity MW by Type of MP							
	GenCo	% of GenCo	Other	% Other	TO	% TO	Capability Period Monthly Average
Winter 2008-2009	178.7	97.65%	4.3	2.35%	0.0	0.00%	183.0
Winter 2009-2010	73.4	95.30%	3.6	4.70%	0.0	0.00%	77.0
Winter 2010-2011	895.6	89.53%	104.7	10.47%	0.0	0.00%	1000.3
Winter 2011-2012	811.3	86.49%	88.4	9.43%	38.4	4.09%	938.0
Winter 2012-2013	8.3	60.98%	5.3	39.02%	0.0	0.00%	13.7
Winter 2013-2014	0.0	0.00%	7.0	100.00%	0.0	0.00%	7.0
Winter 2014-2015	5.0	7.79%	59.0	92.21%	0.0	0.00%	64.0
Winter 2015-2016	127.5	67.86%	17.6	9.38%	42.8	22.76%	187.9
Winter 2016-2017	172.1	74.38%	22.6	9.77%	0.0	0.00%	231.4
Winter 2017-2018	205.8	86.24%	32.8	13.76%	0.0	0.00%	238.7

Salient facts from the previous tables are:

- The group of all ROS generation-owning Transmission Owners consistently had unoffered capacity which ranged from 11% to 64% of total unoffered capacity.
- The group of all ROS generation-owning Transmission Owners had up to 23% of offered and unsold capacity.
- The group of generation owners consistently had unoffered capacity which ranged from 11% to 79% of total unoffered capacity.
- The group of generation owners had unsold capacity which accounted for 0% to 100% of total capacity that was offered and unsold capacity.
- The group of all others including SCRs consistently had unoffered capacity that ranged from 0% to 39% of total unoffered capacity.
- The group of all others including SCRs had capacity that was offered and unsold capacity that ranged from 0% to 100%.

I.4.4.2. Analysis of ROS Unoffered Capacity

This section provides a detailed analysis of the unoffered capacity located in the ROS. The section also presents the maximum price impact of the unoffered capacity, in each month and averaged over the six months of each Capability Period. Market Participants with a significant amount of unoffered capacity were provided an opportunity to justify their unoffered MW. Generally, responses suggest that the Installed Capacity Suppliers' reasons for not offering the Capacity were benign, and none of the instances evidenced behavior intended to artificially raise prices.

Instances of unoffered capacity in Mitigated Capacity Zones are potentially subject to a non-discretionary penalty assessment (Services Tariff Section 23.4.5.4.2), and are not included in this section.

The NYISO contacted each Installed Capacity Supplier with at least 15 MW of unoffered capacity in any one month during the period November 2017 through October 2018 for an explanation of why it did not offer all of its capacity. There were seven Market Participants with 15 MW or more of unoffered capacity in any given month in ROS, and the NYISO sought and received explanations from each of them.²¹

Two Market Participants reported that their failure to offer capacity into the ICAP market was due to an administrative oversight. In both instances the Market Participants failed to offer in only one month. One of the Market Participants stated that it had implemented updated protocols. The other Market Participant stated that it made an incorrect assumption on its market position.

One Market Participant reported environmental and/or physical conditions as cause for not offering capacity. The responses detailed causes including conservative operating strategies.

Four Market Participants reported that it was a bidding strategy not to offer their capacity. Two of the Market Participants were in an organizational transition which precipitated the failure to offer. One of the two was changing majority controlling ownership, referred to by the MP as "sponsorship" and this transition lead to staff reduction and turnover; the other was undergoing

²¹ Confidential Attachment I provides a detailed summary of the Market Participants' explanations for having unoffered capacity.

consolidation of its structure and associated accounts and did not offer capacity due to timing uncertainty. The remaining two Market Participants reported their respective units were in a certain operating state and their decision to not offer the capacity was associated therewith.

Table 5 shows the maximum price impact of the unoffered capacity based on the slopes of the ICAP Demand Curves for the relevant Capability Periods. The maximum price impact is calculated as the lesser of (1) the product of the monthly unoffered MW and the slope of the ICAP Demand Curve and (2) the ICAP Spot Market Auction Market-Clearing Price, since the price impact cannot exceed the auction price. Monthly values and seasonal averages of the maximum price impact are reported. The maximum price impact of the unoffered capacity, averaged over the six months of the Winter 2017-2018 and Summer 2018 Capability Periods, was \$0.21/kW-month (ranging from \$0.15/kW-month to \$0.25/kW-month) and \$0.13/kW-month (ranging from \$0.05/kW-month to \$0.22/kW-month), respectively.

Table 5: Maximum Price Impact of ROS Unoffered Capacity²²

Month	Total Unoffered MW	Monthly Maximum Price Impact	Seasonal Average Maximum Price Impact
Nov-17	94.9	\$0.22	\$0.21
Dec-17	83.5	\$0.19	
Jan-18	110.1	\$0.25	
Feb-18	136.0	\$0.20	
Mar-18	87.4	\$0.15	
Apr-18	126.3	\$0.25	
May-18	33.0	\$0.08	\$0.13
Jun-18	43.5	\$0.11	
Jul-18	18.1	\$0.05	
Aug-18	86.3	\$0.22	
Sep-18	61.9	\$0.16	
Oct-18	53.4	\$0.14	

I.4.4.3. Analysis of ROS Unsold Capacity

This section analyzes and reports on ROS unsold capacity in the ICAP Spot Market Auction. It also presents the maximum price impact of the ROS unsold capacity, in any one month and the price impact average for the six months of the Capability Period. Attachment II and IV summarizes masked unsold capacity offers.²³

For each Installed Capacity Supplier that had 15 MW or more of unsold capacity in a given month, the NYSIO (a) requested and received its explanation of its behavior; and (b) performed

²² The price impact of ROS unoffered capacity average \$0.25/kW-month for the Winter 2016-2017 (ranging from \$0.19/kW-month to \$0.35/kW-month), and \$0.18/kW-month for the Summer 2017 (ranging from \$0.08/kW-month to \$0.28/kW-month). The monthly price impact cannot exceed the ICAP Spot Market Auction clearing price for that month.

²³ Attachment II is a redacted version of the unsold capacity offers.

a unit-specific GFC analysis if the aggregated monthly average price impact over the capability period was greater than or equal to \$0.20/kW-month, or \$0.35/kW-month in any month.

The process utilized by the NYISO in performing this analysis only requires the development of a unit-specific GFC if the generator had an ICAP Spot Market Auction offer that was greater than the generator's class average Net GFC with half net revenues.²⁴ In order to comply with the requirement in the Analysis Plan while making the analysis more useful to the Commission and stakeholders, this report is using unit-specific GFCs. The NYISO requested cost data from the ICAP Suppliers with 15 MW or more of unsold capacity. The NYISO accepted these responses and costs as reasonable on the basis of similar data the NYISO has collected and validated. The unit-specific GFC data utilized represents an increase in accuracy when compared to class average Net GFCs, and were used in place of the class average Net GFC with half net revenue step.

I.4.4.4. Monthly Price Impacts

Table 6 includes the average monthly maximum price impact of unsold capacity for each Capability Period. The average price impacts were \$0.20/kW-month in Winter 2017-2018 and \$0.00/kW-month in the Summer 2018. The Capability Period impact threshold of \$0.20/kW-month was exceeded in Winter 2017-2018. Additionally, the monthly maximum price impact exceeds the \$0.35/kW-month threshold for January 2018.

Table 6: Maximum Price Impact of ROS Unsold MW

Month	Total Unsold MW	Monthly Maximum Price Impact	Seasonal Average Maximum Price Impact
Nov-17	482.4	\$0.25	\$0.20
Dec-17	414.9	\$0.25	
Jan-18	428.7	\$0.44	
Feb-18	31.2	\$0.07	
Mar-18	43.3	\$0.10	
Apr-18	31.4	\$0.07	
May-18	0.0	\$0.00	\$0.00
Jun-18	0.0	\$0.00	
Jul-18	0.0	\$0.00	
Aug-18	0.0	\$0.00	
Sep-18	0.0	\$0.00	
Oct-18	0.0	\$0.00	

In addition to calculating the monthly maximum and average maximum price impacts, price impacts of unsold capacity offered at varying levels of Going Forward Costs ("GFCs"), as

²⁴ Going Forward Cost terminology and elements for purposes of ROS unsold capacity analysis were discussed in detail at Table 7 in the 2012 Annual Installed Capacity Report. See 2012 Annual Report at Table 7, filed in FERC Docket Nos. ER01-3001-000, E03-647-000 (Feb. 14, 2013) (see also, *New York Indep. Sys. Operator, Inc.* Docket Nos. ER01-3001-000, E03-647-000, "Updated Status Report on Stakeholder Discussions Regarding Annual Installed Capacity Demand Curve Reports and Plan for Further Reports at Attachment A (Nov 12, 2009) ("Analysis Plan").

described in Table 7, were estimated for Analysis Months²⁵. For the purpose of this report, the GFCs are defined as costs that could be reasonably expected to be avoided if the plant was mothballed for at least one year less projected net revenues from energy and ancillary services markets. These GFCs may provide insight into why a generator offered its capacity at a non-zero offer price. In this analysis, GFCs are calculated for the entire capacity of the plant.

Generators face uncertainty about net revenues, among other things, which may influence the prices at which they offer capacity. To account for this uncertainty, the calculated GFCs include varying levels of net revenues: full, half, and no net revenues. Confidential Attachment IV to this report shows the specific generator's costs and/or SCR's heuristic methods for ICAP Suppliers with at least 15 MW of unsold capacity in any one month during November 2017 – April 2018-time period less the varying levels of net revenues. Table 7 describes and defines the GFCs.

Table 7: Going Forward Cost Definitions

Going Forward Costs (GFCs)	Costs that would be avoided or deferred if a generator was mothballed for a year or more. In this report, rather than, based on the calculation of the industry average ²⁶ cost data for the type of generator as provided in the Analysis Plan, the NYISO used unit specific costs provided by the ICAP Suppliers.
Net energy and ancillary services revenues (net revenues)	Estimated energy plus ancillary services revenues minus estimated production costs, with a minimum value of zero.
GFCs with full net revenues	GFCs minus net revenues. This value is used to represent Net GFCs with certainty of net revenues.
GFCs with half net revenues	GFCs minus 0.5 times net revenues. This value is used to represent Net GFCs with some uncertainty.
GFCs with no net revenues	GFCs. This value is used to represent Net GFCs without certainty of net revenues.
Unit Specific Net GFCs with Recognized Adjustments	GFCs plus unit-specific adjustments (<i>i.e.</i> , the dollar amount identified by the generator for an adjustment that is readily recognizable as an appropriate adjustment), minus the unit specific net revenues.
Unit Specific Net GFCs with all Adjustments	GFCs plus all unit-specific adjustments identified by the generator, minus the unit specific net revenues.

The Winter 2017-2018 ICAP Strip Auction Price in NYCA was \$0.37/kW-month, while the ICAP Spot Auction Prices varied between \$0.15/kW-month and \$0.44/kW-month. Table 8 below shows the amount of unsold capacity by Analysis Month for which calculated GFCs with full net revenue were exceeding the ICAP Spot Auction Price.

²⁵ "Analysis Months" are all months in that Capability Period if the \$0.20/kW-mo. average threshold is exceeded or the months in which the \$0.35/kW-mo. monthly threshold is exceeded.

²⁶ In order to comply with the requirement in the Analysis Plan while making the analysis more useful to the Commission and stakeholders, this report is uses unit-specific GFCs from most ICAP Suppliers.

Table 8: ROS Unsold MW with reported GFCs costs above ICAP Spot Auction Prices (15MW+)

Month	Total Unsold MW (15+)	ICAP Spot Auction Price	Total Unsold with GFCs above ICAP Spot Auction Price (15MW+)
Nov-17	481.6	\$0.25	481.6
Dec-17	405.8	\$0.25	405.8
Jan-18	427.9	\$0.44	427.9
Feb-18	30.4	\$0.20	30.4
Mar-18	30.6	\$0.15	30.6
Apr-18	30.6	\$0.25	30.6

There are three generators and one SCR resource associated with 15 MW or more of unsold capacity from ROS. Attachment IV contains the confidential information provided by the Market Participants with 15 MW or more of unsold capacity in response to the NYISO's request for information regarding their bidding strategy and cost data for the months in which there was unsold capacity.

All Market Participants responded to the NYISO's information request with the following information regarding their behavior for months in which they had unsold capacity.

Three generators submitted avoidable cost estimates in support of a calculated GFC value.

One SCR submitted heuristic strategies in support of a GFC value, citing approximate shutdown costs or administrative and operational costs.

The NYISO performed ICAP Spot Market Auction simulations for a more detailed understanding of how the non-zero price offers may have affected Market Clearing Prices. The NYISO simulated auction outcomes under three scenarios: GFCs with full net revenues, GFCs with half net revenues and GFCs with no net revenues. These scenarios are labeled scenarios 1, 2, and 3 in Table 9. The NYISO performed the simulations by replacing offers that originally did not clear with the unit-specific GFC at varying levels of net revenues. Any unsold capacity, including partially cleared offers, that was offered above the Unit Specific Net GFC was replaced at the Unit Specific Net GFC when calculating the price impact. The analysis was performed by setting offers to zero for unsold capacity in partly cleared offers. The offers that were analyzed for purposes of the simulations are provided in Attachment II.²⁷

Table 9 shows the results of the auction simulations in each of the scenarios, for each Analysis Month. For comparison, the original ROS ICAP Spot Market Auction prices are reported, in addition to the simulated ROS ICAP Spot Auction Prices under each of the scenarios. The simulation price deltas relative to the original clearing prices should not be positive because only entire offers that did not clear and which were originally priced above the ICAP Spot Auction clearing price were replaced with GFCs. The amount of the price reduction shown in the simulations is static or decreasing as half or no revenues are recognized in the GFC calculations. That outcome is consistent with what would be expected.

²⁷ The unmasked unsold capacity offers are provided in Confidential Attachment III.

Table 9: ROS ICAP Spot Auction Price Impact Analysis Results

Month	ROS Spot Prices	S1 ^[1]	S2 ^[2]	S3 ^[3]	S1 delta	S2 delta	S3 delta
Nov-17	\$0.25	\$0.25	\$0.25	\$0.25	\$0.00	\$0.00	\$0.00
Dec-17	\$0.25	\$0.25	\$0.25	\$0.25	\$0.00	\$0.00	\$0.00
Jan-18	\$0.44	\$0.44	\$0.44	\$0.44	\$0.00	\$0.00	\$0.00
Feb-18	\$0.20	\$0.20	\$0.20	\$0.20	\$0.00	\$0.00	\$0.00
Mar-18	\$0.15	\$0.15	\$0.15	\$0.15	\$0.00	\$0.00	\$0.00
Apr-18	\$0.25	\$0.25	\$0.25	\$0.25	\$0.00	\$0.00	\$0.00

Notes to Table 9:

Note 1: GFCs with full net revenues

Note 2: GFCs with half net revenues

Note 3: GFCs with no net revenues

The results of the simulations shown in Table 9 indicate that the NYCA ICAP Spot Market Auction prices likely would not have been lower if the entire offers that did not clear had been offered at their respective GFC values. In all three scenarios, there would have been no price impact. As noted earlier, the simulations were performed by replacing only entire offers that did not clear with their respective GFCs. The associated potential zero price impacts do not indicate that economic withholding occurred.

The analysis shows that no economic withholding occurred over the Winter 2017-2018. During this period, the ICAP Spot Market Auction Market-Clearing Price for the NYCA was below the estimated Going Forward Costs for all of the ROS generators and the SCR resource with unsold capacity.

II. NYISO Report on New Generation Projects

In its October 23, 2006 order, the Commission ordered the NYISO to submit “a list of investments in new generation projects in New York (including a description and current status of each such project), regardless of the stage of project development at the time of the filing.”²⁸ The NYISO maintains an interconnection queue that lists tracks all of the Interconnection Requests for the New York Control Area that includes information about the proposed generation projects in the State that have requested interconnection.

The NYISO interconnection process for generators is described in two attachments of the NYISO OATT: OATT Attachment X entitled, “Standard Large Facility Interconnection Procedures,” and OATT Attachment Z entitled, “Small Generator Interconnection Procedures.”

Under OATT Attachments X and Z, Developers of Large Facilities and Interconnection Customers proposing Small Generating Facilities must submit an Interconnection Request to the NYISO. The NYISO assigns a Queue Position to all validated Interconnection Requests.

Proposed generation under OATT Attachment X (Large Facilities greater than 20 MW) undergo up to three studies: the Optional Interconnection Feasibility Study, the Interconnection System Reliability Impact Study, and the Class Year Interconnection Facilities Study. The Class Year Interconnection Facilities Study is performed on a Class Year basis for a group of eligible projects pursuant to the requirements of OATT Attachment S.

Under OATT Attachment Z, proposed Small Generating Facilities (20 MW or less) undergo a similar, but more flexible study process with different paths and options that are dependent on the specific circumstances of the project.

Proposed generation and transmission projects currently in the NYISO interconnection process are listed on the NYISO Interconnection Queue. The generation projects on that list are shown in Attachment IV to this report, which is dated November 30, 2018. The NYISO updates the NYISO Interconnection Queue on at least a monthly basis and posts the most recent list on the NYISO’s public web site²⁹ at the “Planning Documents and Resources”, underneath the “Interconnection Studies” section.

The status of each project on the NYISO Interconnection Queue is shown in the column labeled “S.” An explanation of this column is provided in Attachment V to this report. Also, note that the proposed In-Service Date for each project is the date provided to the NYISO by the respective Owner/Developer, is updated only on a periodic basis, and is subject to change.

²⁸ See New York Independent System Operator Inc., 117 FERC ¶ 61,086, at P 14 (2006).

²⁹ See <<https://www.nyiso.com/interconnections>>.

III. New Generation Projects and Net Revenue Analysis

III.1. Overview

The ICAP Demand Curves are designed to send efficient price signals to developers to build new generation and to generation owners to invest in existing generation when and where needed. In past annual ICAP reports, the NYISO stated that it is difficult to relate the investment in new generation to the ICAP Demand Curves given the lead-time required to site, develop, and construct new generation, and to address other barriers to new entry; however, the ICAP Demand Curves provide transparency for projecting ICAP Spot Market Auction capacity price signals that developers and owners consider prior to making investment decisions. This section of the report provides net revenue analysis on a comparable basis to that used in the prior reports.

III.2. Market Design Developments to Enhance ICAP Demand Curve Performance

On January 17, 2017, FERC accepted the tariff revisions that establish the ICAP Demand Curves for the 2017-2018 Capability Year, as well as the methodologies and inputs to be used in conducting the tariff prescribed annual updates to determine the ICAP Demand Curves for the 2018-2019, 2019-2020 and 2020-2021 Capability Years.³⁰ The January 2017 Order accepted the NYISO's proposal to use a dual-fuel F-class frame combustion turbine (Siemens SGT6-5000(F)) with selective catalytic reduction emission controls ("selective catalytic reduction") to develop the ICAP Demand Curves for NYC, LI, and the G-J Locality. A gas-only Siemens SGT6-5000(F) frame combustion turbine with an operational limit in lieu of selective catalytic reduction was selected as the representative peaking plant for the NYCA ICAP Demand Curve. The current ICAP Demand Curves are sending appropriate price signals.

III.3. Interconnection Queue Projects

The NYISO's interconnection queue lists the projects that are being and will be evaluated in the interconnection study processes. In-service dates stated on the interconnection queue for projects are provided by the developers, and the NYISO periodically updates the queue (Attachment V). Chart 17 was compiled using data from Attachment V. Chart 17 depicts the amount of generation listed on the NYISO's interconnection queue since 2003 in NYC, LI, and Rest of State ("ROS"), and starting with Summer 2014 Capability Period it includes the G-J Locality. Wind projects are depicted separately from generation projects with other fuel types. The ROS depiction in Chart 17 does account for the change in its composition starting in Summer 2014 Capability Period with the creation of the G-J Locality ("G-J"). From 2003 through April 2014, ROS was comprised of Load Zones A through I. Since May 2014, it has been comprised of Load Zones A through F.

³⁰ Beginning with the ICAP Demand Curves for the 2017-2018 Capability Year, the NYISO implemented revised procedures for establishing the ICAP Demand Curves. The revised procedures provide for comprehensive reviews every four years and formulaic annual updates in the intervening years. The NYISO completed the first annual update in November 2017 to establish the updated ICAP Demand Curves for the 2018-2019 Capability Year.

Chart 17: NYISO Interconnection Queue Projects

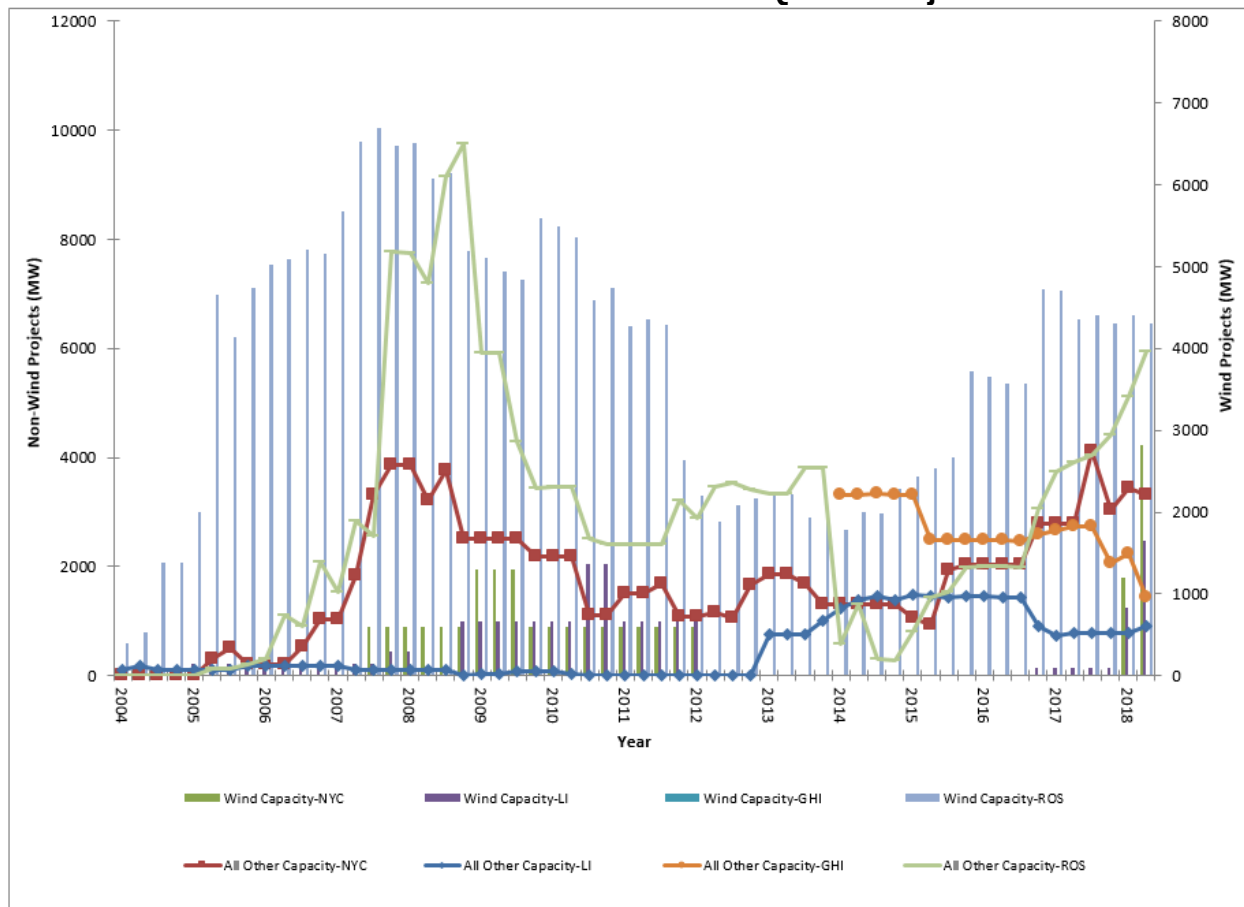


Chart 17 reports only those projects that were placed in the queue after May 1, 2003.³¹ Since the queue includes projects at various stages, for purposes of the analysis for this section of the report, the NYISO included those projects that are identified as active. Accordingly, pre-2005 period projects with codes 'I', 'W', or 'C' were excluded; and for 2005 and beyond projects, status codes 0, 1, 12, 13, and 14 were omitted.

The number of generation projects and the amount of MW in the interconnection process has generally increased since the ICAP Demand Curves became effective in May 2003. The number of MW associated with projects based on technologies other than wind (measured on the left Y-axis, above) did not increase significantly until the summer of 2005. Chart 17 shows that beginning with the Winter 2007-2008 Capability Period, the number of MW listed in the interconnection queue for the Rest of State rose sharply, particularly new non-wind projects. By the end of 2011, this trend had largely reversed to pre-Winter 2007-2008 Capability Period levels.

³¹ Each project in the queue is provided a status code that identifies its position in the study process that ranges from the initial scoping meeting to entering service. Prior to 2005, each project was provided a status-code based on the NYISO System Reliability Impact Study from the following: *P*=Pending, *A*=Active, *I*=Inactive, *R*=Under Review, *C*=Completed, *W*=Withdrawn. Starting in 2005, the classification system was changed and status codes were based on the standard steps in the NYISO's interconnection process as follows: 1=Scoping Meeting Pending, 2=FES Pending, 3=FES in Progress, 4=SRIS/SIS Pending, 5=SRIS/SIS in Progress, 6=SRIS/SIS Approved, 7=FS Pending, 8=Rejected Cost Allocation/Next FS Pending, 9=FS in Progress, 10=Accepted Cost Allocation/IA in Progress, 11=IA Completed, 12=Under Construction, 13=In Service for Test, 14=In Service Commercial, 0=Withdrawn, where FES=Feasibility Study, SRIS=System Reliability Impact Study, SIS = System Impact Study, and FS=Facilities Study.

The sharp decrease in proposed new non-wind generation in ROS shown in Chart 17 beginning with the Summer 2014 Capability Period is indicative of Load Zones G, H, I no longer being part of ROS. Non-wind generation projects have increased in ROS since 2015. Wind generation projects have increased in ROS since 2015. In LI, two wind projects were proposed in 2017 and, as of November 30, 2018, two additional wind projects were proposed in 2018. In NYC, one wind project was proposed in 2017 and two additional projects were proposed in 2018 through November 30. No wind projects were proposed in NYC or the G-J Locality in 2015 or 2016.

In addition to the proposed projects reflected in Chart 17, there are proposed HVDC transmission lines. Two of the projects are from External Control Areas, one project with a terminus in NYC, and the other project with a terminus in LI. A third project is proposed to be a connection between Load Zone F (in the ROS) and Load Zone H (in the G-J Locality). A fourth is proposed to connect between Load Zone C (in the ROS) and NYC, and a fifth is proposed to connect between Load Zone E (in the ROS) and Load Zone G (in the G-J Locality). If these projects receive CRIS and Unforced Capacity Deliverability Rights (“UDRs”), the UCAP associated with the UDRs can be used to satisfy the applicable LCR in which the facility has a terminus.

A project is also proposed to upgrade the AC system connecting the HQ Control Area (external to the NYCA) and Load Zone D (in the ROS). This project will use the new External to ROS Deliverability Rights (EDRs) feature that allows such a project to sink into ROS and be eligible to sell capacity.

III.4. Proposed Resource Additions

On October 16, 2018, the NYISO Board of Directors approved the 2018 Reliability Needs Assessment (RNA) report.³² This report assessed resource adequacy, transmission security and transmission adequacy of the New York Control Area (NYCA) bulk power transmission system for calendar years 2019 through 2028. In April 2017, the NYISO issued the 2016 Comprehensive Reliability Plan (“CRP”), which reflected a reliable system.³³

As mentioned above, the ICAP Demand Curves are providing market price signals for developers to locate new units and invest in existing units, including returning capacity to service where appropriate. For example, CPV Valley Energy Center entered as new generation in Load Zone G, and Cricket Valley Energy Center II is being built in Load Zone G. The CPV Valley addition is included among the capacity resource changes summarized in Table 10.

³² The 2018 RNA report is available at: <<https://www.nyiso.com/documents/20142/2248793/2018-Reliability-Needs-Assessment.pdf/c17f6a4a-6d22-26ee-9e28-4715af52d3c7>>

³³ The 2016 CRP report is available at:
<https://www.nyiso.com/documents/20142/2248481/2016CRP_Report_Final_Apr11_2017.pdf/fd840e2d-e98e-cec9-83ae-5a56f2f2e883>.

Table 10: Capacity Resource Changes since the publication of the 2018 NYISO Gold Book³⁴

Zone	CRIS MW	Status
C	155	ICAP Ineligible Forced Outage
E	20	ICAP Ineligible Forced Outage
G	680	In Service
J	271	ICAP Ineligible Forced Outage
J	120	In Service

Table 11 presents the market-based solution projects and Transmission Owners' plans that were submitted in response to previous requests for solutions pursuant to the NYISO's reliability planning process that the NYISO is continuing to monitor. A number of other projects that are in the NYISO Interconnection Queue continue to move through the interconnection process.

Table 11: Current Status of Tracked Market-Based Solutions and Transmission Owner Plans

Queue #	Project	Submitted	Zone	Name Plate (MW)	CRIS (MW)	Summer (MW)	Proposal Type	Current Status	Included in the 2016 RNA Base Case
339	Station 255	CRP 2012	B	N/A	N/A	N/A	TO Plan	Q4 2020	Yes
N/A	Clay-Teall #10 115kV	CRP 2012	C	N/A	N/A	N/A	TO Plan	Q4 2019	Yes

III.5. Net Revenue Analysis

FERC's order directing the NYISO to submit an annual ICAP report stated that the NYISO should include a complete net revenue analysis to provide information about whether NYISO market revenues are adequate to incent new capacity resources in regions where capacity is needed. Where there is growing pressure on existing capacity, e.g., the reserve margin is shrinking; there should be a rise in combined revenues from the Energy, Ancillary Services and capacity markets.

As in the prior annual reports, the NYISO examined the level of "need" for additional capacity by looking at the percentage of capacity in excess of the applicable minimum Installed Capacity requirement. The NYISO then looked at possible revenues from the capacity, Energy, and Ancillary Services markets for a hypothetical gas turbine which is similar to what was used to complete the net revenue analysis in the prior reports. This analysis shows, in general, that there is a tendency for revenues to increase as the percentage of excess capacity decreases and vice versa.

III.5.1. Quantification of "Need"

For purposes of this analysis, the excess of capacity relative to the applicable minimum requirement was used as a proxy for need. Capacity margin is calculated as:

³⁴ Based on information as of 10/10/18 contained in "Generator Status Updates" and "Planned Generation Retirements" documents available at: <<https://www.nyiso.com/ny-power-system-information-outlook>>

$$\text{Capacity margin \%} = \frac{\text{Availability}}{\text{Requirement}} \times 100$$

Using this definition, a value in excess of 100% reflects an excess capacity margin. A relatively high value indicates less of a need for additional capacity and, conversely, declining values suggest an increased need.³⁵ Table 12 displays the required and available amounts of UCAP as calculated from detailed data from monthly certified capacity, auction offers, and sales awards.

Table 12: Summer Available Capacity vs. Required Capacity

		2013	2014	2015	2016	2017	2018
NYCA	Requirement (MW)	35,467	35,812	35,920	35,430	35,513	35,562
	Availability (MW)	36,177	36,081	37,340	36,350	36,749	37,108
	Capacity margin %	102.0%	100.7%	104.0%	102.6%	103.5%	104.3%
NYC	Requirement (MW)	9,325	9,471	9,272	8,589	9,095	8,630
	Availability (MW)	9,721	9,568	9,680	9,251	9,888	9,546
	Capacity margin %	104.2%	101.0%	104.4%	107.7%	108.7%	110.6%
LI	Requirement (MW)	5,394	5,431	5,284	5,207	5,303	5,214
	Availability (MW)	5,740	5,675	5,618	5,679	5,785	5,740
	Capacity margin %	106.4%	104.5%	106.3%	109.1%	109.1%	110.1%
G-J	Requirement (MW)	n/a	13,495	13,934	13,515	13,622	14,101
	Availability (MW)	n/a	13,610	14,581	14,182	14,407	15,008
	Capacity margin %	n/a	100.9%	104.6%	104.9%	105.8%	106.4%

In Table 12, the NYCA Minimum Unforced Capacity Requirement is based on the annual NYCA Minimum Installed Capacity Requirement. For each of the NYC, LI, and the G-J Localities, the respective Locational Minimum Unforced Capacity Requirement is derived from their respective Locational Minimum Installed Capacity Requirement. “Available Capacity” reflects the aggregate of UCAP ratings excluding the amount of imported capacity via external transactions.³⁶

Table 13 shows the annual revenue requirement for the hypothetical plants based on the assumptions used in the applicable ICAP Demand Curves. For the G-J Locality the annual revenue requirements for 2014 have been adjusted for six months only — the 2014 Summer Capability Period — the period that corresponds with the initial implementation for the ICAP Demand Curves for the G-J Locality. The notional values used for the NYC, LI, and G-J Localities are based on an LMS100 technology, and for NYCA, figures are based on GE 7FA combustion turbine without selective catalytic reduction for the years 2013 and 2014. For 2015 and 2016 figures, a dual-fuel Siemens F class Frame unit with selective catalytic reduction was used as the peaking plant for the G-J, NYC, and LI Localities. A gas-only Siemens F class Frame unit without selective catalytic reduction was used for the NYCA. For 2017, the same technology from 2016 was used assuming the 2017-2018 ICAP Demand Curve parameters. Likewise, the same

³⁵ The use of “need” in this context is based on the revenue analysis and is not intended to infer whether there may be a system-specific need.

³⁶ In contrast to the forecasted figures used in the Gold Book, this table reflects data based on realized outcomes over the Summer Capability Periods.

technology from the prior year was used for 2018 assuming the 2018-2019 ICAP Demand Curve parameters.

Table 13: Annual Revenue Requirements in UCAP terms (\$/MW)

	2013	2014	2015	2016	2017	2018
NYCA	\$124,094	\$126,111	\$113,738	\$117,709	\$117,970	\$134,428
NYC	\$284,578	\$288,371	\$217,390	\$231,098	\$228,487	\$218,901
LI	\$262,912	\$263,455	\$176,031	\$179,684	\$179,236	\$204,994
G-J		\$116,966	\$154,522	\$162,388	\$161,911	\$181,211

Table 14 shows the revenues for individual markets (*i.e.*, the Energy, Ancillary Services [A/S], and the ICAP Spot Market Auction (as UCAP)) that the identified hypothetical peaking plant may have received based on actual LBMPs, natural gas prices, and other reasonable parameters used to calculate variable costs for the applicable ICAP Demand Curves.

For previous reports, a model was used to calculate the Energy and Ancillary Services revenue for the respective hypothetical peaking plants. Net Energy revenues are earned in hours when the Day-Ahead Market LBMP exceeds the calculated variable cost. Otherwise, Day-Ahead Ancillary Services revenues are earned. This approach is similar to the “standard method” used by the Market Monitoring Unit for the NYISO in its annual State of the Market reports. This methodology was used to calculate the Energy and Ancillary services revenues through the 2016-2017 Winter Capability Period. Beginning with the 2017 Summer Capability Period, the report relied upon the FERC-approved Net EAS Model used in determining the 2017-2018 ICAP Demand Curves to calculate Energy and Ancillary Services revenues. This model utilizes both Day-Ahead and real-time prices to provide a more accurate estimate of a hypothetical peaking plant’s revenue.

For 2012, 2013 and the Winter 2013/2014 Capability Period, the Ancillary Services revenues earned by the hypothetical LMS100 technology were based upon 10-Minute Non-Synchronized Reserve prices, whereas Ancillary Service revenues for the hypothetical NYCA peaking plant were based on Day-Ahead 30-Minute Reserve prices. For the Capability Year beginning May 2014, the Frame Combustion Turbine technology Ancillary Services revenues for the hypothetical peaking plant technology in all capacity regions were based upon Day-Ahead 30-Minute Reserve prices. The decrease in net Energy and Ancillary Services revenues between 2016 and 2017 was likely attributable, in large part, to the improved data available through the new model, which was used for the 2017-2018 Capability Year Energy and Ancillary Services revenue calculations.

ICAP market revenues were based on the ICAP Spot Market Auction clearing prices for each Locality and the NYCA.

Table 14: Benchmark Annual Revenues in UCAP terms (\$/MW)

		Revenue Elements in \$						Revenue Elements as % of Total					
		2013	2014	2015	2016	2017	2018	2013	2014	2015	2016	2017	2018
NYCA	Energy	\$42,916	\$72,191	\$38,006	\$8,775	\$14,165	\$8,503	47%	56%	50%	12%	33%	20%
	A/S	\$1,873	\$2,342	\$3,602	\$33,496	\$11,491	\$12,561	2%	2%	5%	46%	27%	29%
	Capacity	\$46,730	\$54,400	\$35,120	\$30,200	\$16,890	\$22,060	51%	42%	46%	42%	40%	51%
	Total	\$91,519	\$128,933	\$76,729	\$72,471	\$42,546	\$43,124	100%	100%	100%	100%	100%	100%
NYC	Energy	\$59,779	\$67,397	\$27,493	\$25,577	\$14,996	\$21,663	31%	27%	16%	16%	15%	20%
	A/S	\$10,366	\$14,722	\$4,123	\$23,399	\$5,058	\$4,457	5%	6%	2%	15%	5%	4%
	Capacity	\$124,320	\$169,380	\$142,450	\$109,260	\$81,130	\$81,200	64%	67%	82%	69%	80%	76%
	Total	\$194,465	\$251,499	\$174,066	\$158,235	\$101,184	\$107,320	100%	100%	100%	100%	100%	100%
Long Island	Energy	\$130,905	\$137,433	\$70,875	\$66,945	\$33,811	\$57,110	68%	67%	56%	55%	41%	55%
	A/S	\$6,388	\$9,322	\$2,840	\$17,428	\$6,427	\$1,367	3%	5%	2%	14%	8%	1%
	Capacity	\$54,720	\$59,130	\$53,160	\$37,620	\$42,770	\$44,560	28%	29%	42%	31%	52%	43%
	Total	\$192,013	\$205,885	\$126,875	\$121,992	\$83,008	\$103,037	100%	100%	100%	100%	100%	100%
G-J	Energy		\$5,174	\$14,591	\$8,883	\$11,153	\$9,361		6%	15%	8%	11%	9%
	A/S		\$11,162	\$5,219	\$34,522	\$10,284	\$12,529		12%	5%	29%	10%	12%
	Capacity		\$72,980	\$78,810	\$74,850	\$79,970	\$81,200		82%	80%	63%	79%	79%
	Total		\$89,316	\$98,620	\$118,255	\$101,407	\$103,089		100%	100%	100%	100%	100%

Note to Table 14: As with prior annual reports, this table is based on November of the year prior to the year stated in the first row, through October of the year stated, except for the 2014 values for the G-J Locality, which is based on the six months of revenues calculated for the Summer 2014 Capability Period.

In order to assess revenue adequacy for purposes of this report, “Revenue Margin” is the metric used. “Revenue Margin” is Benchmark Revenues (as reflected in Table 14) expressed as a percentage of Required Revenues. Revenue Margins are calculated as:

$$\text{Revenue Margin \%} = \frac{\text{Benchmark Revenue}}{\text{Required Revenue}} \times 100$$

A higher value indicates a greater degree of adequacy of revenues using this approach. The following table displays the values of Revenue Margins for the hypothetical peaking plant.

Table 15: Revenue Margins

	2013	2014	2015	2016	2017	2018
NYCA	74%	102%	67%	62%	35%	44%
NYC	68%	87%	80%	68%	49%	53%
LI	73%	78%	72%	68%	43%	51%
G-J		76%	64%	73%	61%	65%

Note to Table 15: As with prior annual reports, this table is based on November of the year prior to the year stated in the first row, through October of the year stated; except for the G-J Locality for 2014, which is based on the six months of revenues and revenue requirement calculated for the Summer 2014.

In 2018, Revenue Margins increased from prior levels in NYCA, NYC, LI, and G-J largely due to increases in energy revenues. This may be attributed higher LBMPs, which were driven by increased load levels and elevated natural gas prices. To assess whether the revenue streams for the hypothetical plant are adequate in relation to the level of need for new capacity, data from Tables 12, 13, and 14 are utilized to derive the graphs below, showing Revenue Margins (Chart 18) and Capacity Margins (Chart 19), as well as capacity market revenue relative to the benchmark annual revenue requirement (Chart 20).

As depicted by the following charts, as the amount of excess capacity above requirements shrinks, capacity market revenues increase. The effect of the recent increases to the level of excess capacity is reflected in the generally lower revenue margins calculated for 2017 and 2018 compared to other recent prior years.

Chart 18: UCAP based Revenue Margins

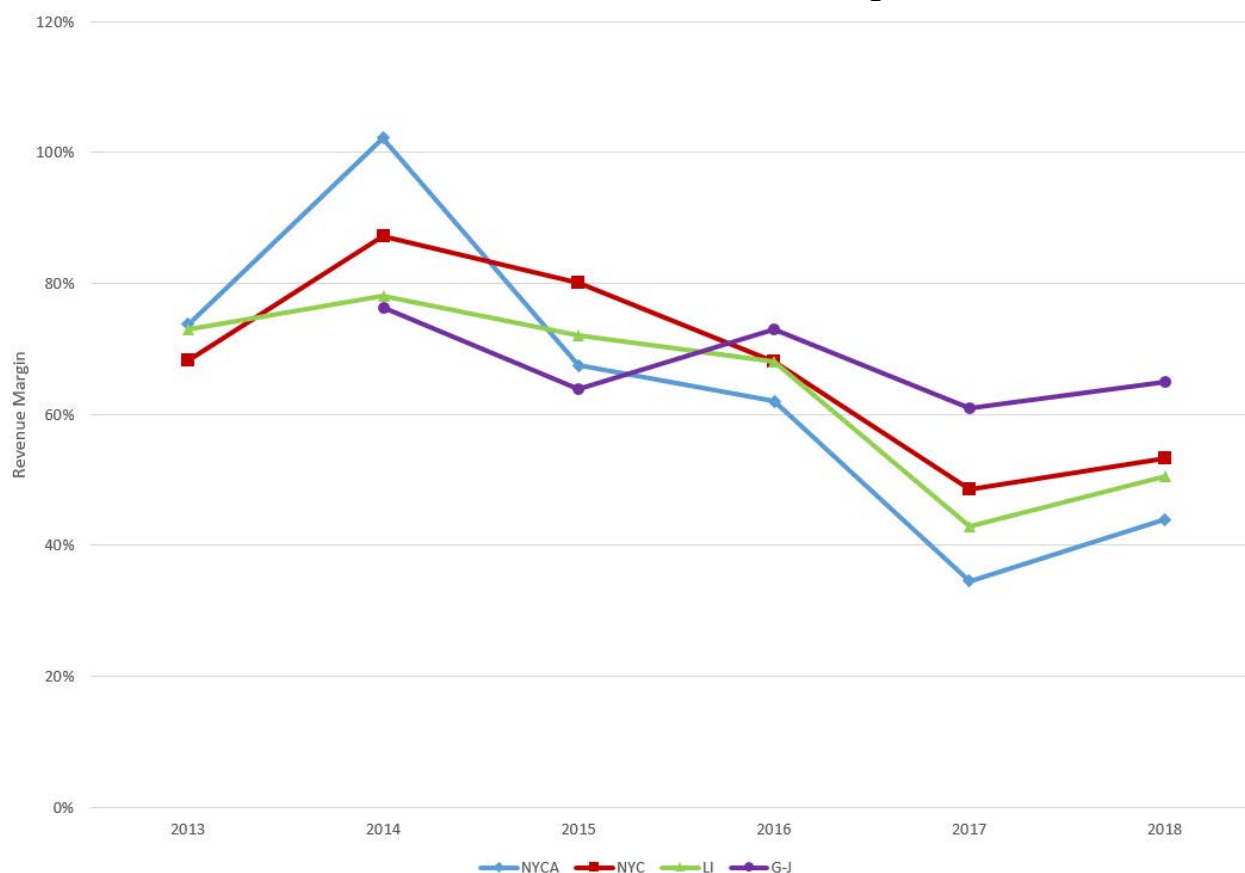


Chart 19: UCAP based Capacity Margins

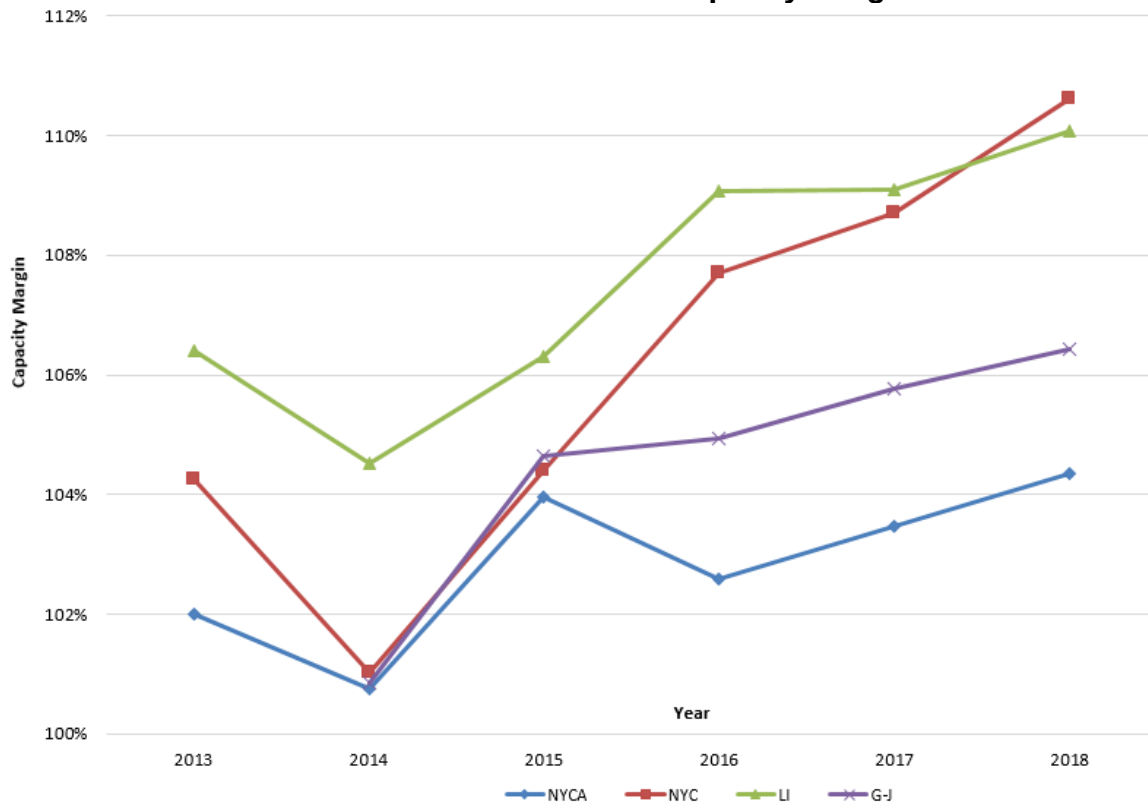
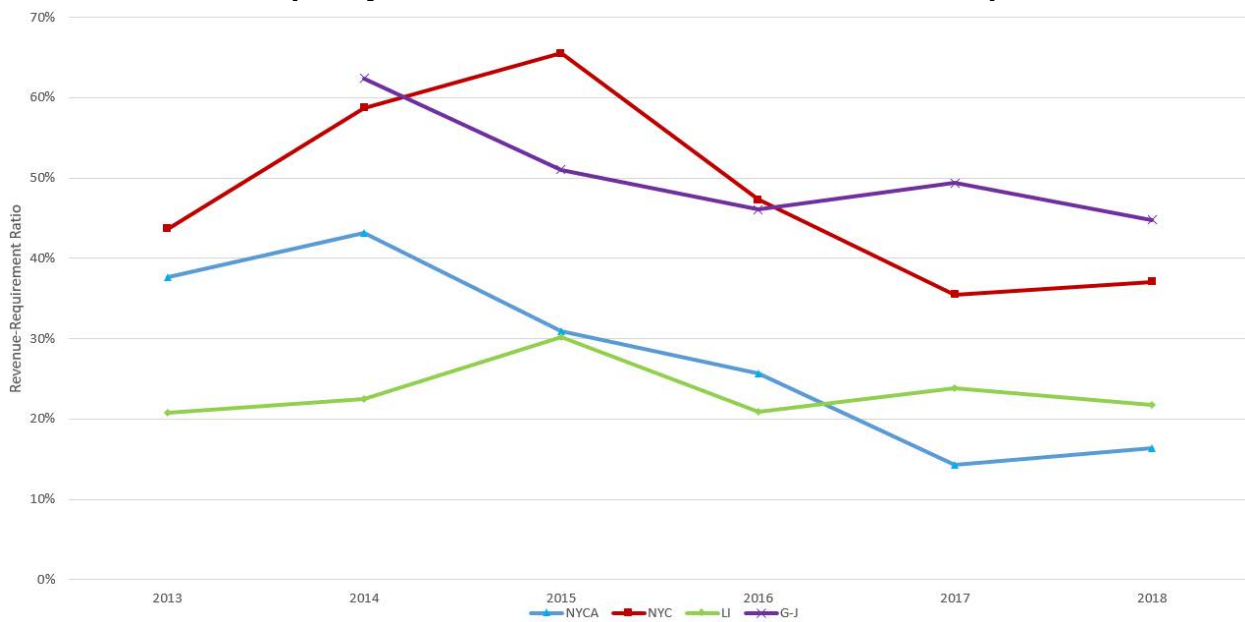


Chart 20: Capacity Market Revenues Relative to CONE Requirements



Attachments

Attachment I: Confidential Unoffered Capacity: Market Participant Explanations

(Not included with the public filing.)

Attachment II: Unsold Capacity Offers (Masked)

AUCTION TYPE	AUCTION MONTH	LOCATION DESCRIPTION	PTID	OFFER CAPACITY MW	OFFER PRICE	AWARDED CAPACITY MW	MARKET CLEARING PRICE	UNSOLED MW
Spot	Nov-17	ROS	Offer 1	0.8	\$0.50	-	\$0.25	0.8
Spot	Nov-17	ROS	Offer 2	31.6	\$0.50	-	\$0.25	31.6
Spot	Nov-17	ROS	Offer 3	9.7	\$0.90	-	\$0.25	9.7
Spot	Nov-17	ROS	Offer 4	15.9	\$0.90	-	\$0.25	15.9
Spot	Nov-17	ROS	Offer 5	74.4	\$0.90	-	\$0.25	74.4
Spot	Nov-17	ROS	Offer 6	9.7	\$1.00	-	\$0.25	9.7
Spot	Nov-17	ROS	Offer 7	15.9	\$1.00	-	\$0.25	15.9
Spot	Nov-17	ROS	Offer 8	74.4	\$1.00	-	\$0.25	74.4
Spot	Nov-17	ROS	Offer 9	9.7	\$1.10	-	\$0.25	9.7
Spot	Nov-17	ROS	Offer 10	15.9	\$1.10	-	\$0.25	15.9
Spot	Nov-17	ROS	Offer 11	74.4	\$1.10	-	\$0.25	74.4
Spot	Nov-17	ROS	Offer 12	9.7	\$1.20	-	\$0.25	9.7
Spot	Nov-17	ROS	Offer 13	15.9	\$1.20	-	\$0.25	15.9
Spot	Nov-17	ROS	Offer 14	74.4	\$1.20	-	\$0.25	74.4
Spot	Nov-17	ROS	Offer 15	4.5	\$1.30	-	\$0.25	4.5
Spot	Nov-17	ROS	Offer 16	8.2	\$1.30	-	\$0.25	8.2
Spot	Nov-17	ROS	Offer 17	37.3	\$1.30	-	\$0.25	37.3
Nov-17 Total								482.4
Spot	Dec-17	ROS	Offer 1	0.8	\$0.50	-	\$0.25	0.8
Spot	Dec-17	ROS	Offer 2	2.2	\$0.80	-	\$0.25	2.2
Spot	Dec-17	ROS	Offer 3	18.9	\$0.80	-	\$0.25	18.9
Spot	Dec-17	ROS	Offer 4	78.9	\$0.80	-	\$0.25	78.9
Spot	Dec-17	ROS	Offer 5	2.2	\$0.90	-	\$0.25	2.2
Spot	Dec-17	ROS	Offer 6	18.9	\$0.90	-	\$0.25	18.9
Spot	Dec-17	ROS	Offer 7	78.9	\$0.90	-	\$0.25	78.9
Spot	Dec-17	ROS	Offer 8	2.2	\$1.00	-	\$0.25	2.2
Spot	Dec-17	ROS	Offer 9	18.9	\$1.00	-	\$0.25	18.9
Spot	Dec-17	ROS	Offer 10	78.9	\$1.00	-	\$0.25	78.9
Spot	Dec-17	ROS	Offer 11	1.7	\$1.10	-	\$0.25	1.7
Spot	Dec-17	ROS	Offer 12	15.1	\$1.10	-	\$0.25	15.1
Spot	Dec-17	ROS	Offer 13	63.2	\$1.10	-	\$0.25	63.2
Spot	Dec-17	ROS	Offer 14	34.1	\$2.20	-	\$0.25	34.1
Dec-17 Total								414.9
Spot	Jan-18	ROS	Offer 1	0.8	\$0.50	-	\$0.44	0.8
Spot	Jan-18	ROS	Offer 2	4.5	\$0.75	-	\$0.44	4.5
Spot	Jan-18	ROS	Offer 3	18.0	\$0.75	-	\$0.44	18.0
Spot	Jan-18	ROS	Offer 4	77.6	\$0.75	-	\$0.44	77.6
Spot	Jan-18	ROS	Offer 5	4.5	\$0.85	-	\$0.44	4.5
Spot	Jan-18	ROS	Offer 6	18.0	\$0.85	-	\$0.44	18.0
Spot	Jan-18	ROS	Offer 7	77.6	\$0.85	-	\$0.44	77.6
Spot	Jan-18	ROS	Offer 8	4.5	\$0.95	-	\$0.44	4.5
Spot	Jan-18	ROS	Offer 9	18.0	\$0.95	-	\$0.44	18.0
Spot	Jan-18	ROS	Offer 10	77.6	\$0.95	-	\$0.44	77.6
Spot	Jan-18	ROS	Offer 11	4.3	\$1.05	-	\$0.44	4.3
Spot	Jan-18	ROS	Offer 12	18.0	\$1.05	-	\$0.44	18.0
Spot	Jan-18	ROS	Offer 13	77.5	\$1.05	-	\$0.44	77.5
Spot	Jan-18	ROS	Offer 14	27.8	\$2.69	-	\$0.44	27.8
Jan-18 Total								428.7
Spot	Feb-18	ROS	Offer 1	0.8	\$0.50	-	\$0.20	0.8
Spot	Feb-18	ROS	Offer 2	30.4	\$2.47	-	\$0.20	30.4
Feb-18 Total								31.2
Spot	Mar-18	ROS	Offer 1	18.1	\$0.15	6.2	\$0.15	11.9
Spot	Mar-18	ROS	Offer 2	0.8	\$0.50	-	\$0.15	0.8
Spot	Mar-18	ROS	Offer 3	30.6	\$0.65	-	\$0.15	30.6
Mar-18 Total								43.3
Spot	Apr-18	ROS	Offer 1	0.8	\$0.50	-	\$0.25	0.8
Spot	Apr-18	ROS	Offer 2	30.6	\$0.81	-	\$0.25	30.6
Apr-18 Total								31.4
Grand Total								1,400.7

Attachment III: Confidential Unsold Capacity Offers (Unmasked)

(Not included with the public filing.)

Attachment IV: Confidential Unsold Capacity Offers: Market Participant Explanations

(Not included with the public filing.)

Attachment V: Interconnection Queue

Queue Pos.	Owner/Developer	Project Name	Date of IR	SP (MW)	WP (MW)	Type/Fuel	Location County/State	Z	Interconnection Point	Utility	S	Last Update	Availability of Studies	FS Complete/ SGIA Tender	Proposed In-Service	Proposed Initial-Sync	Proposed COD
251	CPV Valley, LLC	CPV Valley Energy Center	7/5/07	677.6	784.0	CC-D	Orange, NY	G	Coopers – Rock Tavern 345kV	NYP&A	14	10/31/18	FES, SRIS, FS	10/15/13			I/S
276	Air Energie TCI, Inc.	Crown City Wind Farm	1/30/08	90	90	W	Cortland, NY	C	Cortland - Fenner 115kV	NM-NG	7	11/30/18	FES, SRIS		2023/12		2023/12
331	National Grid	Northeast NY Reinforcement	4/22/09	N/A	N/A	AC	Saratoga, NY	F	NGrid 230kV	NM-NG	12,14	1/31/18	SIS		2010-2019	N/A	N/A
333	National Grid	Western NY Reinforcement	5/5/09	N/A	N/A	AC	Cattaraugus, NY	A	NGrid 115kV	NM-NG	12,14	1/31/18	SIS		2015-2019	N/A	N/A
338	RG&E	Brown's Race II	8/11/09	6.3	6.3	H	Monroe, NY	B	Station 137 11kV	RG&E	11	9/30/18	FS	11/24/2014	2019/10	2019/10	2019/10
339	RG&E	Transmission Reinforcement	8/17/09	N/A	N/A	AC	Monroe, NY	B	Niagara - Kintigh 345kV	RG&E	12	1/31/18	SIS		2019/W	N/A	N/A
347	Franklin Wind Farm, LLC	Franklin Wind	12/2/09	50.4	50.4	W	Delaware, NY	E	Oakdale - Delhi 115kV	NYSEG	7	4/30/16	FES, SRIS		2019/10		2019/12
349	Taylor Biomass Energy-Montgomery, LLC	Taylor Biomass	12/30/09	19	22.5	SW	Orange, NY	G	Maybrook - Rock Tavern 69kV	CHGE	12	12/31/17	SRIS, FS	10/15/13	2020/08		2021/04
358	West Point Partners, LLC	West Point Transmission	9/13/10	1000	1000	DC	Greene, Westchester, NY	F, H	Leeds - Buchanan North 345kV	NM-NG/ConEd	7	1/31/18	FES, SRIS		2021/01	2020/12	2021/05
361	US PowerGen Co.	Lyster Creek Energy	2/15/11	401	444	CC-D	Queens, NY	J	Astoria West Substation 139kV	CONED	7	6/30/17	FES, SRIS		2021/06		2021/06
363	Poseidon Transmission 1, LLC	Poseidon Transmission	4/27/11	500	500	DC	NJ - Suffolk, NY	K	Ruland Rd. 139kV	LIPA	10	1/31/18	FES, SRIS, FS	2/2/2017	2020/07	2020/11	2021/01
371	South Mountain Wind, LLC	South Mountain Wind	10/31/11	18	18	W	Delaware, NY	E	River Rd Substation 46kV	NYSEG	7	1/31/18	FES		2020/11	2020/10	2020/12
372	Dry Lots Wind, LLC	Dry Lots Wind	10/31/11	33	33	W	Herkimer, NY	E	Schuyler - Whitesboro 46kV	NM-NG	7	1/31/18	FES, SRIS		2020/11	2020/10	2020/12
383	NRG Energy, Inc.	Bowline Gen. Station Unit #3	5/30/12	775	814	CC-NG	Rockland, NY	G	Ladentown Substation 345kV	O&R/ConEd	7	6/30/16	SRIS		2022/01		2022/06
386	Vermont Green Line Devco, LLC	Green Line Intertie	6/28/12	400	400	DC	Clinton, NY - VT	D	Plattsburgh 230kV-New Haven, VT 345kV	NYP&A	6	11/30/18	FES, SRIS		2023	N/A	N/A
387	Cassadaga Wind, LLC	Cassadaga Wind	7/19/12	126	126	W	Chautauqua, NY	A	Dunkirk - Moon Station 115 kV	NM-NG	10	7/31/18	FES, SRIS, FS	7/11/2018	2020/05	2020/05	2020/12
393	NRG Berrians East Development, LLC	Berrians East Replacement	10/16/12	94.2	57	CT-D	Queens, NY	J	Astoria East Substation 138kV	CONED	10	7/31/18	FES, SRIS, FS	7/11/2018	2022/01	2022/01	2022/07
395	Copenhagen Wind Farm, LLC	Copenhagen Wind	11/12/12	79.9	79.9	W	Lewis, NY	E	Black River-Lighthouse Hill 115kV	NM-NG	13	11/30/18	FES, SRIS, FS	2/2/2017			2018/12
396	Baron Winds, LLC	Baron Winds	11/30/12	300	300	W	Steuben, NY	C	Hillside - Meyer 230kV	NYSEG	10	7/31/18	FES, SRIS, FS	7/11/2018	2020/05	2020/05	2020/12
396A	New York State Electric & Gas	Wood Street Transformer	12/14/12	N/A	N/A	AC	Putnam, NY	G	Wood St. 345/115kV	NYSEG	6	1/31/18	SIS		2021/12	N/A	N/A
401	Caithness Long Island II, LLC	Caithness Long Island II	3/22/13	599	632	CC-D	Suffolk, NY	K	Sills Road Substation 138kV	LIPA	8	9/30/18	SRIS		2022/04	2023/01	2023/05
413	PS&G Power New York	Bethlehem Energy Center Uprate	5/28/13	72	51.2	CC-D	Albany, NY	F	Bethlehem Energy Center	NM-NG	12, 14	1/31/18	FES, SRIS, FS	2/2/2017	2017-2019		2017-2019
414	North America Transmission, LLC	Segment B Enhanced	9/5/13	N/A	N/A	AC	Albany-Dutchess, NY	F, G	New Scotland - P. Valley 345kV	NM-NG/ConEd/ O&R/CHGE	5	5/31/18	None		2019	N/A	N/A
421	EDP Renewables North America	Arkwright Summit	11/1/13	78.4	78.4	W	Chautauqua, NY	A	Dunkirk - Falconer 115 kV	NM-NG	9,11	9/30/18	SRIS		2017/10		2018/09
422	NextEra Energy Resources, LLC	Eight Point Wind Energy Center	11/7/13	101.2	101.2	W	Steuben-Allegany, NY	C	Bennett 115kV	NYSEG	10	7/31/18	FES, SRIS, FS	7/11/2018	2020/07	2020/07	2020/12
429	Orange & Rockland	North Rockland Station	2/12/14	N/A	N/A	AC	Rockland, NY	G	Line Y88 345kV	ConEd	6	7/31/18	SIS		2021/06	N/A	N/A
430	H.Q. Energy Services U.S. Inc.	Cedar Rapids Transmission	3/15/14	N/A	N/A	AC	St. Lawrence, NY	D	Dennison - Alcoa 115kV	NM-NG	10	10/31/18	SIS, FS	10/2/2018	2020/12	N/A	N/A
432	New York State Electric & Gas	South Perry Transformer	4/15/14	N/A	N/A	AC	Wyoming, NY	B	South Perry Substation 115kV	NYSEG	14	7/31/18	SIS		I/S	N/A	N/A
444	Crocket Valley Energy Center, LLC	Crocket Valley Energy Center II	6/18/14	1020	1132	CC-NG	Dutchess, NY	G	Pleasant Valley - Long Mt. 345kV	ConEd	12	7/31/18	SRIS, FS	7/11/2018	2017/12		2020/03
445	Lighthouse Wind, LLC	Lighthouse Wind	6/30/14	201.3	201.3	W	Niagara, NY	A	AES Somerset Substation 345kV	NYSEG	7	8/31/17	FES, SRIS		2020/08		2020/12
449	Stockbridge Wind, LLC	Stockbridge Wind	8/13/14	72.6	72.6	W	Madison, NY	E	Whitman - Oneida 115kV	NM-NG	7	10/31/17	SRIS		2019/08		2019/12
458	TDI-USA Holdings, Inc.	CH Interconnection	10/24/14	1000	1000	DC	Quebec - NY, NY	J	Astoria Annex Substation 345kV	NYP&A	9	11/30/18	FES, SRIS		2022/12	2022/12	2022/12
461	Consolidated Edison Co. of NY	East River 1 Uprate	12/1/14	2	2	CT-NG	New York, NY	J	East River Complex	ConEd	14	7/31/18	SRIS, FS	7/11/2018			I/S
462	Consolidated Edison Co. of NY	East River 2 Uprate	12/1/14	2	2	CT-NG	New York, NY	J	East River Complex	ConEd	14	7/31/18	SRIS, FS	7/11/2018			I/S
465	Hudson Transmission NY to PJM	Hudson Transmission NY to PJM	12/15/14	675	675	DC/AC	New York, NY	J	W49th St 345kV - Bergen 230kV	ConEd	6	10/31/18	SRIS		2021/01	2021/05	2021/05
466	Atlantic Wind, LLC	Bone Run Wind	12/16/14	132	132	W	Cattaraugus, NY	A	Falconer - Homer Hill 115kV	NM-NG	7	1/31/18	FES, SRIS		2021/11	2021/11	2021/12
467	Shoreham Solar Commons LLC	Shoreham Solar	12/22/14	25	25	S	Suffolk, NY	K	Ridge - Wildwood 69kV	LIPA	14	9/30/18	SRIS, FS	7/11/2018			I/S
468	Apex Clean Energy LLC	Galloo Island Wind	12/30/14	110.4	110.4	W	Oswego, NY	C	Hammermill - Wine Creek 115kV	NM-NG	9	5/31/17	FES, SRIS		2019/10		2019/12
473	Calverton Solar LLC	Calverton Solar	1/21/15	10	10	S	Suffolk, NY	K	Riverhead - Wildwood 69kV	LIPA	7	10/31/18	FES, SRIS		2020/11	2020/11	2020/11
474	EDP Renewables North America	North Slope Wind	1/30/15	200	200	W	Franklin-Clinton, NY	D	Patnode 230kV	NYP&A	7	3/31/17	FES, SRIS		2021/10		2021/10
477	Riverhead Solar Farm LLC	Riverhead Solar	2/18/15	20	20	S	Suffolk, NY	K	Edwards Substation 138kV	LIPA	11	11/30/18	FES, SIS, FS	3/16/2018	2018/10		2018/11
487	LI Energy Storage System	Far Rockaway Battery Storage	3/9/15	20	20	ES	Suffolk, NY	K	Far Rockaway Substation 69kV	LIPA	5	11/30/18	FES		2020/10	2020/11	2020/12
494	Alabama Ledge Wind Farm LLC	Alabama Ledge Wind	3/31/15	79.8	79.8	W	Genesee, NY	A	Oakfield - Lockport 115kV	NM-NG	9	5/31/17	SRIS		2020/07		2020/10
495	Mohawk Solar LLC	Mohawk Solar	4/2/15	98	98	S	Montgomery, NY	F	St. Johnsville - Marshville 115kV	NM-NG	7	9/30/18	FES, SRIS		2021/09	2021/10	2021/12
496	Renovo Energy Center, LLC	Renovo Energy Center	4/13/15	480	504	CC-NG	Chemung, NY - PA	C	Homer City - Watercure 345kV	NYSEG	9	11/30/17	FES, SRIS		2019/09		2020/06
497	Invenery Wind Development LLC	Bull Run Wind	4/24/15	303.6	303.6	W	Clinton, NY	D	Patnode 230kV	NYP&A	7	9/30/18	FES, SRIS				2022/12
498	ESC Tioga County Power, LLC	Tioga County Power	4/29/15	550	550	CC-NG	Chemung, NY - PA	C	Homer City - Watercure 345kV	NYSEG	8	7/31/18	FES, SRIS		2020/06		2021/05
505	RES America Developments Inc.	Bail Hill Wind	6/2/15	100	100	W	Chautauqua, NY	A	Dunkirk - Gardenville 230kV	NM-NG	9	9/30/18	SRIS		2019/09	2019/09	2019/12
506	Empire State Connector Corp.	Empire State Connector	6/10/15	1000	1000	DC	Onondaga-New York, NY	C, J	Clay - Gowanus 345kV	NYP&A/NM-NG/ ConEd	4	5/31/17	FES		2021/10		2022/01
510	Bayonne Energy Center	Bayonne Energy Center II	8/3/15	120.4	129.4	CT-D	Bayonne, NJ	J	Gowanus Substation 345kV	ConEd	14	7/31/18	SRIS, FS	7/22/2018			I/S
511	AG Energy, LP	Ogdensburg	9/4/15	79	90.1	CT-NG	St. Lawrence, NY	E	North Ogdensburg Substation	NM-NG	9	6/30/18	SRIS		I/S	2019/05	2019/06
512	Northbrook Lyons Falls	Lyons Falls Mill Hydro	9/11/15	2.5	2.5	H	Lewis, NY	E	Taylorville- Boonville 115 kV	NM-NG	9	6/30/18	SIS		2021/09	2021/09	2021/11
513	Stony Creek Energy LLC	Orangeville	9/21/15	20	20	ES	Wyoming, NY	C	Stony Creek 230kV	NYSEG	10	5/31/18	SIS, FS	1/29/2018	2020/10		2020/12
516	East Coast Power LLC	Linden Cogen Uprate	10/12/15	234.4	234.4	CT-NG	Linden, NJ-NY, NY	J	Linden Cogen 345kV	ConEd	9	5/31/17	SRIS		2020/05		2020/05
518	PPL Electric Utilities	Compass	10/27/15	N/A	N/A	AC	PA-Rockland, NY	G	Lackawanna - Ramapo 345kV	ConEd	5	1/31/18	FES		2023/12	N/A	N/A
519	Canisteo Wind Energy LLC	Canisteo Wind	11/2/15	290.7	290.7	W	Steuben, NY	C	Bennett 115kV	NYSEG	9	10/31/18	FES, SRIS		2020/09	2020/09	2020/12
520	EDP Renewables North America	Rolling Upland Wind	12/3/15	72.6	72.6	W	Madison, NY	E	County Line - Brothertown 115kV	NYSEG	7	3/31/18	FES, SRIS		2019/07		2019/10
521	Invenery NY, LLC	Bull Run II Wind	12/15/15	145.4	145.4	W	Clinton, NY	D	Patnode-Duley, Ryan-Platts 230kV	NYP&A	7	11/30/18	FES, SRIS		2021/12		2022/12
522	NYC Energy LLC	NYC Energy	12/16/15	79.9	79.9	CT-NG	New York, NY	J	Hudson Avenue East 138kV	ConEd	7	7/31/18	FES, SRIS		2019/10		2019/10
523	Dunkirk Power LLC	Dunkirk Unit 2	12/17/15	75	75	ST-NG	Chautauqua, NY	A	Dunkirk 115kV	NM-NG	8	7/31/18	SRIS		2020/01		2020/04
524	Dunkirk Power LLC	Dunkirk Unit 3 & 4	12/17/15	370	370	ST-NG	Chautauqua, NY	A	Dunkirk 230kV	NM-NG	8	7/31/18	SRIS		2020/01		2020/04
526	Atlantic Wind, LLC	North Ridge Wind	12/23/15	100	100	W	St. Lawrence, NY	E	Colton - Malone 115kV	NM-NG	7	1/31/18	FES, SRIS		2020/11	2020/11	2020/12
530	NextEra Energy Transmission New York, Inc.	Empire State Line	1/4/16	N/A	N/A	AC	Niagara-Erie, NY	A	Dysinger - Stolle 345kV	NYP&A/NYSEG	6	1/31/18	SIS		2020/05	N/A	N/A
531	Invenery Wind Development LLC	Number 3 Wind Energy	1/11/16	105.8	105.8	W	Lewis, NY	E	Taylorville - Boonville 115kV	NM-NG	9	10/31/18	FES, SRIS		2020/09	2020/09	2020/12
532	Invenery Wind Development LLC	Allegany Wind	2/1/16	100	100	W	Allegany, NY	B	Freedom Substation	Village of Arcade	5	11/30/18	None				2021/12
534	OneEnergy Development, LLC	Great Valley Solar	2/3/16	20	20	S	Washington, NY	F	Battenkill 34.5kV Substation	NM-NG	9	10/31/18	FES, SIS		2020/05	2020/06	2020/06
535	sPower Development Company, LLC	Riverhead Expansion	2/23/16	36	36	S	Suffolk, NY	K	Edwards Substation 138kV	LIPA	7	11/30/18	FES, SRIS		2020/11		2020/12
537	NextEra Energy Transmission New York, Inc.	Segment A	4/25/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG/NYP&A	5	1/31/18	None		2018/11	N/A	N/A
538	NextEra Energy Transmission New York, Inc.	Segment B	4/25/16	N/A	N/A	AC	Albany-Dutchess, NY	F, G	Greenbush - PV 345kV	NM-NG/NYSEG/ CHGE/ConEd	6	10/31/18	SIS		2024/06	N/A	N/A
539	NextEra Energy Transmission New York, Inc.	Segment B Alt	4/25/16	N/A	N/A	AC	Albany-Dutchess, NY	F, G	Greenbush - PV 345kV	NM-NG/NYSEG/ CHGE/ConEd	6	10/31/18	SIS		2024/06	N/A	N/A

Queue Pos.	Owner/Developer	Project Name	Date of IR	SP (MW)	WP (MW)	Type/Fuel	Location County/State	Z	Interconnection Point	Utility	S	Last Update	Availability of Studies	FS Complete/ SGIA Tender	Proposed In-Service	Proposed Initial-Sync	Proposed COD
540	AVANGRID	Connect NY Edic - PV	4/28/16	1000	1000	DC	Oneida-Dutchess, NY	E, G	Edic - PV 345kV	NM-NG/NYSEG/ConEd	6	7/31/18	SIS		2020/12	N/A	N/A
541	AVANGRID	Connect NY Edic - Ramapo	4/28/16	1000	1000	DC	Oneida-Dutchess, NY	E, G	Edic - Ramapo 345kV	NM-NG/NYSEG/ O&R	6	10/31/18	SIS		2020/12	N/A	N/A
542	National Grid	Segment A Edic-New Scotland	5/4/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG	5	1/31/18	None		2021/12	N/A	N/A
543	National Grid	Segment B Knickerbocker-PV	5/4/16	N/A	N/A	AC	Albany-Dutchess, NY	F, G	Greenbush - PV 345kV	NM-NG/NYSEG/ CHGE/ConEd	6	10/31/18	SIS		2021/12	N/A	N/A
545	Sky High Solar, LLC	Sky High Solar	5/10/16	20	20	S	Onondaga, NY	C	Tilden - Tully Center 115kV	NM-NG	9	10/31/18	FES, SIS		2019/12	2019/11	2019/12
545A	NexEra Energy Transmission New York, Inc.	Empire State Line Alt	5/17/16	N/A	N/A	AC	Niagara-Erie, NY	A	Dysinger - Stolle 345kV	NYP/NYSEG	9	9/30/18	SIS		2021/04	2021/05	2022/06
546	Atlantic Wind, LLC	Roaring Brook Wind	5/19/16	78	78	W	Lewis, NY	E	Chases Lake Substation	NM-NG	7	7/31/18	FES, SRIS		2020/11	2020/11	2020/12
547	North America Transmission, LLC	Dysinger-Stolle	5/25/16	N/A	N/A	AC	Niagara-Erie, NY	A	Dysinger - Stolle 345kV	NYP/NYSEG/ NM-NG	6	1/31/18	SIS		2020/06	N/A	N/A
555	North America Transmission, LLC	Segment A Base	7/6/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG	5	5/31/18	None		2020/01	N/A	N/A
556	North America Transmission, LLC	Segment A Double Circuit	7/6/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG	6	10/31/18	SIS		2020/06	N/A	N/A
557	North America Transmission, LLC	Segment A Enhanced	7/6/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG	5	5/31/18	None		2020/01	N/A	N/A
558	North America Transmission, LLC	Segment A 765	7/6/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG/ NYPA	5	5/31/18	None		2020/01	N/A	N/A
559	North America Transmission, LLC	Segment B Base	7/6/16	N/A	N/A	AC	Oneida-Albany NY	E, F	Knickerbocker - PV 345kV	NM-NG/O&R CHGE/ConEd	6	9/30/18	SIS		2019/09	N/A	N/A
560	Atlantic Wind, LLC	Deer River Wind	7/8/16	100	100	W	Lewis, NY	E	Black River-Lighthouse Hill 115kV	NM-NG	5	11/30/18	FES		2020/11	2020/11	2020/12
561	Astoria Generating Co. LP	Astoria Generating Unit 4	7/18/16	385	385	ST-D	New York, NY	J	Astoria West Substation 138 kV	ConEd	7	3/31/18	SRIS		2020/05	2020/05	2020/05
563	Double Lock Solar, LLC	Double Lock Solar	7/25/16	20	20	S	Herkimer, NY	E	St. Johnsville - Marshville 115kV	NM-NG	5	4/30/18	None		2019/12	2019/11	2019/12
564	Rock District Solar, LLC	Rock District Solar	7/25/16	20	20	S	Schoharie, NY	F	Sharon - Cobleskill 69kV	NM-NG	5	1/31/18	None		2019/12	2019/11	2019/12
565	Tayandene Solar, LLC	Tayandene Solar	7/25/16	20	20	S	Herkimer, NY	E	St. Johnsville - Inghams 115kV	NM-NG	5	1/31/18	None		2019/12	2019/11	2019/12
566	New York Power Authority	MA 1 & 2 Rebuild	8/4/16	N/A	N/A	AC	St. Lawrence-Lewis, NY	D, E	Moses & Adirondack 230kV	NYPA	6	4/30/18	SIS		2022/12	N/A	N/A
570	Hecate Energy, LLC	Albany County	8/17/16	20	20	S	Albany, NY	F	Long Lane - Lafarge 115kV	NM-NG	7	9/30/18	SIS		2019/06		2019/06
571	Heritage Renewables, LLC	Heritage Wind	9/11/16	200.1	200.1	W	Genesee, NY	A	Lockport - Mortimer 115kV	NM-NG	7	10/31/18	FES, SRIS		2020/09		2020/12
572	Hecate Energy, LLC	Greene County I	9/6/16	20	20	S	Greene, NY	G	Coxsackie - North Catskill 69kV	CHGE	5	10/31/17	None		2019/06		2019/06
573	Hecate Energy, LLC	Greene County II	9/6/16	10	10	S	Greene, NY	G	Coxsackie Substation 13.8kV	CHGE	5	4/30/18	None		2019/06		2019/06
574	Atlantic Wind, LLC	Mad River Wind	9/16/16	450	450	W	Jefferson-Oswego, NY	C	Volney - Marcy 345kV	NM-NG	5	1/31/18	FES		2021/11	2021/11	2021/12
575	Little Pond Solar, LLC	Little Pond Solar	9/16/16	20	20	S	Rockland, NY	G	Mongaup - Shoemaker 69kV	O&R	7	9/30/18	FES, SIS		2019/12	2019/11	2019/12
576	Astoria Generating Company	Astoria Generating Unit 4	9/16/16	385	385	ST-D	New York, NY	J	Astoria East Substation 138kV	ConEd	7	3/31/18	SRIS		2020/05	2020/05	2020/05
577	Greene County Energy Properties, LLC	Greene County Energy	9/20/16	20	20	S	Greene, NY	G	New Baltimore - Coxsackie 69 kV	CHGE	5	12/31/17	None		2018/08		2018/08
579	Bluestone Wind, LLC	Bluestone Wind	9/21/16	124.2	124.2	W	Broome, NY	E	Afton - Stilesville 115kV	NYSEG	7	7/31/18	FES, SRIS		2020/09	2020/09	2020/12
580	Genesee County Economic Devel.	WNY STAMP	9/27/16	500	500	L	Genesee, NY	A	Kinigh/Niagara - Rochester 345kV	NYPA	6	10/31/18	SIS		2020/06		2020/06
581	SED NY Holdings LLC	Hills Solar	10/6/16	20	20	S	Herkimer, NY	E	Fairfield - Inghams 115kV	NM-NG	5	11/30/18	FES		2019/06	2019/06	2019/06
582	Sunny Knoll Solar LLC	Sunny Knoll Solar	10/18/16	20	20	S	Schoharie, NY	F	Cobleskill - Schoharie 69kV	NM-NG	5	1/31/18	None		2019/12	2019/11	2019/12
584	SED NY Holdings LLC	Dog Corners Solar	11/2/16	20	20	S	Cayuga, NY	C	Aurora Substation 34.5kV	NYSEG	7	9/30/18	SIS		2019/06		2019/06
586	SED NY Holdings LLC	Watkins Rd Solar	11/8/16	20	20	S	Herkimer, NY	E	Watkins Rd - Iliion 115kV	NM-NG	5	7/31/18	None		2019/06		2019/06
589	Duke Energy Renewables Solar, LLC	North Country Solar	12/2/16	15	15	S	Lewis, NY	E	Boonville 45kV Substation	NM-NG	5	9/30/18	FES		2019/09		2019/09
590	Duke Energy Renewables Solar, LLC	Scipio Solar	12/2/16	18	18	S	Cayuga, NY	C	Scipio 34.5kV Substation	NYSEG	9	9/30/18	SIS		2019/09		2019/11
591	RES America Developments LLC	High Top Solar	12/2/16	20	20	S	Wyoming, NY	B	South Perry 34.5kV Substation	NYSEG	7	9/30/18	SIS		2019/09		2019/06
592	Duke Energy Renewables Solar, LLC	Niagara Solar	12/2/16	20	20	S	Wyoming, NY	B	Bennington 34.5kV Substation	NYSEG	9	9/30/18	SIS		2019/09		2019/11
594	North Park Energy, LLC	NW Energy	12/29/16	64.8	64.8	ES	Wyoming, NY	B	Wethersfield Substation 230kV	NYSEG	7	10/31/18	SRIS		2019/10		2019/12
595	North Park Energy, LLC	SW Energy	12/29/16	110.1	110	ES	Cattaraugus, NY	A	Five Mile Rd Substation 115kV	NM-NG	5	11/30/18	FES		2019/10		2019/12
596	Invenery Wind Development LLC	Alle Catt II Wind	1/4/17	381.1	381.1	W	Cattaraugus, NY	A	Stolle Rd - Five Mile Rd 345kV	NM-NG	9	10/31/18	SRIS		2021/10	2021/10	2021/12
597	Hecate Energy, LLC	Greene County III	1/10/17	20	20	S	Greene, NY	G	North Catskill - Coxsackie 69kV	CHGE	5	7/31/18	None		2020/06	2020/05	2020/06
598	Hecate Energy, LLC	Albany County II	1/10/17	20	20	S	Albany, NY	F	Long Lane - Lafarge 115kV	NGrid	7	10/31/18	SIS		2020/06	2020/05	2020/06
600	Conti Enterprises, Inc.	Darby Solar	1/12/17	20	20	S	Washington, NY	G	Mechanicville - Schaghticoke 34.5kV	NGrid	5	11/30/18	FES		2019/06		2019/08
601	HP Hood LLC	Hood Cogen	1/20/17	4	4	CT-NG	Madison, NY	C	Oneida - Fenner 115kV	NGrid	7	6/30/18	FES		2019/03		2019/03
608	ITC New York Development, LLC	Segment A	2/8/17	N/A	N/A	AC	Oneida-Albany NY	E, F	Edic - New Scotland 345kV	NM-NG	5	1/31/18	None		2020/04	N/A	N/A
609	ITC New York Development, LLC	Segment B	2/8/17	N/A	N/A	AC	Oneida-Albany NY	E, F	Knickerbocker - PV 345kV	NM-NG/NYSEG/ CHGE/ConEd	5	1/31/18	None		2021/04	N/A	N/A
610	Woodruff Solar, LLC	Woodruff Solar	2/10/17	20	20	S	Livingston, NY	A	Golah - N. Lakeville 34.5kV	NM-NG	5	4/30/18	None		2019/12	2019/11	2019/12
612	Deepwater Wind South Fork, LLC	South Fork Wind Farm	2/14/17	96	96	W	Suffolk, NY	K	East Hampton 69kV	LIPA	7	11/30/18	SRIS		2022/08		2022/12
613	OneEnergy Development, LLC	Sugar Maple Solar	2/17/17	20	20	S	Herkimer, NY	E	Trenton Falls - Poland 46kV	NM-NG	5	11/30/18	FES		2020/10	2020/10	2020/10
615	West Point Partners, LLC	West Point II HVDC	3/2/17	1000	1000	DC	Albany, Westchester, NY	F, H	New Scotland - Buchanan South 345kV	NM-NG/ConEd	3	8/31/17	None		2022/01		2022/05
616	Heelstone Development, LLC	Mohawk Solar	3/23/17	20	20	S	Herkimer, NY	E	Watkins Rd - Iliion 115kV	NM-NG	5	7/31/18	None		2019/06	2019/06	2019/08
617	North Park Energy, LLC	Watkins Glen Solar	3/27/17	50	50	S	Schuyler, NY	C	Bath - Montour Falls 115kV	NYSEG	7	7/31/18	SRIS		2020/07		2020/12
618	North Park Energy, LLC	High River Solar	3/27/17	100	100	S	Schenectady, NY	F	Stoner - Rotterdam 115kV	NM-NG	7	11/30/18	SRIS		2020/07		2020/12
619	North Park Energy, LLC	East Point Solar	3/27/17	50	50	S	Schoharie, NY	F	Sharon - Marshville 69kV	NM-NG	7	9/30/18	SRIS		2020/07		2020/12
620	North Park Energy, LLC	North Side Solar	3/27/17	180	180	S	St. Lawrence, NY	E	Massena - Moses 230kV	NYPA	5	11/30/18	FES		2020/07		2020/12
621	Blue Stone Solar Energy, LLC	Saugerties Solar	3/27/17	20	20	S	Ulster, NY	G	Saugerties - Woodstock 69kV	CHGE	7	10/31/18	SIS		2019		2019
624	Franklin Solar, LLC	Franklin Solar	4/11/17	150	150	S	Franklin, NY	D	Malone 115kV Substation	NM-NG	7	9/30/18	SRIS		2020		2020
629	Silver Lake Solar, LLC	Silver Lake Solar	4/27/17	24.9	24.9	S	Wyoming, NY	B	South Perry 34.5kV Substation	NYSEG	5	11/30/18	FES		2020		2020
631	Champlain Hudson Power Express, Inc.	NS Power Express	5/2/17	1000	1000	DC	Quebec - NY, NY	J	New Scotland, Astoria Annex 345kV	NM-NG/NYPA	5	4/30/18	None		2021/12		2021/12
632	GridAmerica Holdings Inc.	Alps - Berkshire	5/4/17	N/A	N/A	AC	Rensselaer, NY-NE	F	Alps - Berkshire 345kV	NM-NG	5	1/31/18	None		2021/09	N/A	N/A
635	Rising Solar, LLC	Rising Solar	6/14/17	20	20	S	Orange, NY	G	Sugarloaf - Wisner 69kV	O&R	4	9/30/18	FES		2019		2019
636	Daybreak Solar, LLC	Daybreak Solar	6/15/17	25	25	S	Ulster, NY	G	East Walden Substation 69kV	CHGE	4	10/31/18	FES		2022/11		2022/11
637	Flint Mine Solar LLC	Flint Mine Solar	6/29/17	100	100	S	Greene, NY	G	LaFarge - Pleasant Valley 115kV	NM-NG	5	11/30/18	FES		2020/11	2020/10	2020/12
638	Empire State Land Holdings, LLC	Pattersonville	7/11/17	20	20	S	Montgomery, NY	F	Rotterdam - Meco 115kV	NM-NG	5	11/30/18	FES		2019/09	2019/11	2019/11
641	AVANGRID	Oakdale - Lafayette	7/24/17	N/A	N/A	AC	Bromme-Onondaga, NY	C	Oakdale - Lafayette	NM-NG/NYSEG	4	1/31/18	None		N/A	N/A	N/A
642	AVANGRID	Jennison - Edic	7/24/17	N/A	N/A	AC	Chenango - Oneida, NY	E	Jennison - Edic	NM-NG/NYSEG	4	1/31/18	None		N/A	N/A	N/A
643	AVANGRID	Multiple Areas	7/24/17	N/A	N/A	AC	Steuben - Otsego, NY	C, E	Transmission Reinforcements	NM-NG/NYSEG	4	1/31/18	None		N/A	N/A	N/A
644	Hecate Energy Columbia County 1, LLC	Columbia County 1	7/26/17	60	60	S	Columbia, NY	F	Craryville Substation 115kV	NYSEG	5	11/30/18	FES		2019/09	2019/10	2019/12
649	CR Fuel Cell, LLC	Clare Rose	8/3/17	13.9	13.9	FC	Suffolk, NY	K	William Floyd Substation 69kV	LIPA	5	11/30/18	FES		2020/12		2020/12
650	BRT Fuel Cell, LLC	Brookhaven Rail Terminal	8/3/17	18.5	18.5	FC	Suffolk, NY	K	W. Yaphank - Yaphank 69kV	LIPA	5	11/30/18	FES		2019/10		2019/10
654	Renovo Energy Center LLC	Renovo Energy Center	8/11/17	N/A	N/A	AC	Cumhury, NY - PA	C	Homer City - Watercure 345kV	NYSEG	5	1/31/18	None		2020/10	N/A	
655	Admiral Wind LLC	Admiral Wind LLC	8/11/17	20	20	W	Madison, NY	C	Oneida - Fenner 115kV	NM-NG	5	11/30/18	FES		2020/03		2020/03
657	Mistral Wind LLC	Mistral Wind LLC	8/11/17	20	20	W	Genesee, NY	A	Lockport - Batavia 115kV	NM-NG	5	11/30/18	FES		2020/03		2020/03
662	EDP Renewables North America LLC	Coldwater Solar	9/7/17	80.0	80.0	S	Chautauqua, NY	A	Dunkirk - Gardenville 115kV	NM-NG	3	5/31/18	None		2022/07	2022/10	2022/10
666	Martin Rd Solar LLC	Martin Solar	9/14/17	20.0	20.0	S	Machias, NY	A	Machias Substation 34.5kV	NM-NG	5	11/30/18	None		2019/12	2019/12	2020/01

Queue Pos.	Owner/Developer	Project Name	Date of IR	SP (MW)	WP (MW)	Type/Fuel	Location County/State	Z	Interconnection Point	Utility	S	Last Update	Availability of Studies	FS Complete/ SGIA Tender	Proposed In-Service	Proposed Initial-Sync	Proposed COD
667	Bakerstand Solar LLC	Bakerstand Solar	9/14/17	20.0	20.0	S	Cattaraugus, NY	A	Machias - Maplehurst 34.5kV	NM-NG	5	11/30/18	None		2019/12	2019/12	2020/01
668	North Bergen Liberty Generating, LLC	Liberty Generating Alternative	9/15/17	1171	1172	CC-NG	New York, NY	J	West 49th St Substation	ConEd	7	10/31/18	SRIS		2021/05	2021/09	2021/09
669	SED NY Holdings LLC	Clay Solar	9/21/17	20.0	20.0	S	Clay, NY	J	Clay - Lockhead 115kV	NM-NG	5	11/30/18	FES		2019/08	2019/08	2019/08
670	SED NY Holdings LLC	Skyline Solar	9/21/17	20.0	20.0	S	Westmoreland, NY	E	Campus Rd - Clinton 46kV	NM-NG	4	10/31/18	FES		2019/08	2019/08	2019/08
671	East Coast Power LLC	Linden Cogen Uprate	9/25/17	32.0	23.0	CT-NG	Linden, NJ-NY, NY	J	Linden Cogen 345kV	ConEd	7	10/31/18	SRIS	I/S	I/S	2019/05	2019/05
678	LI Solar Generation, LLC	Calverton Solar Energy Center	10/26/17	22.9	22.9	S	Suffolk, NY	K	Edwards Substation 138kV	LIPA	4	6/30/18	None		2020/12	2020/10	2020/12
679	Anbaric Development Partners	New York City Offshore Wind	11/7/17	1200	1200	W	Kings, NY	J	Farragut 345kV	ConEd	3	7/31/18	None		2025/07	2025/11	2025/12
680	Anbaric Development Partners	Long Island Offshore Wind	11/7/17	700	700	W	Suffolk, NY	K	Ruland Rd. 138kV	LIPA	2	6/30/18	None		2025/07	2025/11	2025/12
682	Granada Solar, LLC	Grissom Solar	1/17/18	20	20	S	Johnstown, NY	J	Ephratah - Florida 115kV	NM-NG	4	9/30/18	FES		2019/03	2019/03	2019/04
683	KCE NY 2, LLC	KCE NY 2	1/18/18	200	200	ES	Montgomery, NY	G	Coldenham Substation 115kV	CHGE	5	11/30/18	None		2019/12	2019/11	2019/12
684	ITC Lake Erie Connector, LLC	Lake Erie Connector	1/18/18	N/A	N/A	AC	Chautauqua, NY	A	S. Ripley 230kV	NM-NG	9	11/30/18	None		2023/03	N/A	N/A
686	Invenery Solar Development North America LLC	Bull Run Solar Energy Center	1/26/18	170	170	S	Clinton, NY	D	Patnode - Duley 230kV	NYP&A	5	11/30/18	None		2020/10	2020/10	2020/12
693	Renovo Energy Center, LLC	Renovo Energy Center Uprate	2/13/18	515	548	CC-NG	Chemung, NY - PA	C	Homer City - Mainesburg 345kV	NYSEG	5	11/30/18	None		2020/10	2020/11	2021/04
694	Sunset Hill Solar, LLC	Renovo Hill Solar	2/16/18	20	20	S	Albany, NY	F	New Baltimore - Westerlo NW 69 kV	CHGE	4	11/30/18	FES		2020/08	2020/07	2020/08
695	Deepwater Wind, LLC	South Fork Wind Farm II	2/16/18	40	40	W	Suffolk, NY	K	East Hampton 69kV	LIPA	5	11/30/18	None		2022/08	2022/09	2022/12
696	Eagle Creek Hydro Power, LLC	Swinging Bridge Unit 3	3/21/18	9	9	H	Orange, NY	G	Swing Bridge 69 kV	O&R	10	9/30/18	None	6/20/2018	2019/02	2019/02	2019/03
697	Helix Ravenswood, LLC	Ravenswood Energy Storage 1	3/9/18	N/A	N/A	ES	Queens, NY	J	Rainey Substation 345kV	ConEd	4	7/31/18	None		2021/01	2020/10	2021/03
698	Helix Ravenswood, LLC	Ravenswood Energy Storage 2	3/9/18	N/A	N/A	ES	Queens, NY	J	Rainey Substation 345kV	ConEd	4	7/31/18	None		2021/01	2020/10	2021/03
699	Helix Ravenswood, LLC	Ravenswood Gas	3/9/18	238.5	243.8	CT-NG	Queens, NY	J	Rainey Substation 345kV	ConEd	4	7/31/18	None		2022/03	2022/01	2022/06
700	Able Grid Energy Solutions, LLC	Robinson Grid	3/13/18	300	300	ES	Kings, NY	J	Gowanus Substation 345kV	ConEd	3	9/30/18	None		2020/10	2020/11	2020/12
701	KCE NY 1, LLC	KCE NY 1	3/15/18	20	20	ES	Saratoga, NY	F	Luther - Forest Substation 34.5kV	NYSEG	10	11/30/18	None	6/20/2018	2019/01	2019/01	2019/01
703	Anbaric Development Partners, LLC	New York City Offshore AC	3/15/18	800	800	W	Kings, NY	J	Farragut 345kV	ConEd	3	11/30/18	None		2025/07	2025/11	2025/12
704	Bear Ridge Solar, LLC	Bear Ridge Solar	3/20/18	100	100	S	Niagara, NY	A	Swanee - Lockport 115kV	NM-NG	5	11/30/18	None		2020/07	2020/09	2020/09
706	High Bridge Wind, LLC	High Bridge Wind	4/25/18	100.8	100.8	W	Chenango, NY	E	E. Norwich - Jennison 115kV	NYSEG	4	5/31/18	None		2021/08	2021/09	2021/11
710	Alder Creek Solar, LLC	Alder Creek Solar	5/18/18	205.0	205.0	S	Oneida, NY	E	Nirvana - Porter 230kV	NM-NG	3	11/30/18	None		2021/07	2021/07	2021/12
710	Invenery Solar Development North America LLC	Horseshoe Solar	5/29/18	180.0	180.0	S	Livingston, NY	A	Golah Substation 115kV	NM-NG	3	11/30/18	None		2021/10	2021/10	2021/12
713	EDF Renewables Development, Inc.	Edora B Solar	6/11/18	20.0	20.0	S	Orange, NY	G	Hartley Substation 69kV	O&R	3	9/30/18	None		2021/10	2021/10	2021/11
714	EDF Renewables Development, Inc.	Edora C Solar	6/11/18	17.7	17.7	S	Orange, NY	G	Shoemaker-Westtown 69kV	O&R	3	11/30/18	None		2021/10	2021/10	2021/11
715	EDF Renewables Development, Inc.	Suffragette Solar	6/11/18	20	20	S	Cayuga, NY	C	Hyatt Substation 34.5kV	NYSEG	3	11/30/18	None		2021/10	2021/10	2021/11
716	EDF Renewables Development, Inc.	Moraine Solar	6/4/18	87.4	93.5	S	Allegany, NY	C	Moraine Substation 115kV	NYSEG	3	11/30/18	None		2021/09	2021/09	2021/10
717	EDF Renewables Development, Inc.	Morris Ridge Solar	6/4/18	152	177.3	S	Steuben, NY	C	South Perry - Meyer 230kV	NYSEG	3	11/30/18	None		2021/09	2021/09	2021/10
718	Cortland Energy Center, LLC	Cortland Energy Center	6/7/18	50	50	S	Cortland, NY	C	Cortland 115 kV	NM-NG	5	11/30/18	None		2022/08	2022/09	2022/11
719	East Light Energy Center, LLC	East Light Energy Center	6/7/18	40	40	S	Montgomery, NY	F	Meco - Rotterdam 115 kV	NM-NG	5	11/30/18	None		2022/08	2022/09	2022/11
720	North Light Energy Center, LLC	North Light Energy Center	6/7/18	80	80	S	Seneca, NY	C	Border City - Station 168 115 kV	NYSEG	5	11/30/18	None		2022/08	2022/09	2022/11
721	Excelsior Energy Center, LLC	Excelsior Energy Center	6/7/18	280	280	S	Genesee, NY	A	N. Rochester-Niagara Falls 345 kV	NYP&A	5	11/30/18	None		2022/06	2022/08	2022/11
722	Empire State Solar, LLC	Manchester Solar	6/7/18	20.0	20.0	S	Ontario, NY	B	Hook Rd - Elbridge 115kV	NM-NG	2	10/31/18	None		2020/09	2020/10	2020/12
723	Lyonsdale Biomass, LLC	Lyonsdale Solar	6/8/18	19.9	19.9	S	Lewis, NY	E	Lyonsdale Substation 115kV	NM-NG	4	8/31/18	None		2020/11	2020/10	2020/11
730	Granada Solar, LLC	Easton Solar I	6/11/18	20	20	S	Washington, NY	F	Mohican - Luther Forest 115kV	NM-NG	3	10/31/18	None		2019/10	2019/11	2019/12
731	Granada Solar, LLC	Easton Solar II	6/11/18	20	20	S	Washington, NY	F	Battenkill - Eastover 115kV	NM-NG	3	10/31/18	None		2019/10	2019/11	2019/12
732	Machias Solar, LLC	Machias Solar	6/11/18	20	20	S	Cattaraugus, NY	A	Fivemile - Gardenville 115kV	NM-NG	4	9/30/18	None		2020/11	2020/11	2020/12
734	ELP Ticonderoga Solar LLC	Ticonderoga Solar	6/12/18	20	20	S	Essex, NY	F	Ticonderoga 115kV - Republic Line 2	NM-NG	3	10/31/18	None		2020/10	2019/11	2019/12
735	ELP Stillwater Solar LLC	Stillwater Solar	6/12/18	20	20	S	Saratoga, NY	F	Luther Forest - Mohican 115kV	NM-NG	3	9/30/18	None		2019/10	2019/11	2019/12
737	Equinor Wind US LLC	Empire Wind	6/12/18	816	816	W	New York, NY	J	Gowanus Substation 345kV	ConEd	5	11/30/18	None		2023/06	2024/02	2024/12
738	Equinor Wind US LLC	Empire Wind II	6/12/18	816	816	W	Suffolk, NY	K	Ruland Rd. Substation 138kV	LIPA	4	8/31/18	None		2023/06	2024/02	2024/12
739	Hecate Energy Cody Road LLC	Cody Road	6/12/18	19.9	19.9	W	Madison, NY	C	Fenner - Cortland 115kV	NM-NG	3	11/30/18	None		2020/02	2020/02	2020/03
740	Oakdale Battery Storage LLC	Oakdale Battery Storage	6/18/18	120	120	ES	Broome, NY	E	Oakdale Substation 115kV	NYSEG	4	8/31/18	None		2021/07	2021/05	2021/08
741	Bluestone Wind, LLC	Bluestone Battery Storage	7/2/18	10	10	ES	Broome, NY	E	Afton - Stilesville 115kV	NYSEG	5	11/30/18	None		2020/08	2020	2020/11
742	Consolidated Edison Co. of NY, Inc.	Astoria Storage on Demand	7/5/18	4	4	ES	Queens, NY	J	BKR 21Q	Con Ed	4	10/31/18	None		2019/03	2019/04	2019/06
743	Invenery Solar Development North America LLC	Hornell Solar	7/16/18	20	20	S	Steuben, NY	C	Bennett 34.5kV	NYSEG	5	11/30/18	None		2020/10	2020/10	2020/12
744	Granada Solar, LLC	Magruder Solar	7/18/18	20	20	S	Ulster, NY	G	East Walden - Modena 115kV	CHGE	4	9/30/18	None		2020/11	2020/11	2020/12
745	Energy Storage Resources, LLC	Huckleberry Ridge Energy	7/25/18	100	100	ES	Orange, NY	G	Shoemaker-Westtown 69kV	O&R	4	9/30/18	None		2022/03	2022/04	2022/04
746	Energy Storage Resources, LLC	Peconic River Energy Storage	7/30/18	150	150	ES	Suffolk, NY	K	Brookhaven - Sills 136kV	LIPA	4	11/30/18	None		2022/03	2022/03	2022/04
748	Granada Solar, LLC	Grissom II Solar	8/9/18	20	20	S	Fulton, NY	F	Market Hill - Johnstown 69kV	NM-NG	4	9/30/18	None		2019/03	2019/03	2019/04
749	KCE NY 11 LLC	KCE NY 11	8/10/18	20	20	ES	Orange, NY	G	Coldenham Substation 115kV	CHGE	4	11/30/18	None		2020/06	2020/07	2020/07
754	Anbaric Development Partners, LLC	New York Ocean Grid - Canal	8/20/18	800	800	W	Suffolk, NY	K	Canal Substation	LIPA	2	11/30/18	None		2025/07	2025/11	2025/12
755	Anbaric Development Partners, LLC	New York Ocean Grid - Shoreham	8/20/18	800	800	W	Suffolk, NY	K	Shoreham Substation	LIPA	2	11/30/18	None		2025/07	2025/11	2025/12
756	Rising Solar, LLC	Rising Solar II	8/24/18	20	20	S	Orange, NY	G	Sugarloaf Substation - 69kV	O&R	4	11/30/18	None		2019/10	2019/10	2019/10
757	Granada Solar, LLC	Monarda Solar	8/29/18	20	20	S	Herkimer, NY	E	Meco - Rotterdam 115 kV	NM-NG	2	11/30/18	None		2019/10	2019/11	2019/12
758	Sithe/Independence Power Partners, LP	Sithe Independence	9/6/18	9	27	CC-NG	Oswego, NY	C	Sithe 345kV Substation	NM-NG	4	10/31/18	None	I/S	I/S	I/S	
759	KCE NY 6, LLC	KCE NY 6	9/6/18	20	20	ES	Erie, NY	A	Gardenville - Bethlehem Steel Wind 115kV	NM-NG	4	11/30/18	None		2019/11	2019/12	2019/12
760	NYP&A	Moses-Adirondack	9/7/18	N/A	N/A	AC	St. Lawrence-Lewis, NY	D, E	Moses - Adirondack 230kV	NYP&A	4	10/31/18	None		2020/12	N/A	N/A
762	Invenery Storage Development LLC	Riverhead Storage Energy Center	9/17/18	75	75	ES	Suffolk, NY	K	Calverton - Riverhead 69kV	LIPA	2	11/30/18	None		2021/10	2021/10	2021/12
763	Invenery Solar Development LLC	Cicero Solar	9/25/2018	10	10	ES	Onondaga, NY	C	Pine Grove Substation 13.2kV	NM-NG	4	11/30/18	None		2020/10	2020/10	2020/12
764	Bay State Wind LLC	NY Wind Shoreham	9/28/2018	880	880	W	Suffolk, NY	K	Shoreham Substation 115kV	LIPA	2	11/30/18	None		2023/01	2023/05	2024/01
765	Bay State Wind LLC	NY Wind Brookhaven	9/28/2018	880	880	W	Suffolk, NY	K	Brookhaven 138kV	LIPA	2	11/30/18	None		2023/01	2023/05	2024/01
766	Bay State Wind LLC	NY Wind Holbrook	9/28/2018	880	880	W	Suffolk, NY	K	Holbrook 138kV	LIPA	2	11/30/18	None		2023/01	2023/05	2024/01
767	Bay State Wind LLC	NY Wind Gowanus	9/28/2018	1200	1200	W	New York, NY	J	Gowanus Substation 345kV	ConEd	2	11/30/18	None		2023/01	2024/04	2024/05
768	Granada Solar, LLC	Janis Solar	10/1/2018	20	20	S	Broome, NY	C	Willett 34.5kV	NYSEG	4	11/30/18	None		2020/09	2020/09	2020/10
769	New York Power Authority	North County Energy Storage	10/5/2018	20	20	ES	Franklin, NY	E	Willis Substation 115kV	NYP&A	4	11/30/18	None		2020/04	2020/04	2020/04
770	KCE NY8 LLC	KCE NY 8a	10/9/2018	20	20	ES	Greene, NY	G	South Cairo Substation 13.2kV	CHGE	4	11/30/18	None		2019/11	2019/11	2019/12
771	Mistral Wind LLC	Mistral Wind Alternative	10/10/18	20	20	W	Genesee, NY	A	N. Akron - Attica 34.5 kV	NM-NG	2	11/30/18	None		2020/03	2020/04	2020/05
772	Hollyhock Solar, LLC	Hollyhock Solar	10/15/18	20	20	S	Albany, NY	F	Leeds - New Scotland 115kV	NM-NG	2	11/30/18	None		2021/08	2021/07	2021/08
773	Charboneau Solar, LLC	Charboneau Solar	10/15/18	20	20	S	Essex, NY	F	Ticonderoga - Hague Road 115kV	NM-NG	2	11/30/18	None		2021/08	2021/07	2021/08
774	EDF Renewables Development, Inc.	Tracy Solar Energy Centre															

Number of new projects during November	4
Number of new projects year to date	100
Number withdrawn during November	7
Number withdrawn year to date	59

NOTES:

- The column labeled 'SP' refers to the maximum summer megawatt electrical output. The column labeled 'WP' refers to the maximum winter megawatt electrical output.
- Type / Fuel. Key: ST=Steam Turbine, CT=Combustion Turbine, CC=Combined Cycle, CS= Steam Turbine & Combustion Turbine, H=Hydro, PS=Pumped Storage, W=Wind, NU=Nuclear, NG=Natural Gas, M=Methane, SW=Solid Waste, S=Solar, Wo=Wood, F=Flywheel ES=Energy Storage, O=Oil, C=Coal, D=Dual Fuel, AC=AC Transmission, DC=DC Transmission, L=Load, FC=Fuel Cell
- The column labeled 'Z' refers to the zone
- The column labeled 'S' refers to the status of the project in the NYISO's LFIP. Key: 1=Scoping Meeting Pending, 2=FES Pending, 3=FES in Progress, 4=SRIS/SIS Pending, 5=SRIS/SIS in Progress, 6=SRIS/SIS Approved, 7=FS Pending, 8=Rejected Cost Allocation/Next FS Pending, 9=FS in Progress, 10=Accepted Cost Allocation/IA in Progress, 11=IA Completed, 12=Under Construction, 13=In Service for Test, 14=In Service Commercial, 0=Withdrawn
- Availability of Studies Key: None=Not Available, FES=Feasibility Study Available, SRIS=System Reliability Impact Study Available, FS=Facilities Study and/or ATRA Available
- FS Complete/SGIA Tender refers to the Attachment X milestone used to apply the 4-year COD limitation.
- Proposed in-service dates and Commercial Operation Dates (COD) are shown in format Year/Qualifier, where Qualifier may indicate the month, season, or quarter.

DPS/State - SIR Interconnection Queue (for Projects not subject to the NYISO process):

<http://www3.dps.ny.gov/W/PSCWeb.nsf/All/286D2C179E9A5A8385257FBF003F1F7E?OpenDocument>

Attachment VI: Status Key for Interconnection Queue

0	Withdrawn	Project withdrawn from the interconnection queue since the prior posted interconnection queue
1	Scoping Meeting Pending	Interconnection Request has been received, but scoping meeting has not yet occurred
2	FES Pending	Awaiting execution of Feasibility Study Agreement
3	FES in Progress	Feasibility Study is in Progress
4	SRIS/SIS Pending	Awaiting execution of System Reliability Impact Study (SRIS) or System Impact Study (SIS) Agreement and/or OC approval of SRIS or SIS scope ³⁷
5	SRIS/SIS in Progress	SRIS/SIS is in Progress
6	SRIS/SIS Approved	SRIS/SIS Approved by NYISO Operating Committee
7	FS Pending	Awaiting execution of Facilities Study Agreement
8	Rejected Cost Allocation/ Next FS Pending	Project was in prior Class Year, but rejected cost allocation—Awaiting execution of Facilities Study Agreement for next Class Year or the start of the next Class Year
9	FS in Progress	Class Year Facilities Study or Small Generator Facilities Study is in Progress
10	Accepted Cost Allocation/ IA in Progress	Interconnection Agreement is being negotiated
11	IA Completed	Interconnection Agreement is executed or filed unexecuted with FERC
12	Under Construction	Project is under construction
13	In Service for Test	Project is initially synchronized and Trial Operations have begun
14	In Service Commercial	Project has completed Trial Operation and commenced Commercial Operation

³⁷ System Reliability Impact Study (SRIS) applies to a Large Facility Interconnection Request. System Impact Study (SIS) applies to a Small Generator Interconnection Request or a non-merchant transmission study request.

Attachment VII: November 1999 – October 2018 Installed Capacity Auction Activity

Month	NYCA						NYC						LI					G-J Locality							
	Capacity Period ¹ (Strip)		Monthly Auction ²		Spot Market ²		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	
	MW	Price	MW	Price	MW	Price	MW		MW	Price	MW	Price	MW	Price	MW		MW	Price	MW	Price	MW	Price	MW		
Nov-99							35,563.1								8,305.6									4,555.3	
Dec-99							35,563.1								8,305.6									4,555.3	
Jan-00	Installed Capacity Market Existed but all purchases and sales were bilateral						35,563.1		Installed Capacity Market Existed but all purchases and sales were bilateral						8,305.6		Installed Capacity Market Existed but all purchases and sales were bilateral						4,555.3		
Feb-00							35,563.1								8,305.6								4,555.3		
Mar-00							35,563.1								8,305.6									4,555.3	
Apr-00							35,563.1								8,305.6									4,555.3	
May-00	1,976.0	\$1.50	434.2	\$1.30	32.7	\$0.50	35,636.0	1,976.0	5,408.8	\$8.75	59.4	\$12.50	0.0	-	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Jun-00	1,976.0	\$1.50	528.4	\$1.40	37.1	\$1.28	35,563.1	1,976.0	5,408.8	\$8.75	313.4	\$9.46	52.7	\$12.50	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Jul-00	1,976.0	\$1.50	344.2	\$1.80	140.8	\$1.98	35,563.1	1,976.0	5,408.8	\$8.75	342.7	\$9.40	100.0	\$12.50	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Aug-00	1,976.0	\$1.50	351.4	\$1.62	194.8	\$1.77	35,563.1	1,976.0	5,408.8	\$8.75	332.6	\$9.42	133.9	\$12.50	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Sep-00	1,976.0	\$1.50	648.9	\$1.32	81.3	\$1.16	35,563.1	1,976.0	5,408.8	\$8.75	344.5	\$9.40	149.5	\$12.50	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Oct-00	1,976.0	\$1.50	681.6	\$1.30	96.9	\$0.89	35,563.1	1,976.0	5,408.8	\$8.75	304.2	\$9.49	214.0	\$12.50	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Nov-00	4,010.6	\$1.04	1,813.6	\$1.00	157.7	\$0.80	35,563.1	4,010.6	4,861.4	\$8.75	735.0	\$8.74	170.3	\$8.75	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Dec-00	4,010.6	\$1.04	1,854.1	\$0.97	167.2	\$0.86	35,563.1	4,010.6	4,861.4	\$8.75	785.1	\$8.74	154.8	\$8.75	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Jan-01	4,010.6	\$1.04	1,847.6	\$0.97	170.5	\$0.85	35,563.1	4,010.6	4,861.4	\$8.75	899.5	\$8.74	154.8	\$8.75	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Feb-01	4,010.6	\$1.04	1,893.8	\$0.95	177.2	\$0.83	35,563.1	4,010.6	4,861.4	\$8.75	921.7	\$8.71	154.8	\$8.75	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Mar-01	4,010.6	\$1.04	2,032.8	\$0.95	208.1	\$0.79	35,563.1	4,010.6	4,861.4	\$8.75	936.5	\$8.74	156.0	\$8.75	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
Apr-01	4,010.6	\$1.04	1,659.7	\$0.87	192.3	\$0.59	35,563.1	4,010.6	4,861.4	\$8.75	985.6	\$8.56	156.7	\$8.72	8,272.0	0.0	-	0.0	-	0.0	-	0.0	-	4,638.0	
May-01	2,738.6	\$1.90	852.3	\$2.25	1,022.2	\$9.58	36,132.0	2,738.6	5,316.6	\$8.75	248.7	\$8.75	235.1	\$12.50	8,375.0	(est.)	0.0	-	0.0	-	3.2	\$10.83	4,625.0		
Jun-01	2,738.6	\$1.90	397.6	\$2.68	1,521.0	\$9.41	36,132.0	2,738.6	5,316.6	\$8.75	228.4	\$10.92	299.0	\$12.18	8,375.0	(est.)	0.0	-	0.0	-	7.0	\$10.83	4,625.0		
Jul-01	2,738.6	\$1.90	1,776.6	\$4.31	1,534.9	\$9.44	36,132.0	2,738.6	5,316.6	\$8.75	407.8	\$9.77	292.5	\$8.83	8,375.0	(est.)	0.0	-	0.0	-	20.2	\$10.83	4,625.0		
Aug-01	2,738.6	\$1.90	1,788.4	\$4.56	1,601.3	\$9.35	36,132.0	2,738.6	5,316.6	\$8.75	440.1	\$8.38	350.1	\$9.46	8,375.0	(est.)	0.0	-	0.0	-	21.3	\$10.83	4,625.0		
Sep-01	2,738.6	\$1.90	1,701.2	\$4.16	1,498.0	\$9.21	36,132.0	2,738.6	5,316.6	\$8.75	434.9	\$8.42	316.0	\$8.34	8,375.0	(est.)	0.0	-	0.0	-	33.0	\$10.83	4,625.0		
Oct-01	2,738.6	\$1.90	1,787.1	\$4.03	1,473.4	\$9.14	36,132.0	2,738.6	5,316.6	\$8.75	430.1	\$7.99	343.4	\$8.72	8,375.0	(est.)	0.0	-	0.0	-	33.0	\$10.83	4,625.0		
Nov-01	1,760.4	\$2.00	878.0	\$0.10	5.8	\$-	32,892.3	1,760.4	3,972.5	\$9.40	772.8	\$9.00	77.7	\$4.80	7,613.3	0.0	-	0.6	\$3.50	8.5	\$12.33	4,077.6			
Dec-01	1,760.4	\$2.00	687.2	\$0.49	6.5	\$-	32,892.3	1,760.4	3,972.5	\$9.40	906.8	\$6.88	11.5	\$-	7,613.3	0.0	-	1.3	\$3.50	37.4	\$12.33	4,077.6			
Jan-02	1,760.4	\$2.00	750.5	\$0.84	133.0	\$0.75	32,892.3	1,760.4	3,972.5	\$9.40	492.6	\$5.47	377.3	\$8.25	7,613.3	0.0	-	1.3	\$5.00	39.7	\$12.33	4,077.6			
Feb-02	1,760.4	\$2.00	836.2	\$0.70	25.5	\$-	32,892.3	1,760.4	3,972.5	\$9.40	631.1	\$6.69	229.3	\$9.20	7,613.3	0.0	-	0.0	-	40.6	\$11.50	4,077.6			
Mar-02	1,760.4	\$2.00	901.3	\$0.61	30.0	\$0.25	32,892.3	1,760.4	3,972.5	\$9.40	784.3	\$6.92	90.6	\$7.50	7,613.3	0.0	-	14.0	\$11.50	26.4	\$11.49	4,077.6			
Apr-02	1,760.4	\$2.00	677.9	\$0.69	5.6	\$0.02	32,892.3	1,760.4	3,972.5	\$9.40	932.9	\$7.12	11.6	\$9.40	7,613.3	0.0	-	41.4	\$11.48	0.0	-	4,077.6			
May-02	3,201.6	\$1.75	552.1	\$0.33	2.3	\$-	32,479.5	3,201.6	4,355.2	\$9.20	684.1	\$9.38	30.5	\$9.39											

Month	NYCA							NYC							LI							G-J Locality										
	Capacity Period ¹ (Strip)		Monthly Auction ²		Spot Market ²		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold
	MW	Price	MW	Price	MW	Price	MW	MW	MW	Price	MW	Price	MW	Price	MW	MW	MW	Price	MW	Price	MW	Price	MW	MW	MW	Price	MW	Price	MW	Price	MW	MW
Aug-03	2,889.2	\$1.67	1,344.1	\$2.04	3,096.6	\$2.25	35,303.5	2,299.3	2,501.7	\$11.22	567.9	\$11.56	2,497.9	\$11.46	8,356.7	0.0	6.6	\$9.41	1.1	\$5.00	441.8	\$4.03	4,415.3	441.8								
Sep-03	2,889.2	\$1.67	1,396.7	\$1.97	3,134.1	\$2.08	35,303.5	2,448.1	2,501.7	\$11.22	558.1	\$11.56	2,499.5	\$11.46	8,356.7	0.0	6.6	\$9.41	0.0	-	397.8	\$4.55	4,415.3	396.2								
Oct-03	2,889.2	\$1.67	1,408.4	\$1.93	3,253.2	\$2.01	35,303.5	2,504.8	2,501.7	\$11.22	638.8	\$11.55	2,415.1	\$11.45	8,356.7	0.0	6.6	\$9.41	0.0	-	397.8	\$4.55	4,415.3	396.0								
Nov-03	2,163.2	\$1.17	2,128.8	\$1.15	6,833.0	\$1.94	35,203.4	2,566.9	475.0	\$6.55	579.3	\$6.67	5,029.3	\$6.98	8,346.1	571.0	0.0	\$4.00	0.0	-	114.3	\$8.14	4,401.9	83.7								
Dec-03	2,163.2	\$1.17	1,860.1	\$1.48	7,203.1	\$1.79	35,203.4	2,698.6	475.0	\$6.55	909.4	\$6.64	4,711.0	\$6.98	8,346.1	571.0	0.0	\$4.00	0.0	-	107.5	\$8.22	4,401.9	76.9								
Jan-04	2,163.2	\$1.17	2,083.6	\$1.50	6,972.2	\$1.75	35,203.4	2,732.1	475.0	\$6.55	968.9	\$6.64	4,644.8	\$6.98	8,346.1	571.0	0.0	\$4.00	0.0	-	128.2	\$7.99	4,401.9	97.0								
Feb-04	2,163.2	\$1.17	2,475.9	\$1.58	6,379.9	\$1.73	35,203.4	2,747.4	475.0	\$6.55	2,167.5	\$6.77	3,422.4	\$6.98	8,346.1	571.0	0.0	\$4.00	0.6	\$7.50	202.6	\$7.08	4,401.9	176.0								
Mar-04	2,163.2	\$1.17	2,180.0	\$1.54	6,569.8	\$1.00	35,203.4	3,369.3	475.0	\$6.55	1,938.0	\$6.05	3,841.5	\$6.98	8,346.1	571.0	0.0	\$4.00	0.6	\$7.00	142.6	\$7.72	4,401.9	119.9								
Apr-04	2,163.2	\$1.17	2,646.7	\$0.99	6,987.5	\$0.80	35,203.4	3,543.8	475.0	\$6.55	2,047.2	\$6.00	3,779.1	\$6.98	8,346.1	571.0	0.0	\$4.00	0.6	\$6.85	199.0	\$7.04	4,401.9	179.7								
May-04	2,441.0	\$1.68	2,489.7	\$1.65	6,189.1	\$1.31	35,584.5	3,328.0	1,245.3	\$11.15	2,022.4	\$11.16	2,898.3	\$11.42	8,444.6	214.9	11.2	\$8.00	1.6	\$8.00	97.5	\$9.83	4,761.5	81.2								
Jun-04	2,441.0	\$1.68	2,133.6	\$1.48	6,239.9	\$1.27	35,584.5	3,355.3	1,245.3	\$11.15	2,532.8	\$11.29	2,391.9	\$11.42	8,444.6	214.9	11.2	\$8.00	11.2	\$9.29	90.8	\$9.79	4,761.5	84.3								
Jul-04	2,441.0	\$1.68	1,756.7	\$1.29	6,410.6	\$1.04	35,584.5	3,518.8	1,245.3	\$11.15	2,705.7	\$11.29	2,261.3	\$11.42	8,444.6	214.9	11.2	\$8.00	15.9	\$8.67	193.4	\$8.42	4,761.5	192.9								
Aug-04	2,441.0	\$1.68	2,046.5	\$1.15	6,544.7	\$1.17	35,584.5	3,428.1	1,245.3	\$11.15	3,126.1	\$11.25	1,854.4	\$11.42	8,444.6	214.9	11.2	\$8.00	16.4	\$8.05	213.1	\$8.16	4,761.5	213.1								
Sep-04	2,441.0	\$1.68	2,258.8	\$1.16	6,456.2	\$1.07	35,584.5	3,499.6	1,245.3	\$11.15	3,272.4	\$11.25	1,798.6	\$11.42	8,444.6	214.9	11.2	\$8.00	16.2	\$8.06	214.2	\$8.15	4,761.5	214.2								
Oct-04	2,441.0	\$1.68	2,460.8	\$1.18	6,633.9	\$1.12	35,584.5	3,465.6	1,245.3	\$11.15	2,771.9	\$11.21	2,336.3	\$11.42	8,444.6	214.9	11.2	\$8.00	16.2	\$8.06	214.2	\$8.15	4,761.5	214.2								
Nov-04	3,050.7	\$0.60	2,344.4	\$0.70	6,730.6	\$0.70	35,515.9	3,759.3	2,249.4	\$6.68	1,253.8	\$6.96	3,137.5	\$7.12	8,469.5	705.9	13.9	\$4.00	10.9	\$4.00	358.2	\$6.34	4,736.0	357.7								
Dec-04	3,050.7	\$0.60	3,058.4	\$0.69	6,011.5	\$0.61	35,515.9	3,823.5	2,249.4	\$6.68	1,606.0	\$7.07	2,758.3	\$7.12	8,469.5	705.9	13.9	\$4.00	9.0	\$4.33	368.5	\$6.21	4,736.0	367.6								
Jan-05	3,050.7	\$0.60	2,945.8	\$0.59	5,928.6	\$0.27	35,515.9	4,064.8	2,249.4	\$6.68	2,433.6	\$7.03	1,919.3	\$7.12	8,469.5	705.9	13.9	\$4.00	9.0	\$3.81	372.1	\$6.16	4,736.0	371.4								
Feb-05	3,050.7	\$0.60	2,769.6	\$0.49	6,256.2	\$0.25	35,515.9	4,082.2	2,249.4	\$6.68	2,596.5	\$7.03	1,761.5	\$7.12	8,469.5	705.9	13.9	\$4.00	7.6	\$3.68	373.3	\$6.14	4,736.0	372.8								
Mar-05	3,050.7	\$0.60	2,890.9	\$0.45	6,025.4	\$0.41	35,515.9	3,966.2	2,249.4	\$6.68	2,671.8	\$7.03	1,784.0	\$7.12	8,469.5	705.9	13.9	\$4.00	7.0	\$3.54	371.9	\$6.16	4,736.0	371.9								
Apr-05	3,050.7	\$0.60	2,891.5	\$0.48	6,241.1	\$0.27	35,515.9	4,064.8	2,249.4	\$6.68	2,611.4	\$7.03	1,851.9	\$7.12	8,469.5	705.9	13.9	\$4.00	7.0	\$3.54	367.4	\$6.23	4,736.0	365.8								
May-05	2,624.6	\$0.75	1,630.0	\$0.75	6,975.7	\$2.00	35,799.2	3,110.8	2,547.2	\$11.68	1,035.2	\$11.86	2,547.1	\$12.03	8,526.8	284.0	10.6	\$8.00	2.7	\$8.00	85.5	\$12.15	4,904.9	85.4								
Jun-05	2,624.6	\$0.75	1,752.9	\$1.40	6,306.6	\$1.96	35,799.2	3,135.2	2,547.2	\$11.68	2,657.9	\$11.80	974.2	\$11.96	8,526.8	291.3	10.6	\$8.00	2.0	\$8.50	100.4	\$11.96	4,904.9	97.8								
Jul-05	2,624.6	\$0.75	4,077.8	\$1.29	5,073.3	\$1.00	35,799.2	3,703.4	2,547.2	\$11.68	2,742.6	\$11.82	992.5	\$11.95	8,526.8	292.5	10.6	\$8.00	4.3	\$9.00	195.3	\$10.48	4,904.9	195.0								
Aug-05	2,624.6	\$0.75	3,819.1	\$0.81	5,147.3	\$1.00	35,799.2	3,703.4	2,547.2	\$11.68	2,689.7	\$11.82	1,134.8	\$11.86	8,526.8	301.6	10.6	\$8.00	4.6	\$8.50	222.5	\$10.06	4,904.9	222.5								
Sep-05	2,624.6	\$0.75	3,412.5	\$0.81	5,303.5	\$1.45	35,799.2	3,436.7	2,547.2	\$11.68	2,842.0	\$11.82	1,086.6	\$11.70	8,526.8	318.2	10.6	\$8.00	4.6	\$8.61	233.0	\$9.90	4,904.9	233.0								
Oct-05	2,624.6	\$0.75	3,861.2	\$1.03	5,142.0	\$1.25	35,799.2	3,555.2	2,547.2	\$11.68	2,644.5	\$11.82	1,238.1	\$11.86	8,526.8	301.6	10.6	\$8.00	4.6	\$8.71	260.0	\$9.49	4,904.9	260.0								
Nov-05	2,987.1	\$0.62	2,676.1	\$0.67	6,661.9	\$0.85	35,761.5	3,789.0	1,846.4	\$5.11	943.9	\$6.39	3,865.4	\$6.55	8,569.2	854.3	15.0	\$0.68	10.0	\$5.00	330.5	\$8.37	4,962.4	330.5								
Dec-05	2,987.1	\$0.62	3,466.7	\$0.68	6,306.0	\$0.65	35,761.5	3,907.2	1,846.4	\$5.11	2,130.4	\$6.44	2,674.7	\$6.55	8,569.2	854.3	15.0	\$0.68	10.1	\$4.99	344.5	\$8.16	4,962.4	344.5								
Jan-06	2,987.1	\$0.62	3,966.1	\$0.63	6,625.3	\$2.01	35,761.5	3,102.5	1,846.4	\$5.11	2,558.2	\$6.21	2,116.6	\$6.55	8,569.2	854.3	15.0	\$0.68	10.0	\$5.00	288.1	\$9.00	4,962.4	288.1								
Feb-06	2,987.1	\$0.62	3,379.8	\$1.01	6,432.7	\$1.67	35,761.5	3,305.2	1,846.4	\$5.11	3,162.5	\$5.78	2,037.4	\$6.55	8,569.2	854.3	15.0	\$0.68	10.0	\$5.00	343.1	\$8.18	4,962.4	343.1								
Mar-06	2,987.1	\$0.62	5,214.9	\$0.58	5,234.1	\$0.57	35,761.5	3,954.5	1,846.4	\$5.11	2,704.7	\$5.78	2,031.7	\$6.55	8,569.2	854.3	15.0	\$0.68	10.0	\$5.00	350.8	\$8.07	4,962.4	350.8								
Apr-06	2,987.1	\$0.62	4,899.7	\$0.51	5,357.5	\$0.40	35,761.5	4,055.0	1,846.4	\$5.11	3,237.1	\$5.88	1,540.4	\$6.55	8,569.2	854.3	15.0	\$0.68	10.0	\$5.00	346.1	\$8.14	4,962.4	346.1								
May-06 ¹	3,014.5	\$1.44	2,196.7	\$1.64	6,936.8	\$3.25	37,154.2	2,526.4	2,186.7	\$12.35	1,422.7	\$12.43	2,209.8	\$12.71	8,798.1	25>																

Month	NYCA					NYC										LI					G-J Locality								
	Capacity Period ¹ (Strip)		Monthly Auction ²		Spot Market ²	Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market	Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market	Minimum Required	Excess Sold
	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	
Nov-07	3,064.4	\$1.91	2,586.1	\$1.90	9,045.5	\$1.60	36,819.2	3,503.7	908.2	\$5.32	1,393.5	\$5.61	4,438.1	\$5.77	8,870.8	1,009.5	0.0	\$0.00	2.0	\$3.50	631.5	\$4.31	4,972.5	630.6					
Dec-07	3,064.4	\$1.91	2,743.1	\$1.99	8,009.1	\$2.22	36,819.2	3,149.2	908.2	\$5.32	1,532.1	\$5.61	4,067.3	\$5.77	8,870.8	1,009.5	0.0	\$0.00	0.0	\$0.00	635.9	\$4.27	4,972.5	633.0					
Jan-08	3,064.4	\$1.91	3,753.2	\$2.40	7,053.4	\$3.40	36,819.2	2,477.3	908.2	\$5.32	1,149.7	\$5.59	4,662.5	\$5.77	8,870.8	1,009.5	0.0	\$0.00	1.9	\$3.70	640.3	\$4.20	4,972.5	637.4					
Feb-08	3,064.4	\$1.91	3,065.0	\$3.00	6,848.0	\$3.18	36,819.2	2,602.7	908.2	\$5.32	1,342.9	\$5.59	4,442.2	\$5.77	8,870.8	1,009.5	0.0	\$0.00	7.2	\$3.00	645.1	\$4.07	4,972.5	645.1					
Mar-08	3,064.4	\$1.91	4,215.1	\$1.50	8,288.3	\$1.05	36,819.2	3,818.1	908.2	\$5.32	1,573.3	\$3.60	3,348.7	\$1.05	8,870.8	1,494.9	0.0	\$0.00	2.8	\$2.10	648.5	\$4.02	4,972.5	648.5					
Apr-08	3,064.4	\$1.91	4,308.8	\$1.05	7,759.5	\$0.75	36,819.2	3,989.6	908.2	\$5.32	1,245.5	\$1.05	2,964.9	\$0.75	8,870.8	1,591.6	0.0	\$0.00	2.8	\$2.10	648.8	\$4.01	4,972.5	648.8					
May-08	2,994.7	\$2.67	1,851.8	\$2.80	8,294.8	\$2.60	36,632.5	3,080.6	494.9	\$6.50	903.4	\$6.52	4,987.2	\$5.53	8,910.6	985.9	0.0	\$2.80	21.8	\$2.80	652.1	\$2.60	4,684.9	650.8					
Jun-08	2,994.7	\$2.67	2,460.9	\$2.89	7,684.7	\$2.94	36,632.5	2,909.9	494.9	\$6.50	1,620.2	\$5.40	3,745.8	\$6.03	8,910.6	930.1	0.0	\$2.80	110.5	\$2.89	644.9	\$2.94	4,684.9	583.3					
Jul-08	2,994.7	\$2.67	1,972.8	\$3.00	8,324.1	\$2.80	36,632.5	2,981.6	494.9	\$6.50	744.5	\$6.03	3,758.3	\$6.33	8,910.6	896.9	0.0	\$2.80	128.2	\$3.00	653.4	\$2.80	4,684.9	650.8					
Aug-08	2,994.7	\$2.67	2,542.7	\$2.89	7,451.6	\$2.70	36,632.5	3,030.1	494.9	\$6.50	1,157.8	\$6.33	3,349.2	\$6.17	8,910.6	914.8	0.0	\$2.80	87.1	\$2.89	657.4	\$2.70	4,684.9	656.3					
Sep-08	2,994.7	\$2.67	3,494.7	\$2.70	6,766.6	\$2.45	36,632.5	3,156.4	494.9	\$6.50	1,083.2	\$5.99	3,083.4	\$5.98	8,910.6	935.7	0.0	\$2.80	13.0	\$2.70	659.4	\$2.45	4,684.9	658.9					
Oct-08	2,994.7	\$2.67	3,526.1	\$2.40	6,944.8	\$1.93	36,632.5	3,418.3	494.9	\$6.50	604.4	\$5.91	3,230.1	\$5.83	8,910.6	951.9	0.0	\$2.80	7.9	\$2.40	668.7	\$1.93	4,684.9	668.7					
Nov-08	2,810.1	\$1.77	2,596.0	\$1.60	9,114.6	\$1.00	36,492.6	3,877.5	1,260.8	\$2.79	1,378.2	\$2.28	3,974.3	\$1.52	9,003.4	1,447.1	0.3	\$1.77	1.8	\$1.60	772.8	\$1.00	4,566.1	772.6					
Dec-08	2,810.1	\$1.77	2,200.1	\$1.50	9,113.9	\$1.25	36,492.6	3,752.1	1,260.8	\$2.79	616.1	\$1.59	4,186.0	\$1.25	9,003.4	1,558.1	0.3	\$1.77	10.0	\$1.50	802.4	\$1.25	4,566.1	802.2					
Jan-09	2,810.1	\$1.77	2,987.3	\$1.50	8,448.2	\$3.19	36,492.6	2,779.0	1,260.8	\$2.79	846.5	\$1.51	4,151.0	\$3.19	9,003.4	1,579.9	0.3	\$1.77	147.9	\$1.50	847.0	\$3.19	4,566.1	733.9					
Feb-09	2,810.1	\$1.77	3,863.7	\$2.50	8,250.3	\$1.77	36,492.6	3,492.1	1,260.8	\$2.79	1,021.1	\$3.06	3,729.9	\$1.77	9,003.4	1,592.0	0.3	\$1.77	66.4	\$2.50	821.1	\$1.77	4,566.1	820.9					
Mar-09	2,810.1	\$1.77	3,674.6	\$1.10	8,190.4	\$0.50	36,492.6	4,128.2	1,260.8	\$2.79	849.6	\$1.49	3,622.8	\$0.50	9,003.4	1,592.0	0.3	\$1.77	97.0	\$1.10	849.1	\$0.50	4,566.1	816.9					
Apr-09	2,810.1	\$1.77	3,991.3	\$0.50	8,257.2	\$0.30	36,492.6	4,228.6	1,260.8	\$2.79	588.0	\$0.75	3,755.6	\$0.30	9,003.4	1,586.6	0.3	\$1.77	25.4	\$0.50	821.1	\$0.30	4,566.1	820.9					
May-09	2,371.1	\$3.01	2,500.2	\$3.01	8,492.0	\$2.61	36,362.4	3,216.7	436.7	\$6.75	757.9	\$7.00	4,976.3	\$8.72	8,855.3	707.3	53.3	\$3.01	69.5	\$3.01	414.8	\$4.71	4,748.5	410.4					
Jun-09	2,371.1	\$3.01	3,034.3	\$3.50	8,675.3	\$4.22	36,362.4	2,505.4	436.7	\$6.75	1,447.7	\$8.60	3,854.3	\$8.65	8,855.3	714.2	53.3	\$3.01	41.5	\$3.50	415.8	\$4.65	4,748.5	415.8					
Jul-09	2,371.1	\$3.01	3,915.6	\$4.11	7,495.4	\$4.42	36,362.4	2,420.6	436.7	\$6.75	1,623.8	\$8.71	2,930.4	\$8.47	8,855.3	732.7	53.3	\$3.01	70.6	\$4.11	404.9	\$4.77	4,748.5	404.8					
Aug-09	2,371.1	\$3.01	4,459.5	\$4.19	7,242.4	\$3.42	36,362.4	2,857.0	436.7	\$6.75	1,281.0	\$8.52	2,960.2	\$8.45	8,855.3	735.1	53.3	\$3.01	67.6	\$4.19	717.8	\$3.42	4,748.5	717.8					
Sep-09	2,371.1	\$3.01	4,413.9	\$3.49	7,393.3	\$2.76	36,362.4	3,147.7	436.7	\$6.75	795.5	\$8.40	3,403.2	\$7.65	8,855.3	816.4	53.3	\$3.01	68.2	\$3.49	742.9	\$2.76	4,748.5	738.9					
Oct-09	2,371.1	\$3.01	4,957.6	\$2.59	7,087.7	\$2.23	36,362.4	3,380.5	436.7	\$6.75	1,095.1	\$7.62	2,926.6	\$7.70	8,855.3	811.1	53.3	\$3.01	20.4	\$2.59	749.3	\$2.23	4,748.5	743.1					
Nov-09	3,201.1	\$1.75	3,044.6	\$1.55	9,111.4	\$0.50	35,785.3	4,081.4	825.2	\$4.65	2,274.7	\$1.94	3,124.0	\$1.23	8,551.6	1,422.3	35.0	\$1.75	31.0	\$1.55	843.5	\$0.50	4,685.0	843.3					
Dec-09	3,201.1	\$1.75	3,125.0	\$1.30	8,472.6	\$0.75	35,785.3	3,976.7	825.2	\$4.65	498.5	\$1.68	3,607.0	\$0.76	8,551.6	1,467.4	35.0	\$1.75	113.1	\$1.30	875.3	\$0.75	4,685.0	842.3					
Jan-10	3,201.1	\$1.75	3,765.0	\$1.64	8,871.7	\$1.85	35,785.3	3,505.4	825.2	\$4.65	485.5	\$1.78	4,257.0	\$1.85	8,551.6	1,497.1	35.0	\$1.75	82.0	\$1.64	843.4	\$1.85	4,685.0	843.3					
Feb-10	3,201.1	\$1.75	3,948.2	\$2.56	8,406.4	\$3.49	35,785.3	2,810.0	825.2	\$4.65	506.1	\$6.40	4,240.3	\$7.98	8,551.6	782.0	35.0	\$1.75	82.3	\$2.56	843.3	\$3.49	4,685.0	843.3					
Mar-10	3,201.1	\$1.75	4,425.9	\$1.59	8,211.1	\$0.85	35,785.3	3,933.4	825.2	\$4.65	1,152.4	\$7.49	3,472.0	\$7.72	8,551.6	807.3	35.0	\$1.75	17.5	\$1.59	843.3	\$0.85	4,685.0	843.3					
Apr-10	3,201.1	\$1.75	4,420.5	\$0.74	8,399.0	\$0.64	35,785.3	4,021.8	825.2	\$4.65	945.5	\$7.50	3,468.4	\$7.16	8,551.6	860.1	35.0	\$1.75	79.5	\$0.74	855.4	\$0.64	4,685.0	843.3					
May-10	2,868.1	\$2.47	4,462.0	\$2.70	7,827.0	\$3.52	35,045.3	2,860.2	1,096.8	\$12.90	335.7	\$13.33	4,004.2	\$13.53	8,336.0	372.0	26.2	\$2.47	16.8	\$2.70	354.8	\$5.81	4,901.0	354.0					
Jun-10	2,868.1	\$2.47	4,521.8	\$2.75	8,863.7	\$2.12	35,045.3	3,396.5	1,096.8	\$12.90	1,451.5	\$13.40	2,571.5	\$13.13	8,336.0	403.6	26.2	\$2.47	54.7	\$2.75	829.0	\$2.12	5,021.0	829.0					
Jul-10	2,868.1	\$2.47	4,335.2	\$2.00	8,617.7	\$1.91	35,045.3	3,475.3	1,096.8	\$12.90	836.2	\$13.00	2,797.1	\$13.05	8,336.0	412.1	26.2	\$2.47	85.7	\$2.00	816.9	\$1.91	5,021.0	816.9					
Aug-10	2,868.1	\$2.47	3,982.7	\$1.80	8,123.1	\$1.68	35,045.3	3,563.7	1,096.8	\$12.90	650.2	\$12.98	3,025.4	\$12.97	8,336.0	418.7	26.2	\$2.47	22.1	\$1.80	851.2	\$1.68	5,021.0	851.2					
Sep-10	2,868.1	\$2.47	4,376.5	\$1.00	7,993.5	\$0.63	35,045.3	3,964.3	1,096.8	\$12.90	992.0	\$12.85	2,799.0	\$12.50	8,336.0	457.8	26.2	\$2.47	8.4	\$1.00	865.9	\$0.63	5,021.0	865.9					
Oct-10	2,868.1	\$2.47	4,178.9	\$0.45	8,165.3	\$0.48	35,045.3	4,022.9	1,096.8	\$12.90	882.1	\$12.45	2,838.5	\$12.72	8,336.0	439.2	26.2	\$2.47	25.7	\$0.45	851.8	\$0.56	5,021.0	85					

Month	NYCA								NYC								LI								G-J Locality																	
	Capacity Period ¹ (Strip)		Monthly Auction ²		Spot Market ²		Minimum Required		Excess Sold		Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required		Excess Sold		Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required		Excess Sold		Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required		Excess Sold			
	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price	MW	Price				
Feb-12	2,008.0	\$0.15	4,988.6	\$0.40	9,232.3	\$0.18	34,778.9	4,095.2	1,031.2	\$2.70	1,020.3	\$4.80	3,172.1	\$4.87	8,833.0	1,208.1	3.6	\$0.15	24.2	\$0.40	900.4	\$0.18	4,989.3	898.1																		
Mar-12	2,008.0	\$0.15	5,033.6	\$0.08	8,976.3	\$0.10	34,778.9	4,130.0	1,031.2	\$2.70	988.5	\$4.30	2,991.7	\$4.70	8,833.0	1,221.0	3.6	\$0.15	0.6	\$0.08	922.2	\$0.10	4,989.3	898.1																		
Apr-12	2,008.0	\$0.15	5,323.6	\$0.10	9,215.1	\$0.10	34,778.9	4,130.0	1,031.2	\$2.70	967.6	\$4.45	2,958.9	\$4.61	8,833.0	1,228.5	3.6	\$0.15	6.6	\$0.10	921.4	\$0.10	4,989.3	898.1																		
May-12	2,421.3	\$1.25	3,682.7	\$1.28	9,279.4	\$2.91	35,076.3	2,970.8	530.8	\$11.70	1,335.1	\$12.30	3,028.7	\$17.16	8,896.9	288.8	2.5	\$1.42	12.9	\$1.28	877.2	\$2.91	4,961.1	873.5																		
Jun-12	2,421.3	\$1.25	3,563.1	\$2.14	9,626.6	\$1.94	35,076.3	3,386.1	530.8	\$11.70	596.6	\$15.65	3,991.5	\$11.54	8,896.9	718.6	2.5	\$1.42	13.7	\$2.14	868.2	\$1.94	4,961.1	868.2																		
Jul-12	2,421.3	\$1.25	5,070.0	\$1.45	8,508.7	\$1.98	35,076.3	3,367.3	530.8	\$11.70	1,074.6	\$11.85	3,397.6	\$10.95	8,896.9	763.7	2.5	\$1.42	4.5	\$1.45	609.3	\$3.56	4,961.1	608.7																		
Aug-12	2,421.3	\$1.25	5,185.9	\$2.01	8,300.3	\$1.90	35,076.3	3,401.0	530.8	\$11.70	858.5	\$11.39	3,234.6	\$10.64	8,896.9	787.5	2.5	\$1.42	4.5	\$3.00	616.0	\$3.56	4,961.1	608.5																		
Sep-12	2,421.3	\$1.25	5,430.8	\$2.28	9,157.8	\$2.40	35,076.3	3,190.1	530.8	\$11.70	572.9	\$10.74	3,230.1	\$10.47	8,896.9	800.4	2.5	\$1.42	13.9	\$3.50	606.8	\$3.59	4,961.1	606.8																		
Oct-12	2,421.3	\$1.25	5,783.6	\$2.38	7,906.1	\$2.48	35,076.3	3,154.5	530.8	\$11.70	699.2	\$10.52	2,998.9	\$10.52	8,896.9	796.7	2.5	\$1.42	17.0	\$3.50	607.5	\$3.58	4,961.1	607.0																		
Nov-12	1,815.7	\$0.82	4,428.8	\$0.54	12,143.0	\$0.71	35,852.6	3,988.0	275.1	\$4.50	1,093.6	\$3.00	4,579.7	\$3.36	9,057.3	1,364.4	28.4	\$2.25	0.4	\$0.54	877.1	\$0.71	4,959.4	876.7																		
Dec-12	1,815.7	\$0.82	4,696.1	\$1.10	10,874.4	\$1.50	35,852.6	3,636.9	275.1	\$4.50	1,420.2	\$4.85	4,785.4	\$4.91	9,057.3	1,241.1	28.4	\$2.25	0.6	\$1.10	891.8	\$1.50	4,959.4	891.8																		
Jan-13	1,815.7	\$0.82	5,452.4	\$1.98	10,063.0	\$3.48	35,852.6	2,756.2	275.1	\$4.50	2,202.4	\$4.89	3,851.5	\$4.91	9,057.3	1,241.1	28.4	\$2.25	7.7	\$1.98	891.8	\$3.48	4,959.4	891.8																		
Feb-13	1,815.7	\$0.82	5,684.1	\$3.02	9,372.0	\$2.65	35,852.6	3,125.2	275.1	\$4.50	2,398.4	\$4.94	3,521.2	\$4.91	9,057.3	1,241.1	28.4	\$2.25	22.1	\$3.02	892.7	\$2.65	4,959.4	892.7																		
Mar-13	1,815.7	\$0.82	6,064.9	\$2.18	9,534.1	\$2.09	35,852.6	3,372.6	275.1	\$4.50	2,350.1	\$4.93	3,641.7	\$4.91	9,057.3	1,241.1	28.4	\$2.25	1.4	\$2.18	892.7	\$2.09	4,959.4	892.7																		
Apr-13	1,815.7	\$0.82	6,067.1	\$1.68	9,599.9	\$1.50	35,852.6	3,634.2	275.1	\$4.50	2,323.2	\$4.93	3,840.8	\$4.91	9,057.3	1,241.1	28.4	\$2.25	1.1	\$1.74	892.7	\$1.50	4,959.4	892.7																		
May-13	2,635.9	\$4.20	2,898.7	\$4.51	8,417.8	\$5.76	35,466.8	1,817.2	953.1	\$14.80	931.1	\$15.50	4,065.1	\$16.29	9,325.0	378.0	40.5	\$7.20	10.2	\$6.00	342.0	\$7.20	5,394.3	340.3																		
Jun-13	2,635.9	\$4.20	3,486.2	\$5.75	7,704.8	\$6.07	35,466.8	1,685.8	953.1	\$14.80	1,250.1	\$16.15	3,796.8	\$16.45	9,325.0	365.5	40.5	\$7.20	20.2	\$5.91	340.2	\$7.20	5,394.3	340.2																		
Jul-13	2,635.9	\$4.20	3,908.6	\$5.76	7,298.2	\$5.79	35,466.8	1,804.3	953.1	\$14.80	1,447.0	\$16.30	3,553.8	\$16.10	9,325.0	393.6	40.5	\$7.20	34.8	\$6.11	341.4	\$7.18	5,394.3	341.4																		
Aug-13	2,635.9	\$4.20	4,048.4	\$5.70	7,056.5	\$5.63	35,466.8	1,870.7	953.1	\$14.80	1,513.6	\$15.99	3,533.5	\$15.80	9,325.0	417.3	40.5	\$7.20	45.4	\$6.06	350.7	\$7.08	5,394.3	350.7																		
Sep-13	2,635.9	\$4.20	4,160.1	\$5.49	6,709.4	\$5.62	35,466.8	1,877.0	953.1	\$14.80	1,107.0	\$15.72	3,923.9	\$15.66	9,325.0	428.3	40.5	\$7.20	51.4	\$5.97	354.7	\$7.03	5,394.3	354.7																		
Oct-13	2,635.9	\$4.20	4,238.3	\$5.55	6,812.1	\$5.93	35,466.8	1,742.8	953.1	\$14.80	1,269.8	\$15.70	3,790.9	\$16.11	9,325.0	392.6	40.5	\$7.20	52.7	\$6.09	348.6	\$7.10	5,394.3	348.6																		
Nov-13	2,157.7	\$2.58	3,116.4	\$2.15	11,895.7	\$2.06	35,700.4	3,401.7	431.1	\$7.54	533.0	\$7.90	5,503.5	\$10.01	9,222.2	878.4	30.6	\$4.00	9.4	\$3.10	729.9	\$2.73	5,363.6	728.9																		
Dec-13	2,157.7	\$2.58	3,040.5	\$2.95	10,260.2	\$3.10	35,700.4	2,953.8	431.1	\$7.54	946.7	\$9.90	4,515.1	\$9.68	9,222.2	904.0	30.6	\$4.00	67.7	\$2.95	709.9	\$3.10	5,363.6	702.4																		
Jan-14	2,157.7	\$2.58	3,873.3	\$3.90	9,173.5	\$4.57	35,700.4	2,322.5	431.1	\$7.54	1,273.9	\$9.60	4,274.1	\$9.63	9,222.2	908.1	30.6	\$4.00	73.6	\$3.90	729.0	\$4.57	5,363.6	729.0																		
Feb-14	2,157.7	\$2.58	3,832.5	\$4.30	8,922.0	\$4.29	35,700.4	2,440.5	431.1	\$7.54	1,524.0	\$9.52	3,783.4	\$9.56	9,222.2	913.5	30.6	\$4.00	82.3	\$4.30	722.4	\$4.29	5,363.6	722.1																		
Mar-14	2,157.7	\$2.58	4,472.5	\$3.00	8,925.2	\$2.86	35,700.4	3,058.5	431.1	\$7.54	1,749.2	\$9.49	3,592.2	\$9.72	9,222.2	901.0	30.6	\$4.00	26.8	\$3.00	742.7	\$2.86	5,363.6	742.7																		
Apr-14	2,157.7	\$2.58	4,563.7	\$1.90	10,046.8	\$1.74	35,700.4	3,535.5	431.1	\$7.54	1,668.5	\$9.61	3,489.5	\$9.75	9,222.2	898.8	30.6	\$4.00	12.1	\$2.59	745.1	\$2.55	5,363.6	744.8																		
May-14	2,147.9	\$5.15	2,467.4	\$5.50	6,600.9	\$6.68	35,812.4	1,345.3	655.3	\$16.24	516.9	\$16.54	4,645.8	\$18.83	9,470.5	68.4	10.7	\$6.39	40.5	\$6.20	298.5	\$6.68	5,430.5	249.0	476.1	\$9.96	435.4	\$10.33	2,384.8	\$12.38	13,494.9	81.8										
Jun-14	2,147.9	\$5.15	2,995.1	\$6.60	6,458.0	\$6.21	35,812.4	1,549.9	655.3	\$16.24	1,239.6	\$18.72	3,383.6	\$18.84	9,470.5	67.8	10.7	\$6.39	51.4	\$6.68	290.0	\$6.44	5,430.5	247.4	476.1	\$9.96	996.6	\$12.24	1,775.2	\$12.35	13,494.9	86.0										
Jul-14	2,147.9	\$5.15	3,817.3	\$6.21	5,920.2	\$6.10	35,812.4	1,598.6	655.3	\$16.24	1,608.1	\$18.71	3,082.1	\$18.69	9,470.5	81.2	10.7	\$6.39	61.6	\$6.40	287.8	\$6.46	5,430.5	245.2	476.1	\$9.96	1,150.8	\$12.25	1,611.1	\$12.32	13											

Month	NYCA							NYC							LI							G-J Locality										
	Capacity Period ¹ (Strip)		Monthly Auction ²		Spot Market ²		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold	Capacity Period ¹ (Strip)		Monthly Auction		Spot Market		Minimum Required	Excess Sold
	MW	Price	MW	Price	MW	Price	MW	MW	MW	Price	MW	Price	MW	Price	MW	MW	MW	Price	MW	Price	MW	Price	MW	MW	MW	Price	MW	Price	MW	Price	MW	MW
May-16	1,823.9	\$3.62	2,607.6	\$3.83	8,971.6	\$5.27	35,429.8	2,058.0	581.0	\$10.99	800.8	\$11.15	4,091.6	\$12.41	8,589.0	650.0	30.0	\$4.15	31.3	\$4.00	489.2	\$5.27	5,207.2	480.3	375.5	\$8.25	608.8	\$8.40	2,837.6	\$9.36	13,514.5	649.4
Jun-16	1,823.9	\$3.62	2,887.1	\$5.15	9,078.1	\$4.89	35,429.8	2,214.7	581.0	\$10.99	1,024.2	\$12.38	3,986.1	\$12.29	8,589.0	658.5	30.0	\$4.15	188.8	\$5.15	456.8	\$4.89	5,207.2	445.5	375.5	\$8.25	917.0	\$9.36	2,548.6	\$9.28	13,514.5	661.4
Jul-16	1,823.9	\$3.62	3,373.7	\$4.70	9,316.6	\$4.27	35,429.8	2,471.4	581.0	\$10.99	1,172.0	\$12.27	3,731.5	\$12.22	8,589.0	663.6	30.0	\$4.15	40.3	\$4.75	482.5	\$4.37	5,207.2	479.9	375.5	\$8.25	890.2	\$9.27	2,397.2	\$9.25	13,514.5	665.1
Aug-16	1,823.9	\$3.62	3,330.1	\$4.15	9,752.3	\$3.64	35,429.8	2,736.0	581.0	\$10.99	1,217.5	\$12.18	3,714.0	\$12.21	8,589.0	664.4	30.0	\$4.15	36.3	\$4.35	477.0	\$4.42	5,207.2	474.1	375.5	\$8.25	842.1	\$9.25	2,427.8	\$9.23	13,514.5	668.6
Sep-16	1,823.9	\$3.62	3,434.3	\$3.41	9,949.6	\$3.32	35,429.8	2,870.0	581.0	\$10.99	1,230.6	\$12.14	3,661.4	\$12.19	8,589.0	666.0	30.0	\$4.15	97.1	\$4.20	477.9	\$4.46	5,207.2	470.3	375.5	\$8.25	807.1	\$9.14	3,938.0	\$9.15	13,514.5	679.7
Oct-16	1,823.9	\$3.62	3,605.8	\$2.84	10,128.3	\$3.12	35,429.8	2,952.9	581.0	\$10.99	1,155.4	\$12.15	3,905.6	\$12.14	8,589.0	669.2	30.0	\$4.15	44.9	\$4.19	486.7	\$4.34	5,207.2	483.0	375.5	\$8.25	775.2	\$9.10	2,729.2	\$9.16	13,514.5	678.5
Nov-16	1,536.4	\$0.75	2,384.7	\$0.49	11,961.3	\$0.35	36,354.8	4,208.8	633.9	\$3.50	590.7	\$3.50	5,218.9	\$0.35	8,977.3	1,456.4	30.0	\$1.25	10.0	\$0.50	958.8	\$0.35	5,258.3	927.5	230.6	\$3.50	201.5	\$3.50	4,316.5	\$0.35	13,827.1	1,506.1
Dec-16	1,536.4	\$0.75	2,504.7	\$0.80	11,793.8	\$0.55	36,354.8	4,123.1	633.9	\$3.50	750.5	\$3.65	5,161.9	\$0.55	8,977.3	1,458.7	30.0	\$1.25	42.2	\$0.81	937.4	\$0.55	5,258.3	933.6	230.6	\$3.50	403.5	\$3.45	4,101.3	\$0.55	13,827.1	1,514.8
Jan-17	1,536.4	\$0.75	3,413.7	\$0.85	11,767.5	\$0.32	36,354.8	4,223.8	633.9	\$3.50	889.0	\$3.59	4,883.5	\$0.32	8,977.3	1,470.0	30.0	\$1.25	41.7	\$0.97	938.6	\$0.32	5,258.3	934.7	230.6	\$3.50	536.6	\$3.50	4,293.0	\$0.32	13,827.1	1,530.4
Feb-17	1,536.4	\$0.75	3,020.0	\$0.39	11,572.2	\$0.54	36,354.8	4,125.8	633.9	\$3.50	994.6	\$3.50	4,754.8	\$0.54	8,977.3	1,470.0	30.0	\$1.25	47.7	\$0.60	936.5	\$0.54	5,258.3	932.1	230.6	\$3.50	574.8	\$3.40	4,281.9	\$0.54	13,827.1	1,539.1
Mar-17	1,536.4	\$0.75	2,725.1	\$0.20	11,693.4	\$0.71	36,354.8	4,049.2	633.9	\$3.50	982.5	\$3.46	4,796.4	\$0.71	8,977.3	1,499.8	30.0	\$1.25	127.5	\$0.20	933.7	\$0.71	5,258.3	896.6	230.6	\$3.50	600.1	\$3.14	4,278.5	\$0.71	13,827.1	1,565.0
Apr-17	1,536.4	\$0.75	2,689.9	\$0.25	12,720.6	\$0.35	36,354.8	4,209.1	633.9	\$3.50	1,016.3	\$3.24	4,826.0	\$0.35	8,977.3	1,500.3	30.0	\$1.25	79.4	\$0.30	931.6	\$0.35	5,258.3	929.2	230.6	\$3.50	520.7	\$3.24	4,585.1	\$0.35	13,827.1	1,572.8
May-17	1,487.3	\$3.00	2,405.4	\$3.15	9,864.2	\$1.72	35,512.8	3,529.2	616.4	\$11.71	594.0	\$11.83	4,562.6	\$1.72	9,095.4	747.9	78.3	\$5.79	30.3	\$5.75	485.0	\$1.72	5,302.5	478.7	503.1	\$10.50	361.4	\$10.50	3,218.6	\$1.72	13,621.8	730.8
Jun-17	1,487.3	\$3.00	2,895.2	\$2.41	8,775.0	\$3.89	35,512.8	2,604.4	616.4	\$11.71	717.3	\$10.55	5,389.7	\$3.89	9,095.4	776.0	78.3	\$5.79	33.3	\$6.50	485.6	\$3.89	5,302.5	480.0	503.1	\$10.50	392.9	\$10.25	3,227.8	\$3.89	13,621.8	765.4
Jul-17	1,487.3	\$3.00	2,956.4	\$3.15	10,314.2	\$2.26	35,512.8	3,299.0	616.4	\$11.71	797.5	\$10.25	4,452.4	\$2.26	9,095.4	807.3	78.3	\$5.79	30.9	\$6.55	486.1	\$2.26	5,302.5	480.2	503.1	\$10.50	535.5	\$9.94	3,489.0	\$2.26	13,621.8	798.4
Aug-17	1,487.3	\$3.00	3,375.5	\$2.24	10,152.7	\$2.18	35,512.8	3,331.5	616.4	\$11.71	954.1	\$9.90	4,359.9	\$2.18	9,095.4	808.7	78.3	\$5.79	60.8	\$6.68	486.8	\$2.18	5,302.5	482.0	503.1	\$10.50	571.1	\$9.73	3,473.6	\$2.18	13,621.8	806.0
Sep-17	1,487.3	\$3.00	3,640.9	\$2.09	10,006.4	\$2.18	35,512.8	3,332.7	616.4	\$11.71	1,067.7	\$9.85	4,314.5	\$2.18	9,095.4	779.5	78.3	\$5.79	56.9	\$6.55	492.5	\$2.18	5,302.5	487.6	503.1	\$10.50	631.1	\$9.67	3,452.7	\$2.18	13,621.8	779.2
Oct-17	1,487.3	\$3.00	3,689.6	\$1.85	10,333.9	\$1.84	35,512.8	3,476.9	616.4	\$11.71	1,094.8	\$9.90	4,276.0	\$1.84	9,095.4	834.1	78.3	\$5.79	56.9	\$6.43	491.8	\$1.84	5,302.5	486.9	503.1	\$10.50	620.5	\$9.68	3,530.9	\$1.84	13,621.8	834.3
Nov-17	1,654.6	\$0.37	2,816.3	\$0.31	10,846.6	\$0.25	35,849.5	4,193.5	530.9	\$3.10	845.8	\$3.22	5,150.8	\$3.47	9,010.8	1,579.5	35.6	\$0.75	60.2	\$0.31	896.1	\$0.90	5,276.1	886.5	346.7	\$2.70	136.7	\$3.22	4,606.2	\$3.47	13,588.0	1,596.9
Dec-17	1,654.6	\$0.37	2,809.9	\$0.30	10,943.2	\$0.25	35,849.5	4,193.5	530.9	\$3.10	810.9	\$3.40	5,129.2	\$3.38	9,010.8	1,580.9	35.6	\$0.75	46.9	\$0.80	906.4	\$0.68	5,276.1	902.0	346.7	\$2.70	195.8	\$3.40	4,533.9	\$3.38	13,588.0	1,609.1
Jan-18	1,654.6	\$0.37	3,273.5	\$0.25	11,217.5	\$0.44	35,849.5	4,109.8	530.9	\$3.10	982.9	\$3.37	5,446.0	\$3.19	9,010.8	1,607.4	35.6	\$0.75	50.9	\$0.60	904.8	\$0.70	5,276.1	900.4	346.7	\$2.70	368.7	\$3.35	4,484.4	\$3.19	13,588.0	1,632.9
Feb-18	1,654.6	\$0.37	3,720.5	\$0.25	11,091.9	\$0.20	35,849.5	4,215.2	530.9	\$3.10	931.4	\$3.08	5,614.0	\$3.33	9,010.8	1,589.7	35.6	\$0.75	71.3	\$0.50	904.7	\$0.71	5,276.1	900.1	346.7	\$2.70	410.5	\$3.08	4,640.3	\$3.33	13,588.0	1,614.6
Mar-18	1,654.6	\$0.37	3,395.2	\$0.15	11,137.3	\$0.15	35,849.5	4,236.8	530.9	\$3.10	1,191.5	\$2.99	6,154.9	\$3.12	9,010.8	1,609.0	35.6	\$0.75	55.3	\$0.60	904.6	\$0.70	5,276.1	900.7	346.7	\$2.70	393.4	\$2.99	4,408.5	\$3.12	13,588.0	1,641.7
Apr-18	1,654.6	\$0.37	3,545.2	\$0.10	12,133.1	\$0.25	35,849.5	4,193.5	530.9	\$3.10	1,190.7	\$2.99	5,490.0	\$4.71	9,010.8	1,417.8	35.6	\$0.75	47.0	\$0.65	907.6	\$0.70	5,276.1	900.7	346.7	\$2.70	474.6	\$2.99	4,486.0	\$4.71	13,588.0	1,439.9
May-18	1,623.2	\$1.75	2,825.5	\$1.90	10,173.4	\$2.70	35,561.7	3,219.1	525.5	\$10.43	590.2	\$11.62	4,589.4	\$11.86	8,630.1	888.6	64.2	\$6.10	37.3	\$6.10	528.3	\$6.81	5,214.4	517.8	299.7	\$10.39	162.3	\$11.62	5,241.1	\$11.86	14,100.5	683.0
Jun-18	1,623.2	\$1.75	3,032.7	\$2.60	9,412.1	\$4.33	35,561.7	2,582.7	525.5	\$10.43	1,673.4	\$11.00	3,883.9	\$10.24	8,630.1	856.7	64.2	\$6.10	44.3	\$6.56	530.4	\$6.80	5,214.4	518.8	299.7	\$10.39	682.0	\$11.00	5,086.3	\$10.24	14,100.5	878.9
Jul-18	1,623.2	\$1.75	3,125.8	\$3.50	9,515.9	\$4.22	35,561.7	2,625.9	525.5	\$10.43	1,425.4	\$9.72	3,455.1	\$10.16	8,630.1	865.6	64.2	\$6.10	78.0	\$6.75	540.4	\$6.68	5,214.4	526.2	299.7	\$10.39	1,295.0	\$9.72	5,037.0	\$10.16	14,100.5	888.3
Aug-18	1,623.2	\$1.75	3,212.7	\$3.73	9,620.5	\$3.88	35,561.7	2,760.5	525.5	\$10.43	1,790.2	\$8.75	3,563.2	\$9.58	8,630.1	963.9	64.2	\$6.10	76.0	\$6.60	557.3	\$6.68	5,214.4	526.1	299.7	\$10.39	834.4	\$8.75	5,022.0	\$9.58	14,100.5	958.8
Sep-18	1,623.2	\$1.75	3,330.6	\$3.25	9,964.8	\$2.87	35,561.7	3,152.9	525.5	\$10.43	2,000.9	\$8.12	3,308.5	\$9.32	8,630.1	965.8	64.2	\$6.10	80.0	\$6.60	542.5	\$6.63	5,214.4	529.1	299.7	\$10.39	764.5	\$10.12	4,330.6	\$9.32	14	