![New York ISO - Independent System Operator]

NYISO's Compliance Submittal for NYSRC Rule A.3 (R1)

Next Capability Year Resource Adequacy Assessment

A Report by the
New York Independent System Operator

Presented to the Reliability Compliance Monitoring Subcommittee
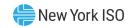**of the New York State Reliability Council**

June 6, 2024

Table of Contents

Statement of NYSRC Rule A.3 R1

The NYSRC Reliability Rule A.3 R1 has the following requirements:

"**R1.** The NYISO shall conduct a NYCA resource adequacy assessment for the next Capability Period for demonstrating that proposed NYCA resources meet statewide IRM and locational capacity requirements in accordance with Reliability Rules A.1: R1.1 and A.2: R1. The assessment shall be documented in a report, covering at a minimum, the evaluations and information below:

R1.1 The Resource Adequacy assessment shall evaluate a base case assuming proposed resources and the most likely load forecast, as well as alternate scenarios approved by RCMS.

R1.2 The Resource Adequacy assessment shall address any potential base case resource adequacy needs and possible corrective actions.

R1.3 The Resource Adequacy assessment report shall include key findings, assumptions, and other factors considered in the assessment."

The following compliance measure serves to fulfill the NYSRC Reliability Rule A.3 requirement R1. This measure states that:

"**M1.** The NYISO submitted a NYCA Next Capability Period Year Resource Adequacy Assessment Report covering the next Capability Period to the NYSRC in accordance with R1 requirements."
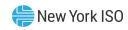
Establishment of the Installed Reserve Margin (IRM)

The Installed Capacity Subcommittee (ICS) of the New York State Reliability Council conducted a technical resource reliability study in 2023 to determine the IRM for the 2024-2025 Capability Year. The Executive Committee of the NYSRC approved the Capability Year 2024–2025 IRM at 22.0% on December 8, 2023[1] that met the required Loss of Load Expectation (LOLE) criteria of 0.1 days per year as specified in NYSRC Rule A.1, Requirement R1.1.

Establishment of LCRs

Using the approved IRM, the NYISO then determined the minimum Locational Capacity Requirements (LCRs). The NYISO's Operating Committee approved the original LCRs on January 18,

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https://www.nysrc.org/wp-content/uploads/2023/12/2024-25-IRM-Resolution-12-8-2023-final.pdf

2024, based on previously calculated Transmission Security Limits (TSL) floor values.[2] The NYISO later identified an error with the TSL floor value calculation for New York City and the updated LCRs were approved by the Operating Committee on April 19, 2024. Details of the New York City TSL floor value error and the LCR correction are in the later section of this report. The LOLE resource adequacy criterion was maintained throughout the process, for both the original and updated LCR values. The NYISO's calculations resulted in a final value of New York City LCR of 80.4%, a Long Island LCR of 105.3%, and a G-J Locality LCR of 81.0%.

NYC Transmission Security Limit Error

The NYISO discovered an error was made in the determination of the 5-year derating factor used for calculating the transmission security limit (TSL) floor value for Load Zone J for 2024-2025 Capability Year. Using the correct derating factor, the TSL floor value for Load Zone J for the 2024-2025 Capability Year should be 80.4%[3] instead of the initially calculated 81.7% value. After discovery of the issue, the NYISO reported the matter to FERC and the Market Monitoring Unit (MMU) prior to issuing a "Notice of a Potential Market Problem" to the market on April 10, 2024, and commenced discussions with stakeholders at the Operating Committee on April 11, 2024, and the ICAP Working Group on April 15, 2024.

The NYISO conducted a supplemental analysis to determine that the updated Locational Minimum Installed Capacity Requirement (LCR) for Load Zone J should have been 80.4% and that the original TSL floor values for Load Zone K (105.3%) and the G-J Locality (81.0%) remained binding for their respective LCRs. the NYISO recommended revising the Load Zone J LCR for the 2024-2025 Capability Year to 80.4% and implementing the revised LCR beginning with the May 2024 ICAP Spot Market Auction. The revised LCR for Load Zone J was subsequently approved by the Operating Committee on April 19, 2024[4], and was implemented starting the May 2024 ICAP Spot Auction.

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[2] https://www.nyiso.com/documents/20142/44149093/2024-2025%20Revised%20LCR%20Report%20(April%202024)%20-%20clean.pdf/13620952-adf8-82ab-0a77-967369561a5a

[3] https://www.nyiso.com/documents/20142/44149093/2024-2025%20Revised%20LCR%20Report%20(April%202024)%20-%20clean.pdf/13620952-adf8-82ab-0a77-967369561a5a

[4] https://www.nyiso.com/documents/20142/44149093/NYC%20TSL%20Potential%20Market%20Problem%20-%2004192024%20OC%20Draft.pdf/8d4adb20-2341-cbfe-5372-5b661ac4dd08

Capability Year 2024-2025 Assessment

This assessment builds upon the data models for the IRM and LCR studies of the Capability Year 2024-2025 with a deterministic approach to assess the 2024-2025 Capability Year to determine that resource adequacy is maintained.

Load Forecast Model

The NYISO employs a multi-stage process to develop load forecasts for each of the eleven Zones within the NYCA. In the first stage, baseline energy and peak models are developed based on projections of end-use intensities and economic variables. End-use intensities modeled include those for lighting, refrigeration, cooking, heating, cooling, miscellaneous plug loads, and others. Appliance end-use intensities are generally defined as the product of saturation levels (average number of units per household or commercial square foot) and efficiency levels (energy usage per unit or a similar measure). End-use intensities specific to New York are estimated from appliance saturation and efficiency levels in both the residential and commercial sectors. These intensities include the projected impacts of energy efficiency programs and improved building codes and appliance standards. Economic variables considered include Gross Domestic Product ("GDP"), number of households, population, and commercial and industrial employment. Projected long-term weather trends from the NYISO *Climate Change Impact Study Phase I* [5] are included in the end-use models. In the second stage, the incremental impacts of additional policy-driven energy efficiency, BTM solar PV, and distributed generation are deducted from the forecast, and the incremental impacts of electric vehicle usage and building electrification are added to the forecast. The impacts of net electricity consumption of energy storage resources due to charging and discharging are added to the energy forecasts, while the peak-reducing impacts of BTM energy storage resources are deducted from the peak forecasts. In the final stage, the NYISO aggregates load forecasts by zone.

The 2024-2025 Capability Year peak load baseline forecast and the 90th percentile forecast from the 2023 Gold Book are listed in the table below. In the IRM probabilistic study, a Load Forecast Uncertainty ("LFU") model is applied to the baseline peak forecast. The 90th percentile forecast of

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[5] NYISO *Climate Change Impact Study Phase I:* *https://www.nyiso.com/documents/20142/10773574/NYISO-Climate-Impact-Study-Phase1-Report.pdf/01fc1353-38cb-b95d-60c2-af42a78bff50*

peak load provided in the 2023 Gold Book is consistent with the load distribution defined by the LFU model.

Capability Year 2024-2025 baseline and 90th percentile peak load forecast

	Baseline Peak Load*	90th Percentile Peak Load**	Delta
NYCA	32,970	34,131	1,161
NYC	11,280	11,473	193
LI	5,049	5,369	320
G-J***	15,516	15,859	343

* With impacts for Energy Savings Programs and Behind-the-Meter Generation

** Only coincident peak data available in the Gold Book

*** The G-J forecast is the summation of all the coincident peaks in Zone G through J

Capacity Projections and Margin Levels

The NYCA 2024-2025 Capability Year capacity projections are based upon the 2023 Gold Book and updated information from the 2024-2025 IRM study as shown below.[6] This projection incorporates capacity additions, re-ratings, and deactivations that are identified in the 2023 Gold Book, and uses the lesser of the summer Capacity Resource Interconnection Service ("CRIS") or summer Dependable Maximum Net Capability ("DMNC") values for each unit. The statewide net purchases[7] and Special Case Resources ("SCRs") are also included based on the information in Tables V-1 and I-7of the 2023 Gold Book and updated information from the 2024-2025 IRM study, respectively.

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[6] The capability ratings in Gold Book Table III-2 are based upon the best information available at the time of publication. The Gold Book inclusion/exclusion rules for Table III-2 may result in a different resource mix than used in this assessment. The capability ratings for both wind and solar resources are shown at their full nameplate rating.

[7] Net purchases are long-term firm purchases less long-term firm sales. Firm purchases include grandfathered imports, external CRIS Rights, and Unforced Capacity Deliverability Rights (UDRs) with firm contracts.

Capability Year 2024-2025 Capacity Model based on 2023 Gold Book

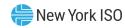|	NYCA	NYC	LI	G-J
2023 Gold Book Summer Capability Ratings	37,177.9	9,231.9	5,005.7	13,972.0
Lesser of Capability Rating or CRIS from Gold Book	37,045.7	9,222.6	4,995.2	13,950.5
SCR Resources[8]	1,281.0	442.4	35.3	526.7
Re-Ratings and Additions[9]	140.1	13.4	107.7	32.4
Removals[10]	-	-	-	-
Net Purchases[11]	1,937.8	315.0	660.0	315.0
Total Capability for Summer 2024	40,124.4	9,966.6	5,582.8	14,759.8

Capability Year 2024-2025 Capacity Margin Values

[8] SCR Resources are based on the July 2023 enrollment as presented to ICS (https://www.nysrc.org/wp-content/uploads/2023/10/IRM_FBCAssumptionsMatrix_V1.222498.pdf)

[9] New resources and unit re-ratings can be found in the Final Assumptions Matrix for the 2024-25 IRM Study. Units that were previously expected to deactivate but are no longer doing so due to the 2023 Peaker Rules. Therefore, they were reinstated in the 2024-25 IRM Study.(https://www.nysrc.org/wp-content/uploads/2023/10/IRM_FBCAssumptionsMatrix_V1.222498.pdf)

[10] Deactivations and Removals that are modeled in the IRM can be found in the Final Assumptions Matrix for the 2024-25 IRM Study (https://www.nysrc.org/wp-content/uploads/2023/10/IRM_FBCAssumptionsMatrix_V1.222498.pdf)

[11] The values listed here have been updated to reflect the most recent UDR elections and net purchases as used in the 2024-2025 IRM Study. Purchases listed in the 2023 Gold Book do not include updated UDR election values.

	Capacity	Baseline Peak Load	Margin	90th Percentile Peak Load[12]	Margin
NYCA	40,124.4	32,280.0	124.3%	34,131.0	117.6%
NYC	9,966.6	11,280.0	88.4%	11,473.0	86.9%
LI	5,582.8	5,049.0	110.6%	5,369.0	104.0%
G-J	14,759.8	15,416.0	95.7%	15,859.0	93.1%

The analysis shows that with the baseline forecast of peak load, sufficient capacity is available to meet the 22.0% statewide IRM established by the NYSRC in December 2023 at the baseline peak load. In addition, sufficient capacity is available to meet the New York City LCR of 80.4%, a Long Island LCR of 105.3%, and a G-J Locality LCR of 81.0% under the baseline forecast. Sufficient capacity is available to meet the New York City LCR of 80.4% and the G-J locality LCR of 81.0% at the 90th percentile forecast, however there is insufficient capacity to meet the statewide IRM of 22.0% and the Long Island LCR of 105.3% at the 90th percentile load forecast. In this case, emergency operating procedures, such as calling for additional import from neighboring systems and activating voltage reductions and public appeals, will be implemented to ensure the reliability of the NYCA system.

Conclusion

With the Capacity and Load projections as updated by the 2023 Gold Book, a deterministic assessment demonstrates that the New York Control Area meets the resource adequacy requirements established by the NYSRC and the LCR requirements as set the by the NYISO for the Capability Year 2024-2025. Sufficient capacity is available to meet the IRM established by the NYSRC in December 2023 and to meet the final LCRs established by the NYISO in April 2024, under

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[12] The 90th percentile forecast is based on the coincident peak values due to a 90th percentile NCP not being calculated for NYC, LI, and G-J.

the baseline forecast of peak load.[13]   At the 90th percentile load forecast level, additional emergency operating procedures will be implemented to maintain the statewide IRM and Long Island LCR, as well as to ensure the reliability of the NYCA system.

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[13] It is important to note that deterministic assessments only provide "what if" information and do not test resource adequacy. Had there been significant changes to the capacity and/or load models where the required IRM or LCRs were not met under the baseline forecast of peak load, the NYISO would implement appropriate corrective actions.