



LOCATIONAL MINIMUM INSTALLED CAPACITY REQUIREMENTS STUDY

For the 2021–2022 Capability Year

Approved by NYISO OC, January 14, 2021

I. Recommendation

This report documents a study conducted by the New York Independent System Operator (“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 2021–2022 Capability Year beginning May 1, 2021.

The New York State Reliability Council (“NYSRC”) approved the 2021–2022 Installed Reserve Margin (“IRM”) at 20.7% on December 4, 2020. The NYISO then determined the LCRs taking into consideration a change in load forecast. This change was an update from the 2021 October Load Forecast to the 2021 ICAP/LCR load forecast.

Based on the NYSRC IRM base case for the 2021–2022 Capability Year and the changes identified above, the NYISO’s calculations result in a New York City LCR of 80.3%, a Long Island LCR of 102.9%, and a G-J Locality LCR of 87.6%.

IRM	J LCR	K LCR	G-J LCR
20.7%	80.3%	102.9%	87.6%

II. LCR Values

As its starting point, the NYISO LCR study utilized the New York Control Area (“NYCA”) IRM study directed by the NYSRC. The IRM study information is available on the NYSRC web site.¹ The final 2020 IRM Study base case maintains the Loss of Load Expectation (“LOLE”) criterion at not more than 0.1 days/year with a statewide reserve margin of 20.7% and corresponding preliminary locational requirements of 82.6% and 95.1% for NYC and LI, respectively.

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 that procedure, the NYISO adjusts the final IRM Study base case to reflect the final 2021 ICAP/LCR load forecast. This forecast updated the October 2020 load forecast used in the IRM study. The forecasted NYCA system peak load, the G-J Locality peak load and the Zone K peak load increased by 161.8 MW, 44.1 and 3.8 MW, respectively, while the Zone J peak load decreased by 15.2 MW. Despite these values indicating

¹ http://www.nysrc.org/NYSRC_NYCA_ICR_Reports.html

² <https://www.nyiso.com/documents/20142/1408199/LCR-determination-process.pdf/2854dc25-301e-c506-1d88-2b13e0284ca1>

a higher load, the non-coincident values for all of the zones, when summed up, resulted in a total decrease of 115.2 MWs.

Area	Final 2021 IRM Study Load Forecast (MW) (10/2020)	Final 2021 ICAP/LCR Load Forecast (MW) (12/2020)	Change (MW)
Zone J (NYC)	11,232.2	11,217.1	-15.2
Zone K (LI)	5,282.0	5,285.8	3.8
The G-J Locality	15,385.3	15,429.4	44.1
NYCA	32,243	32,404.8	161.8

III. Changes from Previous (1/16/2020) LCR report

Notable changes between the previous study inputs include the retirement of the Indian Point Unit No. 3 nuclear facility, which resulted in an increase of the UPNY-ConEd Interface by 1,000 MW. There were also numerous updates to the Long Island import and export limits. Also included is the enhanced modeling of Energy Limited Resource Units.

This methodology utilizes an economic optimization algorithm to minimize the total cost of capacity for the NYCA, taking into account the cost curves established accounting for the net Energy and Ancillary Services revenue offset³, as shown in the cost curve table below.

³ 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.

2021-2022 Capability Year LCRs: Net CONE Curves		
Location	LCR (%)	Net CONE (\$/kW-yr)
NYCA	112.9%	78.82
	115.9%	80.45
	118.9%	81.83
	121.9%	83.14
	124.9%	83.69
G-J	84.0%	110.9
	87.0%	113.06
	90.0%	114.63
	93.0%	116.07
	96.0%	116.76
Zone J	80.6%	156.13
	83.6%	161.01
	86.6%	162.99
	89.6%	164.55
	92.6%	165.66
Zone K	97.4%	90.31
	100.4%	99.78
	103.4%	105.62
	106.4%	108.57
	109.4%	111.12

Under this methodology, the NYSRC's 0.1 days/year LOLE reliability standard will be met while respecting the NYSRC-approved IRM and maintaining capacity requirements greater than or equal to the applicable Transmission Security Limits, as shown in the TSL table below.

Transmission Security Limit Calculation	Formula	G-J	NYC	LI	Source
Load Forecast (MW)	[A] = Given	15429.4	11217.1	5285.8	[1]
Bulk Power Transmission Capability (MW)	[B] = Given	3400	3200	350	[2]
UCAP Requirement (MW)	[C] = [A]-[B]	12029.4	8017.1	4935.8	
UCAP Requirement Floor	[D] = [C]/[A]	77.96%	71.47%	93.38%	
5-Year derating factor	[E] = Given	10.07%	9.17%	9.24%	[3]
ICAP Requirement (MW)	[F] = [C] / (1-[E])	13376.4	8826.5	5438.3	
Transmission Security Limit	[G] = ROUND([F]/[A],1)	86.7%	78.7%	102.9%	

Source:

[1] 2021 Final ICAP Forecast (https://www.nyiso.com/documents/20142/17660272/2021_ICAP_V5a.pdf/bcce19c1-2af1-558a-c9b7-c0ea0c3acd8d)

[2] 2021 Transmission Security Limit (TSL) Report (<https://www.nyiso.com/documents/20142/17462310/Summer2021-N-1-1-Analysis.pdf/ed9b287a-a484-4460-37c8-a923be6354e1>)

[3] New York Control Area Installed Capacity Requirement Appendices, Figure A.4 ([http://www.nysrc.org/PDF/Reports/2021%20IRM%20Study%20Appendices%2012_4_20%20\(1\).pdf](http://www.nysrc.org/PDF/Reports/2021%20IRM%20Study%20Appendices%2012_4_20%20(1).pdf))

IV. Summary of Study

The calculations and analysis in this study utilize the NYISO process for setting the LCRs. With the NYSRC-approved statewide IRM of 20.7%, the NYISO's LCR study integrated the final 2021 ICAP/LCR load forecast to calculate the final LCRs for the three Localities.

Based on the NYSRC's final IRM base case for the 2021–2022 Capability Year and inclusion of ICAP load forecast updates, the LOLE criterion of 0.1 days/year is met with an LCR of 80.3% for the New York City Locality, an LCR of 102.9% for the Long Island Locality, and an LCR of 87.6% for the G-J Locality. The New York City Locality and G-J Locality LCRs exceed their respective Transmission Security Limits, while the Long Island LCR was set at its Transmission Security Limit.