

2022 Capacity Withholding Analysis

A Report by the
New York Independent System Operator

December 2022

Table of Contents

1	INTRODUCTION	3
2	UNOFFERED AND UNSOLD CAPACITY.....	5
3	NEW YORK CITY AND G-J LOCALITIES.....	9
4	REST OF STATE	12
4.1	Overview.....	12
4.2	Analysis of ROS Unoffered Capacity.....	15
4.3	Analysis of ROS Unsold Capacity.....	16
4.3.1.	Monthly Maximum Price Impacts.....	17
4.4	Amount of Unsold UCAP offered at Prices above Unit-Specific Annual GFC.....	19
5	CONCLUSION.....	20

1 Introduction

This report summarizes potential economic and physical withholding activities in the NYISO-administered capacity auctions. The period under review is November 2021 to October 2022. The analysis presents data for the New York Control Area (NYCA), including the Long Island (LI), New York City (NYC), G-J Localities, as well as the Rest of State (ROS) region (Zones A-F) and Zones G through I¹. For purposes of this report, in order to identify whether any potential withholding occurred during the past year, the NYISO examined the differences between available capacity² and the supply committed through self-supply, bilateral transactions, and the NYISO-administered auctions. In particular, the NYISO examined the following:

- The NYCA capacity that was available to be offered into Installed Capacity (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 the auction, 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. However, the existence of unoffered and unsold capacity does not necessarily imply the intent to manipulate market prices.

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 LI, NYC, and G-J Localities, as well as one for the NYCA as a whole. Load Serving Entities (“LSEs”) with Load in LI, NYC, or G-J Localities are required

¹ We are analyzing the ICAP Supply in Zones A-F, termed as ROS, and upon the summation of values of Zones G-I, NYC, LI, and ROS we determine the value for NYCA. Similarly, the Zone G-J values reflect the summation of values for Zones G-I and NYC.

² Available Capacity is defined as the lesser of the NYISO-accepted Dependable Maximum Net Capability (“DMNC”) and the Capacity Resource Interconnection Service (“CRIS”) MW value, with the Equivalent Demand Forced Outage Rates (“EFORd”) reduction applied.

to procure minimum levels of capacity that is electrically located within the respective Locality, measured in terms of Unforced Capacity (“UCAP”). These requirements are known as the Locational Minimum Unforced Capacity Requirements (“LCRs”). This 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 (“MCZs”). These MCZs are 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 Order³ 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 the 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”).

Since transactions in the NYISO-administered capacity auctions are done in terms of Unforced Capacity (“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.

³ See New York Independent System Operator, Inc., Docket No. EL07-39-000, Order Conditionally Approving Proposal, 122 FERC ¶ 61,211 (2008).

2 Unoffered and Unsold Capacity

This section reviews unoffered and unsold capacity for the period beginning November 2021 through October 2022. The Minimum Installed Capacity Requirements are also summarized in this section. To help put the year in context by comparing results to recent history, illustrations cover the most recent 5-year period of Unoffered Capacity and Unsold Capacity.

Figure 1 illustrates the average monthly unoffered capacity as a percent of available capacity by capability period and capacity area. In all regions, average monthly unoffered capacity has remained below 1% over the past 5 years.

Figure 1: Average monthly Unoffered MW as a percent of available capacity

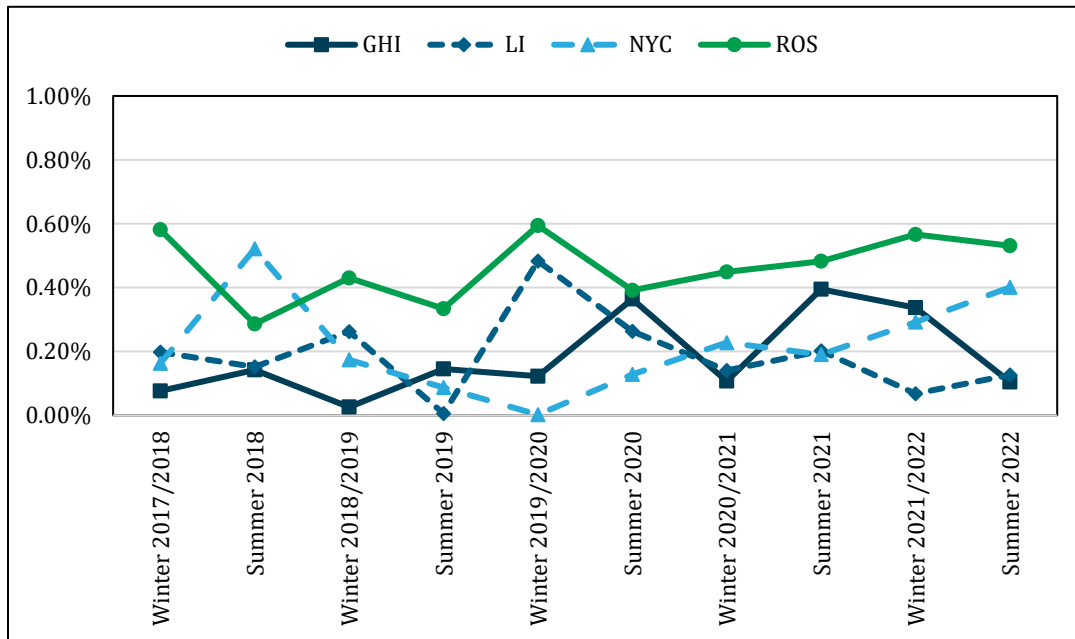
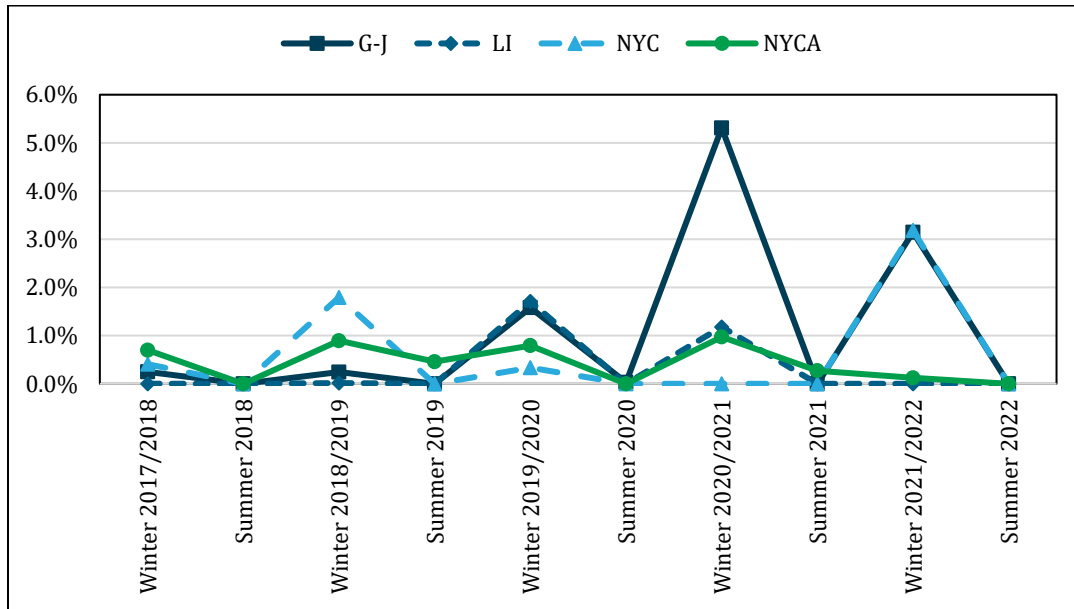


Figure 2 illustrates the average monthly unsold capacity as a percentage of offered capacity for four capacity areas.

Figure 2: Average monthly Unsold MWs as a percent of offered capacity



Note that the amount of unsold UCAP is reported based on the Resource’s offer price and whether the capacity would have cleared against the ICAP Demand Curve for the smallest Locality in which the Resource is electrically located. Thus, the reporting of unsold UCAP within a Locality will not necessarily equal the MW that were offered and were actually sold. That is, MW that would not have cleared at the Market-Clearing Price of the smallest Locality in which a Resource is electrically located if that Market-Clearing Price had been determined at the intersection of the UCAP supply and demand curves for that Locality, would be reported as an unsold MW even if the offer of MW cleared because the Market-Clearing Price was set at a higher level due to the capacity price cascading rules that apply to Localities. For example, if the price of capacity that would have been determined at the intersection of the supply curve for UCAP in New York City and the UCAP Demand Curves for New York City is \$10/kW-month, then MW of an offer from a Resource in New York City that would not have been sold at that price will be included in this report even if the MW did clear because the Market-Clearing Price of capacity for the G-J Locality or for the NYCA equaled or exceeded the offer price. Instead, **Section 4.3** explicates what proportion of unsold capacity failed to clear in NYCA.

Across all regions, there was no unsold capacity in Summer 2022. For LI, average monthly unsold capacity as a percent of available capacity has remained below 2% over the past 5 years. In

fact, there was no unsold capacity in LI for this year (Nov. 2021 – Oct. 2022). For NYC, this value was just over 3% in Winter 2021/2022. This was similar for the G-J Locality. Across the entire NYCA, average unsold capacity as a percent of available capacity has remained under 1% over the past 5 years.

Table 1: Unoffered and Unsold (MW)

MONTH	Unoffered					Unsold			
	LI	NYC	GHI	ROS	NYCA	LI	NYC	G_to_J	NYCA
Nov-21	0.3	15.1	12.5	92.8	120.7	0.0	378.5	518.8	26.4
Dec-21	0.0	30.5	9.6	106.4	146.5	0.0	343.5	489.8	26.4
Jan-22	0.0	41.4	17.3	85.3	144	0.0	325.7	467.2	26.4
Feb-22	0.0	31.8	15.7	80.7	128.2	0.0	335.2	478.4	26.4
Mar-22	11.4	27.6	21.3	115.4	175.7	0.0	340.7	478.3	102.7
Apr-22	12.1	41.3	17.5	94.9	165.8	0.0	318.2	457.9	73.5
May-22	0.0	31.4	5.5	62.7	99.6	0.0	0.0	0.0	0.0
Jun-22	38.0	24.7	2.9	81.2	146.8	0.0	0.0	0.0	0.0
Jul-22	0.0	28.7	4.8	77.8	111.3	0.0	0.0	0.0	0.0
Aug-22	0.0	103.9	3.4	99.8	207.1	0.0	0.0	0.0	0.0
Sep-22	0.3	25.0	5.7	97.8	128.8	0.0	0.0	0.0	0.0
Oct-22	2.5	24.9	5.8	86.8	120.0	0.0	0.0	0.0	0.0

Table 1 summarizes total unoffered and unsold capacity for the period beginning with November 2021 through October 2022. (Recall that due to capacity price cascading rules, unsold capacity in LI has an opportunity to be sold at the NYCA market clearing price (MCP). Similarly, recall that unsold capacity in NYC has an opportunity to be sold at the G-J Locality MCP, and unsold capacity in the G-J locality has an opportunity to be sold at the NYCA MCP. Therefore, while Table 1 shows the unsold capacity based on the MCP of the smaller locality within which the unit is located, **Section 4.3, Table 5** and **Table 6** explicitly illustrate the amount of capacity that remained unsold even at the NYCA MCP).

Across the entire NYCA, the highest amount of unoffered capacity (207.1 MW) was recorded in August 2022. For ROS, the highest value (115.4) was recorded in March 2022.

For Long Island, average monthly unoffered capacity for the Summer 2022 Capability Period was 6.8 MW compared to 11.3 MW in Summer 2021. For Winter 2021/2022, average monthly unoffered capacity in LI was 4 MW compared to 8.5 MW the previous winter.

For NYC, average monthly unoffered capacity for Summer 2022 was 39.8 MW compared to 19 MW in Summer 2021. For Winter 2021/2022, average monthly unoffered capacity in NYC was 31.3 MW compared to 24.6 MW the previous winter. In August 2022, NYC recorded 103 MW of unoffered capacity, due in large part to one Market Participant (MP). The NYISO contacted this MP to inquire into this outcome. The MP reported that this incident was an administrative oversight.

For zones G, H, and I together, average monthly unoffered capacity for Summer 2022 was 4.7 MW compared to 18.2 MW in Summer 2021. For Winter 2021/2022, average monthly unoffered capacity was 15.7 MW compared to 6.3 MW the previous winter.

For ROS, average monthly unoffered capacity for Summer 2022 was 84.3 MW compared to 76.8 MW in Summer 2021. For Winter 2021/2022, average monthly unoffered capacity was 95.9 MW compared to 76.9 MW in Winter 2020/2021.

In terms of total capacity unoffered, LI, NYC, GHI and ROS recorded 40.8 MW, 238.6 MW, 28.1 MW and 506.1 MW respectively in Summer 2022. In Summer 2021, these values were 67.8 MW, 113.9 MW, 109.2 MW and 460.6 MW and respectively. For Winter 2021/2022, LI, NYC, GHI and ROS recorded 23.8 MW, 187.7 MW, 93.9 MW and 575.5 MW respectively. For comparison, these values were 51.2 MW, 147.8 MW, 37.8 MW and 461.2 MW in Winter 2020/2021.

Regarding unsold capacity, for Long Island, like Summer 2021, average monthly unsold capacity for Summer 2022 was 0 MW. For Winter 2021/2022, average monthly unsold capacity in LI was 0 MW compared to 71.8 MW the previous winter. For NYC, average monthly unsold capacity for Summer 2022 remained unchanged from Summer 2021 at 0 MW. For Winter 2021/2022, average monthly unsold capacity in NYC was 340.3 MW compared to 0 MW the previous winter. This observation was consistent for the G-J Locality; average monthly unsold capacity for Summer 2022 was 0 MW (as it was in Summer 2021). For Winter 2021/2022, average monthly unsold capacity was 481.7 MW compared to 885.1 MW the previous winter. For NYCA, average monthly unsold capacity for Summer 2022 was 0 MW compared to 98 MW in Summer 2021. For Winter 2021/2022, average monthly unsold capacity was 47 MW compared to 387.4 MW in Winter 2020/2021.

In terms of total capacity unsold, LI, NYC, G-J and NYCA all recorded 0 MW in Summer 2022. In Summer 2021, these values were 0 MW, 0 MW, 0.1 MW and 588.3 MW respectively. For Winter 2021/2022, LI, NYC, G-J and NYCA 0 MW, 2,041.8 MW, 2,890.4 MW and 281.8 MW respectively. For

comparison, these values were 430.9 MW, 0 MW, 5,310.7 MW and 2,324.1 MW respectively in Winter 2020/2021.

Table 2: Minimum Installed Capacity Requirements (%)

Capability Year	NYC	G_to_J	LI	NYCA
2017/2018	81.5	91.5	103.5	118.1
2018/2019	80.5	94.5	103.5	118.2
2019/2020	82.8	92.3	104.1	117
2020/2021	86.6	90	103.4	118.9
2021/2022	80.3	87.6	102.9	120.7
2022/2023	81.2	89.2	99.5	119.6

Table 2 summarizes the Locational Minimum Installed Capacity Requirements (LCRs) in LI, NYC, and G-J Localities as well as the Installed Reserve Requirement (IRM) for NYCA.⁴ The NYC and G-J LCRs increased since last Capability Year, while the LI LCR and the NYCA IRM decreased.

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.⁵ 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 (a) the UCAP Offer Reference Level or (b) the ICAP Supplier’s Going-Forward Costs (“GFCs”) determined by the NYISO.

⁴ 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 2021 IRM Study Report covering the period of May 2021 through April 2022 is available at: http://www.nysrc.org/NYSRC_NYCA_ICR_Reports.html.

⁵ See Market Services Tariff Sections 23.2.1 and 23.4.5.

Figure 3 and Figure 4 illustrate the effects of Supply-side Mitigation for NYC and the G-J locality respectively. The UCAP Offer Reference Level is an offer price cap that the Pivotal Supplier cannot exceed in the ICAP Spot Market Auction unless the Pivotal Supplier’s GFCs are higher than the Reference Level. Consequently, the level of unsold capacity can be inferred from Figure 3 and Figure 4 by comparing the Locality MCP with the UCAP Offer Reference Level. On the other hand, Figure 5 and Figure 6 present the generator UCAP and SCR UCAP for NYC and the G-J Locality respectively.

The difference between the ICAP Spot Market Auction clearing price and UCAP Offer Reference Price may 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 MCP will diverge from the UCAP Offer Reference Level when the NYCA ICAP Spot Market Auction sets the Locality ICAP Spot Market Clearing Price. This divergence is the result of the auction rules and is not caused by unoffered or unsold Locality Capacity.

Figure 3: NYC Mitigation Results

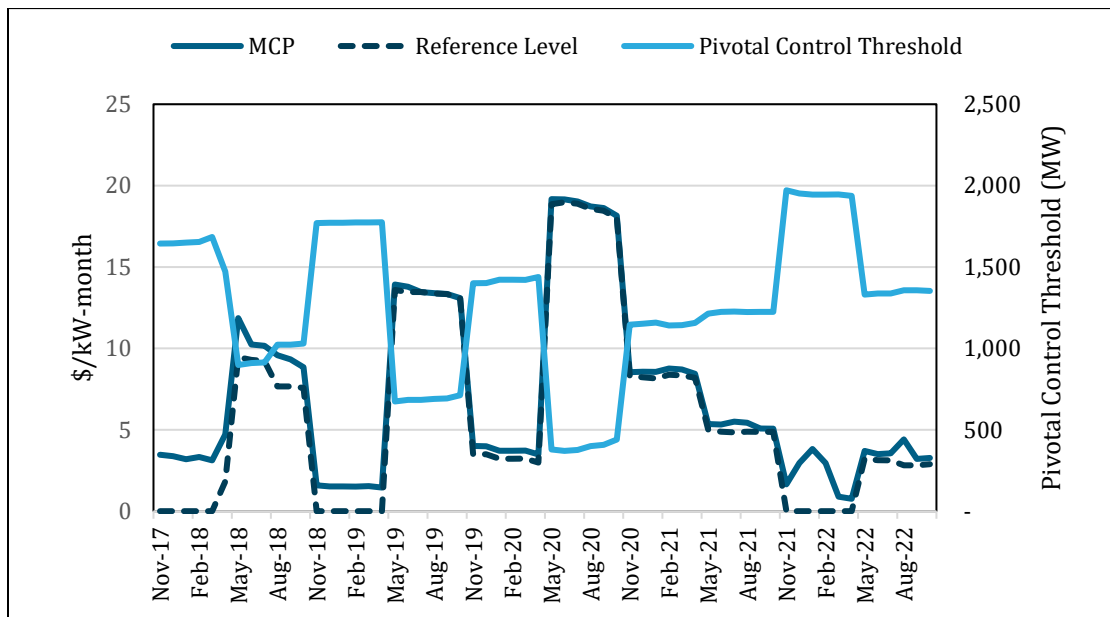


Figure 4: NYC Generator and SCR UCAP

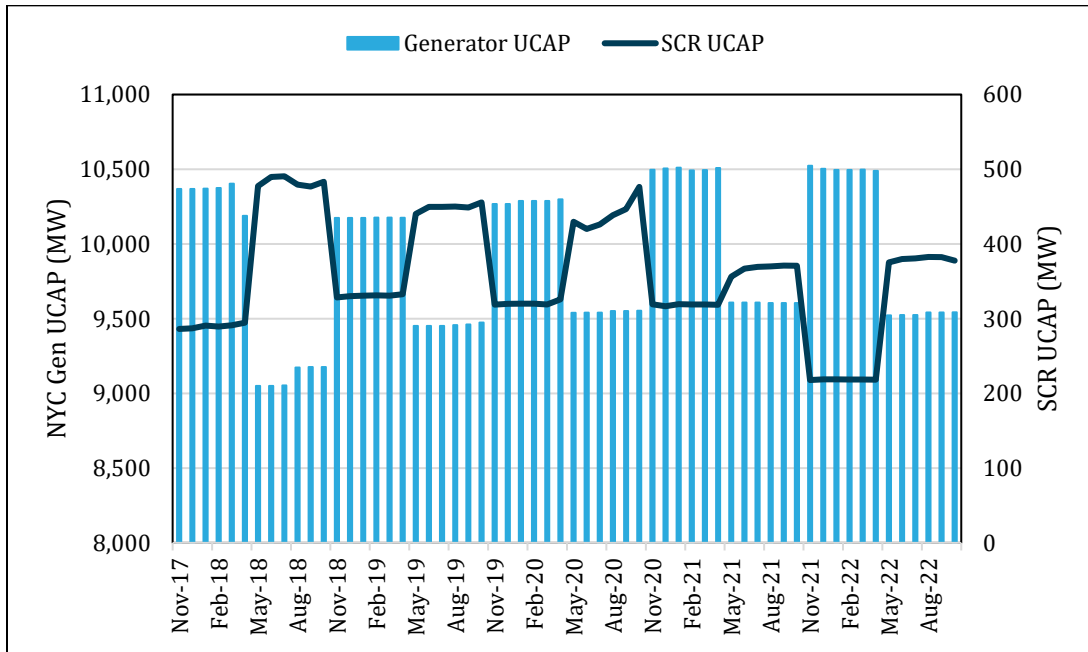


Figure 5: G-J Mitigation Results

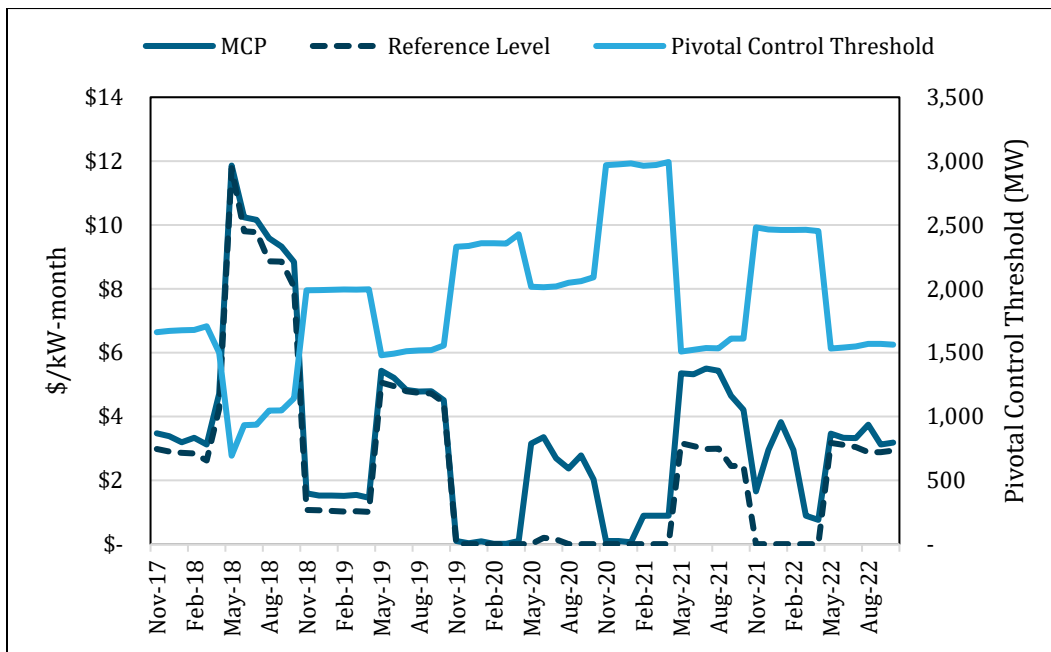
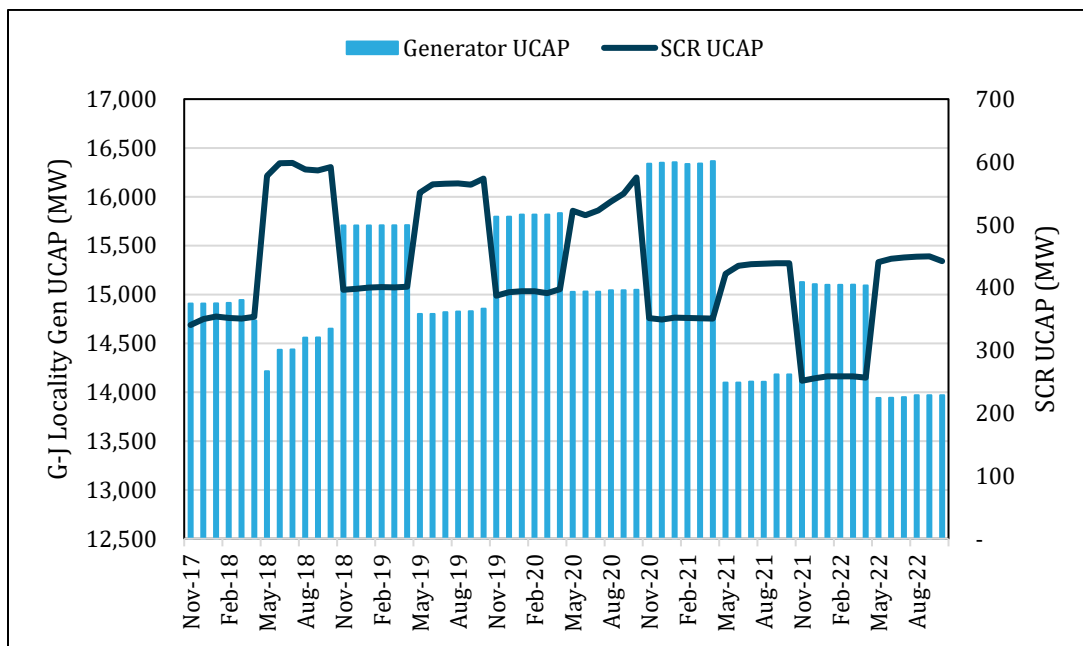


Figure 6: G-J Locality Generator and SCR UCAP



4 Rest of State

4.1 Overview

This section of the report addresses possible withholding of capacity located in Rest of State for the year under review. For this review, the NYISO conducted a detailed analysis of unoffered and unsold capacity. While some analysis of LI, NYC, the G-J locality is summarized herein, Rest of State is featured predominantly in this section. This section also discusses the price impact of unsold and unoffered capacity. 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.

Figure 7 illustrates ROS capacity by Capability Period for four different capacity types: available, offered, sold, and exported capacity. Exported capacity is indicated on the right vertical axis while all other forms of capacity are represented on the left vertical axis.

Figure 7: Rest of State Capacity: Available, Offered, Sold, Exported



Table 3 summarizes ROS unoffered and unsold capacity by type of Market Participant (MP). “GenCo” refers to generation companies, “TO” refers transmission owners and “Other” refers to MPs who are neither GenCos nor TOs. Columns with “(MW)” show the average monthly unoffered capacity for that season and MP-type. Columns with “(% of total)” show what percentage of total unoffered capacity is attributable to that MP-type for the given Capability Period.

Table 3: ROS Unoffered and Offered but Unsold Capacity by Type of MP

ROS Summer Unoffered Capacity							
SEASON	GenCo (MW)	GenCo (% of total)	Other (MW)	Other (% of total)	TO (MW)	TO (% of total)	Capability Period (MW)
Summer 2018	21.0	42.54%	15.5	31.33%	12.9	26.13%	49.4
Summer 2019	34.7	61.51%	15.0	26.57%	6.7	11.91%	56.4
Summer 2020	24.6	38.85%	33.4	52.68%	5.4	8.47%	63.4
Summer 2021	22.0	28.17%	36.5	46.79%	19.5	25.04%	77.9
Summer 2022	34.4	40.76%	38.4	45.49%	11.6	13.75%	84.3

ROS Winter Unoffered Capacity							
SEASON	GenCo (MW)	GenCo (% of total)	Other (MW)	Other (% of total)	TO (MW)	TO (% of total)	Capability Period (MW)
Winter 2017/2018	66.2	62.27%	11.6	10.91%	28.5	26.83%	106.4
Winter 2018/2019	16.8	21.67%	36.6	47.26%	24.1	31.07%	77.4
Winter 2019/2020	74.3	70.86%	24.5	23.40%	6.0	5.74%	104.8
Winter 2020/2021	43.9	56.11%	20.7	26.50%	13.6	17.38%	78.2
Winter 2021/2022	45.9	46.15%	39.7	39.99%	13.8	13.86%	99.3

ROS Summer Unsold Capacity							
SEASON	GenCo (MW)	GenCo (% of total)	Other (MW)	Other (% of total)	TO (MW)	TO (% of total)	Capability Period (MW)
Summer 2018	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2019	174.2	100.00%	0.0	0.00%	0.0	0.00%	174.2
Summer 2020	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0
Summer 2021	98.0	100.00%	0.0	0.00%	0.0	0.00%	98.0
Summer 2022	0.0	0.00%	0.0	0.00%	0.0	0.00%	0.0

ROS Winter Unsold Capacity							
SEASON	GenCo (MW)	GenCo (% of total)	Other (MW)	Other (% of total)	TO (MW)	TO (% of total)	Capability Period (MW)
Winter 2017/2018	205.8	86.24%	32.8	13.76%	0.0	0.00%	238.7
Winter 2018/2019	253.4	79.39%	64.9	20.34%	0.9	0.27%	319.2
Winter 2019/2020	50.9	24.72%	125.9	61.17%	29.0	14.11%	205.8
Winter 2020/2021	0.9	0.23%	0.0	0.00%	376.5	99.77%	377.3
Winter 2021/2022	18.0	100.00%	0.0	0.00%	0.0	0.00%	18.0

For Summer 2022, “Other” MPs made up the largest share of unoffered capacity. For Winter 2021/2022, GenCos accounted for the largest share of unoffered capacity. There was no unsold capacity in Summer 2022. For Winter 2021/2022, GenCos accounted for all unsold capacity.

4.2 Analysis of ROS Unoffered Capacity

For the period November 2021 to October 2022, Market Participants with at least 15 MW of unoffered capacity were contacted and provided an opportunity to justify their unoffered capacity.

Two (2) Market Participants in thirteen (13) instances reported that their failure to offer capacity was a result of their bidding strategy or external sale. Two (2) Market Participants in two instances reported that their failure to offer was due to administrative oversight. One (1) MP in one instance reported that they experienced physical operating constraints that resulted in their unoffered capacity. One (1) MP reported that their failure to offer capacity was due to physical/environmental conditions.

Table 4 shows the maximum price impact of the unoffered capacity based on the slopes of the ICAP Demand Curves for the relevant Capability Periods. Given that the maximum price impact cannot exceed the MCP, 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.

Table 4: Maximum Price Impact of ROS Unoffered Capacity

Month	Total Unoffered (MW)	Maximum Price Impact (\$/kW-mo.)	Seasonal Average Max Price Impact (\$/kW-mo.)
Nov-2021	91.5	0.18	0.19
Dec-2021	106.4	0.21	
Jan-2022	85.3	0.17	
Feb-2022	80.7	0.16	
Mar-2022	115.4	0.23	
Apr-2022	94.9	0.19	
May-2022	62.7	0.15	0.20
Jun-2022	81.2	0.19	
Jul-2022	77.8	0.19	
Aug-2022	99.8	0.24	
Sep-2022	97.8	0.23	
Oct-2022	86.8	0.21	

For Winter 2021/2022, the seasonal average maximum price impact was \$0.19/kW-month. For Summer 2022, the seasonal average maximum price impact was \$0.20/kW-month. For the Winter Capability Period, the highest levels of unoffered capacity seems to have occurred around shoulder months.

4.3 Analysis of ROS Unsold Capacity

This section analyzes and reports on ROS unsold capacity in the ICAP Spot Market Auction. In the examination of unsold capacity in ROS, the NYISO considers the following:

1. Monthly maximum price impacts of offered but unsold UCAP (“unsold UCAP”) for each Locality and for the NYCA.
2. Amount of unsold UCAP offered at prices above unit-specific annual Going Forward Costs (as described below, “annual GFCs”).
3. Price impact estimates of unsold UCAP for the Analysis Year from Units that are shown to have recovered, or could have recovered, their annual revenue requirement (based on annual GFCs). These units include Generators, capacity using Unforced Capacity Deliverability Rights (“UDR projects”), Special Case Resources (SCRs), and other capacity Resources.

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. In order to report the second and third items listed above, Market Participants with 15 MW of unsold UCAP in any period in which a threshold is met will be required to provide GFC Data.

Thresholds:

- The Capability Period price impact threshold:
 - This threshold will be met for the Capability Period if (a) the average Market Clearing Price of the NYCA in that Capability Period is at least \$1.00/kW-month and (b) the average maximum price impact of unsold UCAP for that Capability Period

(calculated under the assumption that monthly GFCs for unsold UCAP are zero) is at least \$0.20/kW-month.

- The monthly price impact threshold:
 - This threshold will be met for a given month if (a) the Market Clearing Price for the NYCA in that month is at least \$1.00/kW-month and (b) the maximum price impact of unsold UCAP (calculated under the assumption that monthly GFCs for unsold UCAP are zero) is at least \$0.35/kW-month.

Market Participants required to provide Annual GFC data:

- If the Capability Period price impact threshold is met for a given Capability Period, the NYISO will request (and Market Participants will be required to provide) data needed to calculate unit specific annual GFCs from any Unit with an average of at least 15 MW of unsold capacity over that Capability Period.
- If the Capability Period price impact threshold is not met for a given Capability Period, but the monthly price impact threshold is met for one or more months within that Capability Period, the NYISO will request (and Market Participants will be required to provide) data needed to calculate unit-specific annual GFCs from any Unit with at least 15 MW of unsold capacity for those months in which the monthly price impact threshold is met.

4.3.1. Monthly Maximum Price Impacts

The following table(s) show the maximum price impact of the unsold capacity based on the slopes of the ICAP Demand Curves for the relevant Capability Periods. Given that the maximum price impact cannot exceed the MCP, the maximum price impact is calculated as the lesser of (1) the product of the monthly unsold MW and the slope of the ICAP Demand Curve of the smallest applicable locality and (2) the ICAP Spot Market Auction Market-Clearing Price.

There was no unsold capacity in LI this year, so no price impact is calculated. However, there was unsold capacity from units electrically located in NYC. Table 5 summarizes this maximum price impact for NYC. Note, the “Total Unsold (MW)” column excludes capacity that is unsold in NYC but subsequently cleared at NYCA. (Recall discussion on cascading effects in **Section 2** Figure 2 and Table 1.). It also excludes units that had unsold capacity due to their offer floors. Table 5 therefore gives a clearer picture of NYC capacity that were never sold.

For the Winter Capability Period, the seasonal average maximum price impact in NYC is \$0.03/kW-month. For the Summer Capability Period, the average price impact was \$0/kW-month. In March 2022, a total of 15 MW of NYC capacity went unsold with a maximum price impact of \$0.21/kW-month. The corresponding MCP was \$0.89/kW-month, which is below the \$1.00/kW-month criteria.

All unsold capacity observed in the G-J Locality are attributable to the units noted in NYC (Table 5). Consequently, there is no further price impact calculation for the G-J locality. Neither the Capability Period price impact threshold nor the monthly price impact threshold was met.

Table 5: Maximum Price Impact of NYC Unsold Capacity

Month	Total Unsold (MW)	Maximum Price Impact (\$/kW-mo.)	Seasonal Average Max Price Impact (\$/kW-mo.)
Nov-2021	0	0	0.03
Dec-2021	0	0	
Jan-2022	0	0	
Feb-2022	0	0	
Mar-2022	15	0.21	
Apr-2022	0	0	0
May-2022	0	0	
Jun-2022	0	0	
Jul-2022	0	0	
Aug-2022	0	0	
Sep-2022	0	0	
Oct-2022	0	0	

Table 6 shows the maximum price impact of unsold capacity from units electrically located in ROS. The seasonal average maximum price impact was \$0.04/kW-month in Winter 2021/2022 and \$0/kW-month in Summer 2022. These are below the \$0.20/kW-month threshold. Therefore, the Capability Period price impact threshold was not met. Similarly, the monthly price impact were below the \$0.35/kW-month threshold. The MCP for March 2022 and April 2022 were also below

the \$1.00/kW-month threshold. Consequently, the monthly price impact threshold was not met. Since neither the Capability Period price impact threshold nor the monthly price impact threshold was met, the NYISO did not contact MPs for GFC data.

Table 6: Maximum Price Impact of ROS Unsold Capacity

Month	Total Unsold (MW)	Maximum Price Impact (\$/kW-mo.)	Seasonal Average Max Price Impact (\$/kW-mo.)
Nov-2021	0	0	0.04
Dec-2021	0	0	
Jan-2022	0	0	
Feb-2022	0	0	
Mar-2022	60.8	0.12	
Apr-2022	47.1	0.09	
May-2022	0	0	0.00
Jun-2022	0	0	
Jul-2022	0	0	
Aug-2022	0	0	
Sep-2022	0	0	
Oct-2022	0	0	

4.4 Amount of Unsold UCAP offered at Prices above Unit-Specific Annual GFC

As discussed in Section 5.3, there was no instance in which either the Capability Period price impact threshold or the Monthly price impact threshold was met. Consequently, this section only describes the NYISO's procedure for assessing cases where thresholds are met.

If either the Capability Period Price Impact Threshold or the Monthly Price Impact Threshold is met, the NYISO conducts a price impact assessment using annual GFCs and the following method:

1. For the Unit with the lowest annual GFC value (expressed in \$/kW-month), the NYISO conducts a simulation of the ICAP Spot Market Auctions for the entire Analysis Year. The

simulation will replace all actual ICAP Spot Market Auction offers from the Unit with a \$0/kW-month Offer. New Spot Market Clearing Prices are then simulated for each Spot Auction. The NYISO then determines if the Unit would have recovered its annual GFCs in the simulated Spot Market Auctions. This determination will be made by comparing its annual revenue requirement (based on the Unit's UCAP and annual GFC values) to its simulated Spot Market Auctions sales in the twelve Spot Market Auctions for that Analysis Year.

- Any Unit shown to NOT recover its annual GFCs through the simulation will not be considered in the price impact calculations.
 - Any Unit shown to recover its annual GFCs through the simulation will have its simulated Offers remain in the simulated Spot Market Auction for the remaining Units.
2. Step 1 is performed sequentially for each Unit from which the NYISO requested annual GFCs. This sequence is in ascending order of annual GFC.
 3. The price impact will be reported as the difference between the actual ICAP Spot Market Auction clearing price, and the clearing price of the simulated Spot Market Auction after all Units have been simulated at their \$0/kW-month offers.

As noted in Section 4.3, neither the Capability Period price impact threshold nor the monthly price impact threshold was met in any of the scenarios. Consequently, this report does not include GFC analyses for units with at least 15 MW of unsold capacity.

5 Conclusion

This report summarizes potential economic and physical withholding activities in the NYISO-administered capacity auctions. The period under review is November 2021 to October 2022.

On average, monthly unoffered and unsold capacity remained low. The NYISO contacted five (5) Market Participants (MPs) to investigate instances of unoffered capacity of at least 15 MW. Regarding unsold capacity, there were no cases where the Capability Period price impact threshold or the Monthly price impact threshold was met. Based on responses from MPs and an assessment of the information, the NYISO did not find sufficient evidence to conclude that economic or physical withholding occurred.