



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**

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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 2022 to determine the IRM for the 2023-2024 Capability Year. The Executive Committee of the NYSRC approved the Capability Year 2023-2024 IRM at 20.0% on December 9, 2022¹ 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 determined the minimum Locational Capacity Requirements (LCRs). The NYISO’s Operating Committee approved the LCRs on January 23, 2023² taking into consideration changes that occurred since the NYSRC approved the IRM base case on December 9, 2022. The LOLE resource adequacy criterion was maintained throughout this process. Based on these

¹

<https://www.nysrc.org/PDF/Reports/ICS%20Annual%20Reports/2023%20IRM%20Study%20Technical%20Report%2012-14-2022%20Final%20-%20rev%203.pdf>

² <https://www.nyiso.com/documents/20142/35886565/2023-LCR-Report.pdf/ce034709-ddf4-d53d-6dec-8bd2fd54099f>

changes, the NYISO's calculations resulted in a New York City LCR of 81.7%, a Long Island LCR of 105.2%, and a G-J Locality LCR of 85.4%.

Capability Year 2023-2024 Assessment

This assessment builds upon the data models for the IRM and LCR studies of the Capability Year 2023-2024 with a deterministic approach to assess the 2023-2024 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*³ 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 2023-2024 Capability Year peak load baseline forecast and the 90th percentile forecast from the 2022 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 peak load provided in the 2022 Gold Book is consistent with the load distribution defined by the LFU

³ 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>

model.

Capability Year 2023-2024 baseline and 90th percentile peak load forecast

	Baseline Peak Load*	90th Percentile Peak Load**	Delta
NYCA	32,018	34,016	1,998
NYC	11,001	11,324	323
LI	5,031	5,331	300
G-J***	15,223	15,813	590

* 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 2023-2024 Capability Year capacity projections are based upon the 2022 Gold Book and updated information from the 2023-2024 IRM study as shown below.⁴ This projection incorporates capacity additions, re-ratings, and deactivations that are identified in the 2022 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 purchases⁵ and Special Case Resources (“SCRs”) are also included based on the information in Tables V-1 and I-7 of the 2022 Gold Book and updated information from the 2023-2024 IRM study, respectively.

Capability Year 2023-2024 Capacity Model based on 2022 Gold Book

	NYCA	NYC	LI	G-J
2022 Gold Book Summer Capability Ratings	37,520.3	9,592.7	5,115.0	14,388.2
Lesser of Capability Rating or CRIS from Gold Book	37,375.0	9,568.0	5,103.3	14,344.5
SCR Resources ⁶	1,224.8	417.5	33.7	496.6

⁴ 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.

⁵ 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.

⁶ SCR Resources are based on the July 2022 enrollment as presented to ICS (<https://www.nysrc.org/PDF/MeetingMaterial/ICSMaterial/ICS%20Agenda%20263/2022%20August%203%20ICS%20Final%20SCR%20Model%20Values%20-%20REPOST.pdf>)

Re-Ratings and Additions ⁷	549.3	0.0	0.0	0.0
Removals ⁸	1,205.2	903.2	201.6	944.6
Net Purchases ⁹	2,267.6	315.0	990.0	315.0
Total Capacity for Summer 2023	40,211.5	9,397.3	5,925.4	14,211.5

Capability Year 2023-2024 Capacity Margin Values

	Capacity	Baseline Peak Load	Margin	90th Percentile Peak Load	Margin
NYCA	40,211.4	32,018	125.6%	34,016	118.2%
NYC	9,397.3	11,001	85.42%	11,324	83.0%
LI	5,925.4	5,031	117.8%	5,331	111.2%
G-J	14,211.5	15,223	93.4%	15,813	89.9%

The analysis shows that with the baseline forecast of peak load, sufficient capacity is available to meet the 20.0% statewide IRM established by the NYSRC in December 2022 at the baseline peak load. In addition, sufficient capacity is available to meet the NYC LCR of 81.7%, LI LCR of 105.2%, and the G-J LCR of 85.4% under both load forecast conditions.

Conclusion

With the Capacity and Load projections as updated by the 2022 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 2023-2024. Sufficient capacity is available to meet the IRM established by the NYSRC in December 2022 and to meet the LCRs established by the NYISO in January 2023 under the baseline forecast of peak load.¹⁰

⁷ New resources and unit re-ratings can be found in the Final Assumptions Matrix for the 2023-24 IRM Study ([https://www.nysrc.org/PDF/MeetingMaterial/ICSMeetingMaterial/ICS%20Agenda%20267/FINAL_Assumptions%20Matrix_FBC\[9060\].pdf](https://www.nysrc.org/PDF/MeetingMaterial/ICSMeetingMaterial/ICS%20Agenda%20267/FINAL_Assumptions%20Matrix_FBC[9060].pdf))

⁸ Deactivations and Removals that are modeled in the IRM can be found in the Final Assumptions Matrix for the 2023-24 IRM Study ([https://www.nysrc.org/PDF/MeetingMaterial/ICSMeetingMaterial/ICS%20Agenda%20267/FINAL_Assumptions%20Matrix_FBC\[9060\].pdf](https://www.nysrc.org/PDF/MeetingMaterial/ICSMeetingMaterial/ICS%20Agenda%20267/FINAL_Assumptions%20Matrix_FBC[9060].pdf))

⁹ The values listed here have been updated to reflect the most recent UDR elections and net purchases as used in the 2023-2024 IRM Study. Purchases listed in the 2022 Gold Book do not include updated UDR election values.

¹⁰ 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.