



# **LOCATIONAL MINIMUM INSTALLED CAPACITY REQUIREMENTS STUDY**

**For the 2020–2021 Capability Year**

January 8, 2020

## 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 2020–2021 Capability Year beginning May 1, 2020.

The New York State Reliability Council (“NYSRC”) approved the 2020–2021 Installed Reserve Margin (“IRM”) at 18.9% on December 6, 2019. The NYISO then determined the LCRs taking into consideration changes that have occurred since the NYSRC approved the IRM base case. The changes include adjusting the IRM from its preliminary value (18.6%) to its approved value (18.9%), and the completion of the final 2020 ICAP/LCR load forecast.

Based on the NYSRC IRM base case for the 2020–2021 Capability Year and the changes identified above, the NYISO’s calculations result in a New York City LCR of 86.6%, a Long Island LCR of 103.4%, and a G-J Locality LCR of 90.0%.

<b>IRM</b>	<b>J LCR</b>	<b>K LCR</b>	<b>G-J LCR</b>
18.9%	86.6%	103.4%	90.0%

## 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.<sup>1</sup> 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 18.9% and corresponding preliminary locational requirements of 83.7% and 101.8% 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.<sup>2</sup> Pursuant to that procedure the NYISO adjusts the final IRM Study base case to reflect the final 2020 ICAP/LCR load forecast. This forecast updated the October 2019 load forecast used in the IRM study. The forecasted NYCA system peak and the Zone K peak increased by 179.7 MW and 53.3 MW, respectively, while the Zone J and

<sup>1</sup> [http://www.nysrc.org/NYSRC\\_NYCA\\_ICR\\_Reports.html](http://www.nysrc.org/NYSRC_NYCA_ICR_Reports.html)

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

the G-J Locality decreased by 34.9 MW and 80.6 MW, respectively.

Area	Final 2020 IRM Study Load Forecast (MW) (10/2019)	Final 2020 ICAP/LCR Load Forecast (MW) (12/2019)	Change (MW)
Zone J (NYC)	11,512.0	11,477.1	-34.9
Zone K (LI)	5,216.2	5,269.5	53.3
The G-J Locality	15,775.9	15,695.3	-80.6
NYCA	32,168.7	32,348.4	179.7

### III. Changes from Previous (1/17/2019) LCR report

Notable changes between the previous study inputs include the retirement of both Indian Point Unit No. 2 nuclear facility and Somerset coal facility. Also included was the new generating unit Cricket Valley Energy Center.

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 offset<sup>3</sup>, as shown in the cost curve table below.

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<sup>3</sup> 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.

2020-2021 Capability Year LCRs: Net CONE Curves		
Location	LCR (%)	Net CONE (\$/kW-yr)
NYCA	111.5	103.5
	114.5	104.56
	117.5	105.14
	120.5	105.68
	123.5	106.2
G-J	84	155.59
	87	156.25
	90	156.98
	93	158.22
	96	159.03
Zone J	74.5	183.41
	77.5	187.39
	80.5	191.9
	83.5	194.38
	86.5	195.9
Zone K	96.5	138.95
	99.5	144.75
	102.5	150.05
	105.5	153.76
	108.5	155.9

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	15695.3	11477.1	5269.5	[1]
Bulk Power Transmission Capability (MW)	[B] = Given	3400	3200	350	[2]
UCAP Requirement (MW)	[C] = [A]-[B]	12295.3	8277.1	4919.5	
UCAP Requirement Floor	[D] = [C]/[A]	78.34%	72.12%	93.36%	
5-Year derating factor	[E] = Given	9.93%	10.05%	9.69%	[3]
ICAP Requirement (MW)	[F] = [C] / (1-[E] )	13650.8	9201.9	5447.3	
Transmission Security Limit	[G] = ROUND([F]/[A], to 0.1% increments)	<b>87.0%</b>	<b>80.2%</b>	<b>103.4%</b>	

**Source:**

- [1] 2020 Final ICAP Forecast ([https://www.nyiso.com/documents/20142/9886217/2020\\_ICAP\\_V8.pdf/25f102ff-9d1e-da4c-6af3-4fbbf94070d8](https://www.nyiso.com/documents/20142/9886217/2020_ICAP_V8.pdf/25f102ff-9d1e-da4c-6af3-4fbbf94070d8))
- [2] 2020 Transmission Security Limit (TSL) Report (<https://www.nyiso.com/documents/20142/8583126/Summer-2020-N-1-1-analysis.pdf/727f5ce4-861f-2d6e-9b03-49d9af99cb87>)
- [3] New York Control Area Installed Capacity Requirement Appendices, Figure A.4 (<http://nysrc.org/PDF/Reports/2020%20IRM%20Study%20Appendices%20Final.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 18.9%, the NYISO's LCR study examined the effects of the final 2020 ICAP/LCR load forecast to determine the final LCRs for the three Localities.

Based on the NYSRC's final IRM base case for the 2020–2021 Capability Year and inclusion of ICAP load forecast updates and resource changes identified, the LOLE criterion of 0.1 days/year is met with an LCR of 86.6% for the New York City Locality, an LCR of 103.4% for the Long Island Locality, and an LCR of 90.0% 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.