



LOCATIONAL MINIMUM INSTALLED CAPACITY REQUIREMENTS STUDY

For the 2024–2025 Capability Year

Approved by NYISO Operating Committee, January 18, 2024 with revisions approved by the NYISO Operating Committee on April 19, 2024

I. Recommendation

This report documents a study conducted by the New York Independent System Operator, Inc. (NYISO) to determine Locational Minimum Installed Capacity Requirements (LCRs) for the Localities of New York City (Load Zone J), Long Island (Load Zone K), and the G-J Locality (Load Zones G, H, I, and J) for the 2024–2025 Capability Year beginning May 1, 2024.

The New York State Reliability Council, L.L.C. (NYSRC) approved the 2024–2025 New York Control Area (NYCA) Installed Reserve Margin (IRM) at 22.0% on December 8, 2023. The NYISO then determined the LCRs for the 2024-2025 Capability Year using the IRM study database and the approved IRM, as well as additional analysis to address a subsequently identified error in the calculation of the transmission security limit (TSL) floor value for Zone J.

Based on the NYSRC IRM study base case for the 2024–2025 Capability Year, and the approved IRM identified above, and additional analysis to account for a correction to the TSL floor value initially calculated for Zone J for the 2024-2025 Capability Year, the NYISO’s calculations result in a New York City LCR of 80.4%, a Long Island LCR of 105.3%, and a G-J Locality LCR of 81.0%.

IRM	J LCR	K LCR	G-J LCR
22.0%	80.4%	105.3%	81.0%

II. Starting Point Database

As its starting point, the NYISO LCR study utilized the NYCA IRM study directed by the NYSRC. The IRM study information is available on the NYSRC website.¹ The final IRM study base case for the 2024-2025 Capability Year maintains the loss of load expectation (LOLE) criterion at no more than 0.100 event-days/year with a statewide reserve margin of 23.1% and corresponding preliminary locational requirements of 72.7% and 103.2% for New York City and Long Island, respectively. In addition to the above technical results, this year’s IRM study also identified a statewide reserve margin of 21.5% when respecting the applicable 2024-2025 Capability Year transmission security limit (TSL) floor values for Zone K and the G-J Locality, as well as an initially calculated TSL floor value of 81.7% for Zone J. The initially calculated TSL floor value for Zone J was subsequently determined to be incorrect because it was calculated using an incorrect Locality derating factor. The

¹ NYSRC New York Control Area Installed Capacity Requirement Reports:
<https://www.nysrc.org/documents/reports/nysrc-new-york-control-area-installed-capacity-requirement-reports>

corrected TSL floor value for Zone J reflecting the appropriate Locality derating factor is 80.4%.

The NYISO follows the “Locational Minimum Installed Capacity Requirements Determination Process” to develop the LCRs for Zone J, Zone K, and the G-J Locality.² Pursuant to this procedure, the IRM study database is adjusted to the approved IRM (22.0%), and the target LOLE is established at the lesser of 0.100 event-days/year and the LOLE that results from the adjusted database corresponding to the approved IRM. The adjusted database corresponding to the approved 22.0% IRM and respecting the initially determined TSL floors for all three Localities resulted in the target LOLE for this year’s LCR study at 0.089 event-days/year. Additionally, analysis was conducted to determine a revised LCR for Zone J reflecting the subsequent correction of the applicable TSL floor value.

III. Changes from Previous (1/23/2023) LCR report

Two major modeling and assumption changes were implemented in the base case of this year’s IRM study: the adoption of reduced emergency assistance (EA) allowed from neighboring areas³ and the implementation of topology updates due to the “AC Transmission” project.⁴ On top of these modeling and assumption changes, this year’s IRM base case also reflects the addition of 136 MW of new offshore wind resources and 90 MW of new in-front-of-the-meter solar resources. There were also 140.1 MW of resources reinstated in this year’s IRM study that were removed in the IRM study for the 2023-2024 Capability Year. These resources were anticipated to be deactivated due to the New York State Department of Environmental Conservation (DEC) “Peaker Rule” but confirmed their intent to continue operating beyond June 2024.⁵

In addition to the changes in the IRM study base case for the 2024-2025 Capability Year, there were two changes implemented in this year’s methodology for calculating the TSL floor values for the LCR study. The calculation was updated to account for the difference in forced outage rate utilized in the IRM study and the NYISO’s reliability planning procedures as it relates to the new offshore wind resources modeled in this year’s IRM study. The calculation was also updated to account for the

² Locational Minimum Installed Capacity Requirements Determination Process:
<https://www.nyiso.com/documents/20142/21537892/LCR-determination-process-2021.pdf>

³ EOP Review Whitepaper Report:
https://www.nysrc.org/wp-content/uploads/2023/10/EOP-Review-Whitepaper-Report_FINAL_For_Posting.pdf

⁴ 2024 – 2025 IRM Proposed MARS Topology Update:
https://www.nysrc.org/wp-content/uploads/2023/07/6.2_Topology-Update-ICS-0530202315816.pdf

⁵ NYCA IRM Requirement Study 2024-2025 Final Base Case (FBC) Model Assumptions Matrix:
https://www.nysrc.org/wp-content/uploads/2023/10/IRM_FBCAssumptionsMatrix_V1.222498.pdf

assumed net flow from Load Zone K to Load Zone J.⁶

IV. LCR Determination Process

The LCR calculation methodology utilizes an economic optimization algorithm to minimize the total cost of capacity for the NYCA, taking into account net cost of new entry (CONE) curves as shown in the table below. Such net CONE curves account for the applicable net Energy and Ancillary Services revenue offset.⁷

2024-2025 Net CONE Curves		
Location	LCR (%)	Net CONE (\$/kW-yr)
NYCA	112.9	69.34
	115.9	70.97
	118.9	72.35
	121.9	73.66
	124.9	74.21
G-J	84.0	75.09
	87.0	77.25
	90.0	78.82
	93.0	80.26
	96.0	80.95
Zone J	80.6	144.12
	83.6	149.00
	86.6	150.98
	89.6	152.54
	92.6	153.65
Zone K	97.4	45.93
	100.4	55.40
	103.4	61.24
	106.4	64.19
	109.4	66.74

⁶ Transmission Security Limit Floor Proposal: Capability Year 2024-2025:

<https://www.nyiso.com/documents/20142/39768278/TSL%20Floor%20Proposal%20-%20Capability%20Year%202024-2025.pdf>

⁷ The term 'net Energy and Ancillary Services revenue offset' is defined in Section 5.14.1.2.2 of the NYISO Market Administration and Control Area Services Tariff.

Using this methodology, the NYSRC’s LOLE reliability standard will be met while utilizing the NYSRC-approved IRM and maintaining capacity requirements greater than or equal to the applicable TSL floor values, as shown in the table below.⁸ The initially calculated TSL floors for all three Localities were binding in this year’s LCR study. As described below, additional analysis was conducted to determine the LCR for Zone J accounting for a subsequent correction to its TSL floor value.

Transmission Security Limit Floor Calculation	Formula	G-J	NYC	LI	Notes
Load Forecast (MW)	[A] = Given	15,274	11,171	5,080	[1]
Bulk Power Transmission Limit (MW)	[B] = Studied	4,350	2,875	275	[2]
Net Flow Adjustment to Transmission Limit (MW)*	[N] = Study Assumption	275			[3]
Offshore Wind (MW)	[O] = Given			37.5	[4]
UCAP Requirement (MW)	[C] = [A]-[B]+[N]+[O]	11,199	8,296	4,843	
UCAP Requirement Floor	[D] = [C]/[A]	73.32%	74.26%	95.33%	
5-Year Derating Factor	[E] = Given	5.40%	4.50%	8.85%	[5]
Special Case Resources (MW)	[F] = Given	526.7	442.4	35.3	[6]
ICAP Requirement (MW)	[G] = ([C]/(1-[E]))+[F]	12,364	9,129	5,348	
ICAP Requirement Floor (%)	[H] = [G]/[A]	81.0%	81.7%	105.3%	

[1] 2024 Fall Load Forecast⁹

[2] Based on 2024 Locality Bulk Power Transmission Capability Report¹⁰

[3] LI Bulk Power Transmission Limit Adjustment

[5] 5-year Market EFORd based on the generation mix in the 2024-2025 IRM FBC

[4] Difference in Resource Adequacy and Transmission Security UCAP Valuation

[6] Modeled SCRs for 2024-2025¹¹

Following the approval of the LCRs for the 2024-2025 Capability Year by the Operating Committee on January 18, 2024, the NYISO identified that the Locality derating factor (also referred to as the “5-Year Derating Factor”) of the 4.50% utilized in calculating the TSL floor value for Zone J was incorrect because it was based on the data for the incorrect five-year historical period (2017-2021 instead of 2018-2022). The appropriate Locality derating factor for Zone J reflecting data for the five-year data period from 2018-2022 was determined to be 2.89%. Correction of the Locality derating factor results in a TSL floor value for Zone J of 80.4% as identified in the table below.

⁸ Transmission Security Limit Floor: Capability Year 2024-2025:

<https://www.nyiso.com/documents/20142/40834869/Final%20TSL%20Floors%20-%20Capability%20Year%202024-2025.pdf>

⁹ NYSRC Fall Forecast Update:

<https://www.nyiso.com/documents/20142/40206684/NYSRC%20Fall%20Forecast%20Update%20Updated%202023%20Weather%20Normalization%20&%20Proposed%202024%20IRM%20Forecast.pdf>

¹⁰ 2024-25 Locality Bulk Power Transmission Capability Report:

<https://www.nyiso.com/documents/20142/40834869/2024-25%20Locality%20Bulk%20Power%20Transmission%20Capability%20Report.pdf>

¹¹ Demand Response: Final Model Values for 2024 IRM Studies:

https://www.nysrc.org/wp-content/uploads/2023/07/2023-ICS_Final-SCR-Model-Values20598.pdf

Transmission Security Limit Floor Calculation	Formula	G-J	NYC	LI	Notes
Load Forecast (MW)	[A] = Given	15,274	11,171	5,080	[1]
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Net Flow Adjustment to Transmission Limit (MW)*	[N] = Study Assumption	275			[3]
Offshore Wind (MW)	[O] = Given			37.5	[4]
UCAP Requirement (MW)	$[C] = [A] - [B] + [N] + [O]$	11,199	8,296	4,843	
UCAP Requirement Floor	$[D] = [C] / [A]$	73.32%	74.26%	95.33%	
5-Year Derating Factor	[E] = Given	5.40%	2.89%	8.85%	[5]
Special Case Resources (MW)	[F] = Given	526.7	442.4	35.3	[6]
ICAP Requirement (MW)	$[G] = ([C] / (1 - [E])) + [F]$	12,364	8,985	5,348	
ICAP Requirement Floor (%)	$[H] = [G] / [A]$	81.0%	80.4%	105.3%	

[1] 2024 Fall Load Forecast¹²

[2] Based on 2024 Locality Bulk Power Transmission Capability Report¹³

[3] LI Bulk Power Transmission Limit Adjustment

[5] 5-year Market EFORd based on the generation mix in the 2024-2025 IRM FBC

[4] Difference in Resource Adequacy and Transmission Security UCAP Valuation

[6] Modeled SCRs for 2024-2025¹⁴

The NYISO conducted subsequent analysis to determine the LCR for Zone J for the 2024-2025 Capability Year accounting for the revised TSL floor value of 80.4%. Consistent with the previous results, such analysis identified the updated TSL floor value for Zone J was binding for the 2024-2025 Capability Year. The binding TSL floor values for all Localities, including the corrected 80.4% for Zone J, combined with the NYSRC approved IRM at 22.0% results in a LOLE of 0.090 event-days/year, meeting the reliability criterion of not greater than 0.100 event-days/year.

V. Summary of Study

The calculations and analysis in this study utilize the NYISO process for setting the LCRs, as well as supplemental analysis to account for a subsequently identified correction to the TSL floor value for Zone J, with the NYSRC-approved statewide IRM of 22.0% for the 2024-2025 Capability Year.

Based on the NYSRC's final IRM base case for the 2024-2025 Capability Year, the applicable LOLE criterion is met with an LCR of 80.4% for the New York City Locality, an LCR of 105.3% for the Long Island Locality, and an LCR of 81.0% for the G-J Locality.

¹² NYSRC Fall Forecast Update:

<https://www.nyiso.com/documents/20142/40206684/NYSRC%20Fall%20Forecast%20Update%20Updated%202023%20Weather%20Normalization%20&%20Proposed%202024%20IRM%20Forecast.pdf>

¹³ 2024-25 Locality Bulk Power Transmission Capability Report:

<https://www.nyiso.com/documents/20142/40834869/2024-25%20Locality%20Bulk%20Power%20Transmission%20Capability%20Report.pdf>

¹⁴ Demand Response: Final Model Values for 2024 IRM Studies:

https://www.nysrc.org/wp-content/uploads/2023/07/2023-ICS_Final-SCR-Model-Values20598.pdf