DRAFT – FOR DISCUSSION PURPOSES ONLY

ANNUAL ASSESSMENT OF RESOURCE ADEQUACY

COVERING THE NEW YORK CONTROL AREA
For the years 2019–2021

In compliance with the NYSRC Reliability Rule A.3 Requirement R1

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

June 6th, 2019

EXECUTIVE SUMMARY

This assessment complies with the New York State Reliability Council ("NYSRC") Reliability Rule A.3 (*Review of Resource Adequacy)* Requirement R1 over the assessment period of 2019-2021.

While this assessment is not a probabilistic (*i.e.,* GE MARS) study, it compares forecast capacity and loads against current installed capacity requirements (*i.e.,* Installed Reserve Margin, "IRM" and minimum Locational Capacity Requirements "LCRs") that are established based on probabilistic resource adequacy analyses. For purposes of this report, the current IRM and LCRs are also applied to assess resource adequacy over two future years (*i.e.,* 2020 and 2021). Since the current IRM and LCRs are calculated only for the first year (2019) and those probabilistic calculations are dependent on current system conditions that are likely to change over time, the current IRM and LCR values are not necessarily a projection of IRM and LCR values in the future.

The NYSRC conducts annual resource adequacy studies that establish the statewide Installed Capacity ("ICAP") reserve margin (*i.e.*, "IRM Study")[1] for the New York Control Area ("NYCA") for the upcoming capability period. From the period of 1999 through 2018, these studies have resulted in the NYSRC adopting reserve margins ranging from 15.0% to 18.2%. For 2019, the Installed Reserve Margin ("IRM") was established at 17.0% and was assumed to be the same value for 2020 and 2021 for purposes of this report.

For the analysis, two base cases were evaluated against the baseline forecast of peak load set forth in the 2019 Load & Capacity Data report ("Gold Book").[2] The first base case is referred to herein as the Class Year ("CY") completed case, which includes the 2019 Gold Book's ICAP existing resources plus those that have completed their Class Year facilities study or CRIS requests as identified in the 2019 Gold Book. The second base case is referred to herein as the Interconnection Agreement ("IA") completed case, which includes the 2019 Gold Book's existing units plus those identified on the NYISO Interconnection Queue as having completed an Interconnection Agreement as of April 2019. Both of these cases utilize only expected New York Control Area resources. The derivation of these cases is documented in the attached Appendices 1, 1A, and 1B.

In addition to the scenarios described above using the baseline forecast of peak load, the two base cases were also evaluated under the extreme scenario utilizing the 90th percentile forecast of peak load.[3]

With the baseline forecast of peak load, a 17.0% statewide IRM would be met (meaning that the reserve margin percentage beyond forecasted annual peak load would equal to or exceed 17.0 percent) throughout the assessment period. The extreme scenario of the 90th

[1] *See, e.g.,* NYSRC Report titled, "New York Control Area Installed Capacity Requirement for the Period May 2019 to April 2020," December 7, 2018.[2] The baseline forecast of peak load data is provided in the 2019 Gold Book under Tables I-3a, I-4a, and I-5.

[2] The baseline forecast of peak load data is provided in the 2019 Gold Book under Tables I-3a, I-4a, and I-5.

[3] The 90th percentile forecast of peak load data is provided in the 2019 Gold Book under Table I-7a. The 90th percentile forecast of peak load is one point within the range defined by the Load Forecast Uncertainty in the probabilistic model.

percentile forecast of peak load is already reflected in the two base cases because NYSRC's annual IRM study has adopted the Load Forecast Uncertainty ("LFU") in its probabilistic model. The LFU is referenced to the baseline forecast data. To isolate the results of a specific forecast, such as the 90th percentile forecast of peak load, a deterministic assessment needs to be performed. Based on a deterministic assessment, a 17.0% IRM would still be met for the 90th percentile forecast of peak load throughout the assessment period.

The NYISO conducts an annual locational requirements study[4] that establishes minimum Locational Capacity Requirements ("LCRs") for New York City, Long Island, and the G-J Locality for the upcoming capability year.[5] Currently, the New York City LCR is 82.8% of the New York City capability year peak load forecast. The Long Island LCR is currently 104.1% of the Long Island capability year peak load forecast. The G-J Locality LCR is currently 92.3% of the G-J Locality capability year peak load forecast. These LCRs were assumed to be the same values for 2020 and 2021 for purposes of this report.

With the baseline forecast of peak load and the proposed 2019-2021 resource additions, New York City, Long Island, and the G-J Locality would meet the respective specified LCRs over the assessment period.

Similar to the IRM study, the probabilistic model in NYISO's annual LCR study has also adopted the LFU model in the baseline forecast data. To consider a specific forecast, such as the 90th percentile forecast of peak load, a deterministic assessment needs to be performed. Based on a deterministic assessment of the 90th percentile forecast of peak load and the proposed 2019-2021 resource additions, New York City, Long Island, and the G-J Locality would still meet LCRs of 82.8%, 104.1%, and 92.3% throughout the assessment period, respectively.

It is important to note that any deterministic assessment, including the extreme scenarios utilizing the 90th percentile forecast of peak load, only provide limited "what if" information and, without a probabilistic assessment, do not test resource adequacy.

[4] *See, e.g.*, NYISO Report titled, "Locational Minimum Installed Capacity Requirements Study Covering the New York Control Area for the 2019–2020 Capability Year," January 17, 2019.
[5] The G-J Locality encompasses Load Zones G, H, I, and J.

INTRODUCTION

This assessment is performed to satisfy NYSRC Reliability Rule A.3 Requirement R1,[6] which states:

R1. An *NYCA resource adequacy* assessment shall be conducted annually for the next summer period and two years beyond, for demonstrating that proposed NYCA *resources* meet NYCA statewide *IRM* and New York City and Long Island *locational capacity requirements* as determined by *NYSRC* and *NYISO* studies conducted in accordance with A.1 and A.2. The assessment shall be documented in a *resource* adequacy report, covering at a minimum, the evaluations and information below:

R1.1 The 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 Any potential base case *resource* adequacy needs shall be addressed by *NYISO* procedures. The *NYISO* shall report to the *NYSRC* on identified needs and possible corrective actions consistent with *NYISO* procedures

R1.3 The *resource* adequacy report shall include key assumptions and other factors considered in the assessment.

The statewide requirement is met under NYSRC Reliability Rule A.1 Requirement R1 which reads:

R1. The NYSRC shall annually perform and document an analysis to calculate the NYCA *Installed Reserve Margin (IRM)* requirement for the following Capability Year. The IRM analysis shall:

R1.1 Probabilistically establish the IRM requirement for the NYCA such that the loss of *load* expectation (LOLE) of disconnecting *firm load* due to *resource* deficiencies shall be, on average, no more than 0.1 days per year. This evaluation shall make due allowances for *demand* uncertainty, scheduled outages and deratings, forced outages and deratings, assistance over interconnections with neighboring *control areas, emergency NYS Transmission System transfer capability*, and *capacity and/or load relief* from available *operating procedures*.

For the 2019 capability year, the NYSRC determined that this criterion will be met with an ICAP requirement of 117.0% of the forecast NYCA peak load. This assessment compares reserve margins derived from resource projections and the peak load forecast over the assessment period against an assumed 17.0% IRM requirement.[7]

[6] New York State Reliability Council Reliability Rules & Compliance Manual for Planning and Operating the New York State Power System, Version 43, May 11, 2018.
[7] New York State Reliability Council report titled, "New York Control Area Installed Capacity Requirement for the Period May 2019 to April 2020", December 7, 2018.

In addition to the NYSRC requirements for setting the NYCA IRM, the NYISO establishes the LCRs.[8] The NYISO defines a locational requirement as:

> A locational ICAP requirement specifies the minimum amount of installed capacity that must be procured from resources situated specifically within a Locality. It considers generation within the Locality as well as the transmission import capability to the Locality in order to meet the resource adequacy reliability criteria of the NYSRC and the Northeast Power Coordinating Council ("NPCC"). These criteria require that the NYCA Loss of Load Expectation ("LOLE") shall be, on average, no more than 0.1 days per year. Further, NYISO's Market Administration and Control Area Services Tariff and the NYSRC Reliability Rules require the NYISO to establish locational ICAP requirements.

This assessment also examines the ratios of capacity to load for New York City, Long Island, and the G-J Locality[9] over the assessment period. These ratios are then compared to the existing LCRs in order to determine whether the planned resources are adequate for these Localities for purposes of this report.

LOAD FORECAST

NYISO's forecast involves a two-step process. In the first step, the overall NYCA energy requirements are forecasted. The model used in the energy requirements forecast considers the manufacturing employment share, education and health care employment share, total income, and other demographic variables. In the second step, the NYISO forecasts the total NYCA peak demand. The peak demand is derived, zone by zone, from the annual energy using load factors averaged over the previous five years. The annual energy and the peak demand are projected with the impact of statewide energy saving programs and behind-the-meter generation.

Figure 1 shows the peak load forecast for the NYCA from the 2019 Gold Book. The solid line is the baseline forecast of peak load[10] and the dashed line represents the 90th percentile forecast of peak load.[11] The NYISO also identifies the average annual growth rate of the NYCA peak load forecast over 2019-2021 assessment period.

[8] NYISO report titled, "Locational Minimum Installed Capacity Requirements Study Covering the New York Control Area for the 2019–2020 Capability Year," January 17, 2019.
[9] The G-J Locality encompasses Load Zones G, H, I, and J.
[10] The baseline forecast of peak load data is provided in the 2019 Gold Book under Tables I-3a, I-4a, and I-5.
[11] The 90th percentile forecast of peak load data is provided in the 2019 Gold Book under Table I-7a. The 90th percentile forecast of peak load is one point within the range defined by the Load Forecast Uncertainty in the probabilistic model.

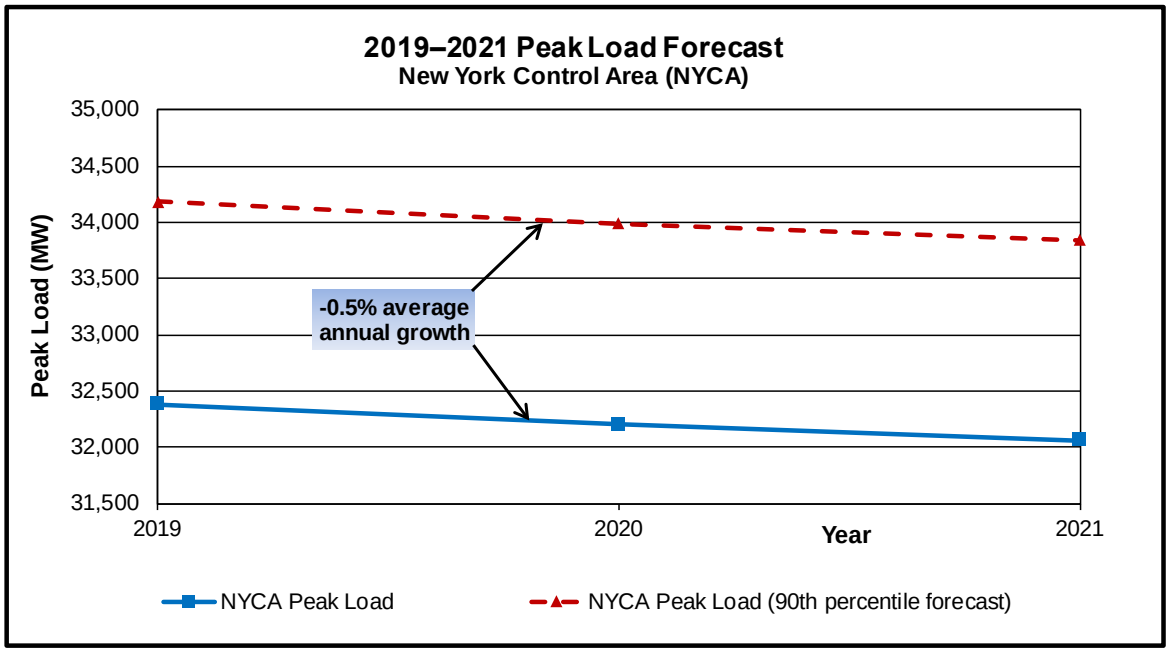

Figure 1. Peak load forecast for the New York Control Area

Figures 2, 3, and 4 show the peak load forecast for New York City ("NYC"), Long Island ("LI"), and the G-J Locality from the 2019 Gold Book, respectively, as well noting the average annual growth rate for each respective Locality during the 2019-2021 assessment period.

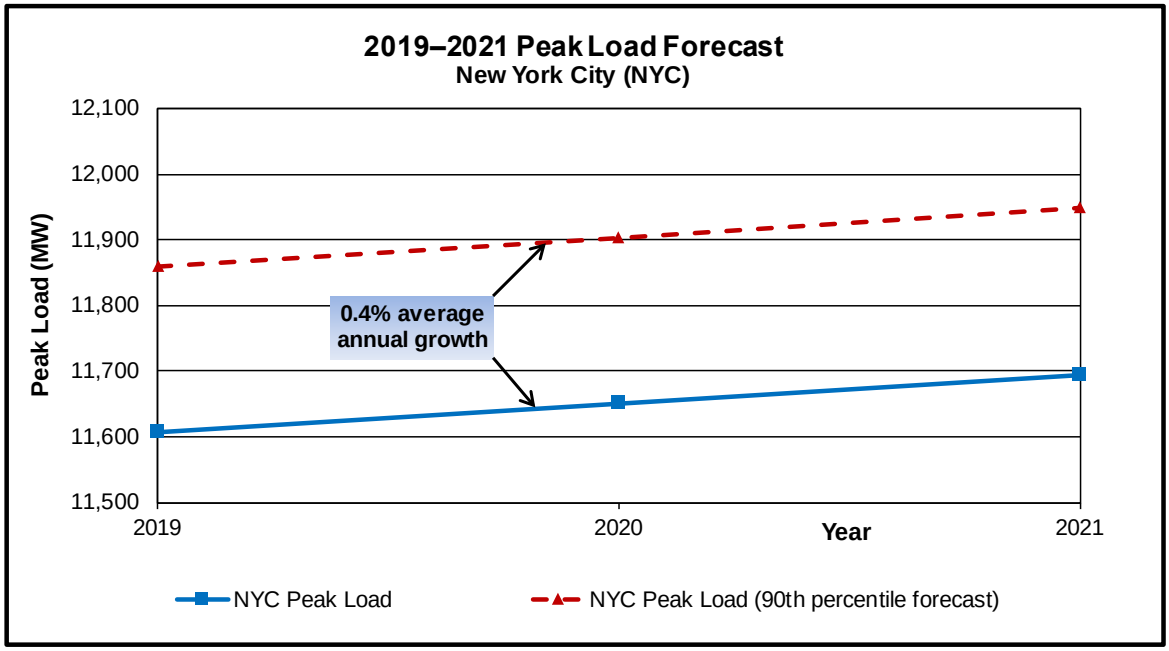

Figure 2. Peak load forecast for New York City

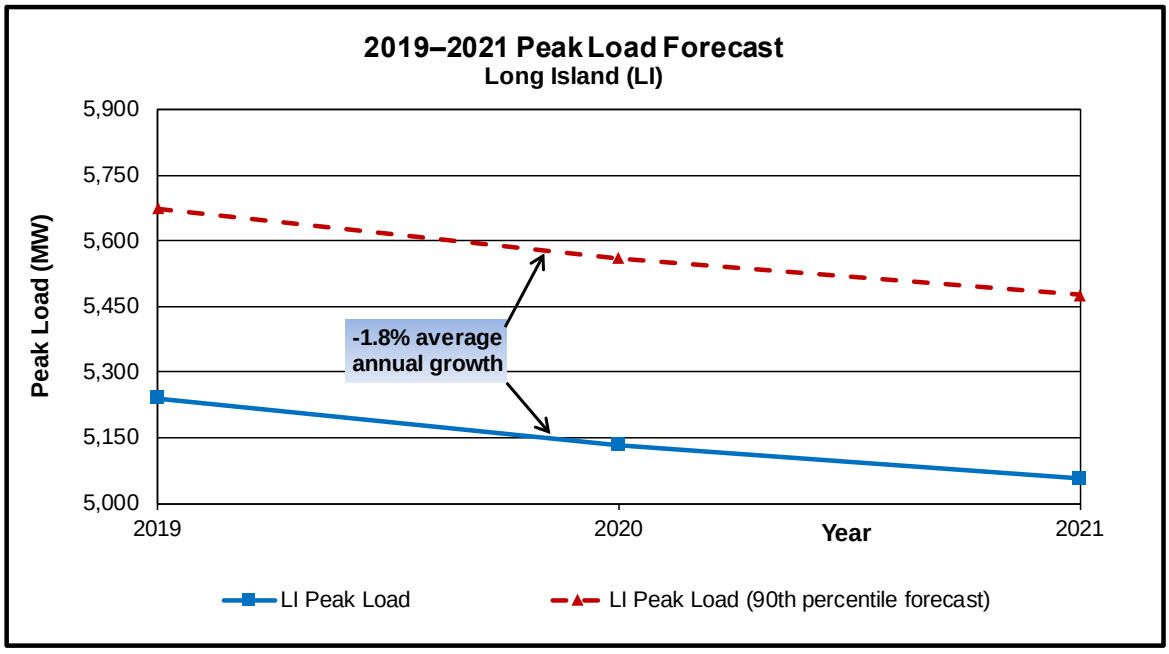

Figure 3. Peak load forecast for Long Island

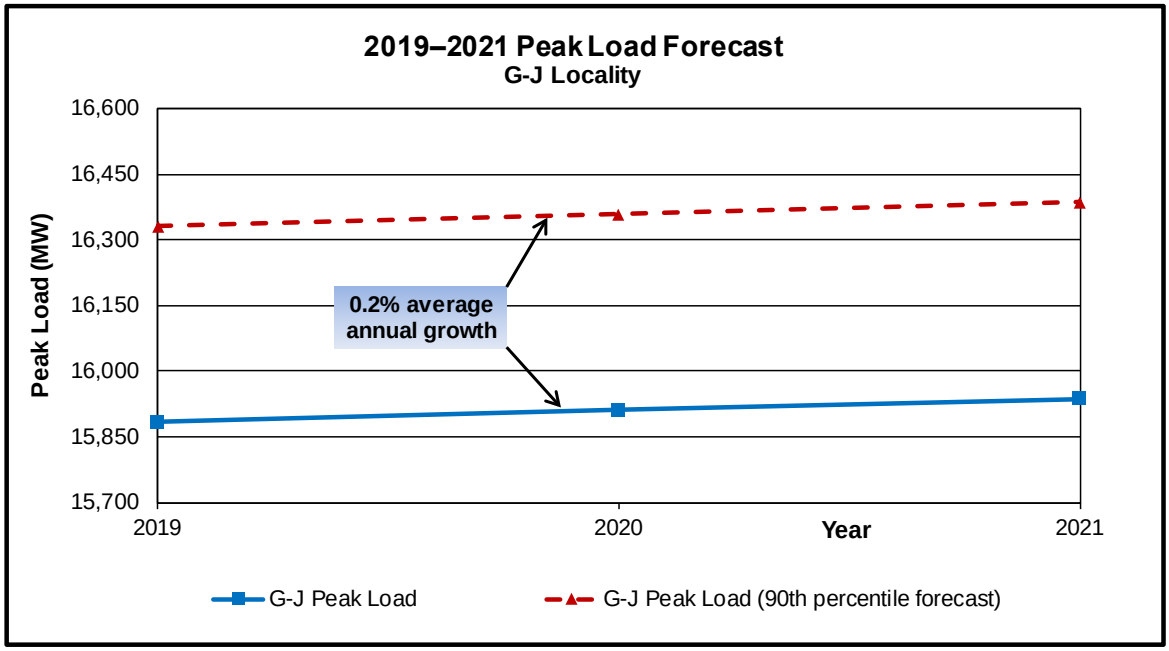

Figure 4. Peak load forecast for G-J Locality

CAPABILITY PROJECTIONS

The NYCA 2019-2021 capability projections from the 2019 Gold Book are shown in Figure 5.[12] This projection incorporates capacity additions, re-ratings, and deactivations that are identified in the 2019 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[13] and Special Case Resources ("SCRs") are also included based on the information in Tables V-1 and I-14 of the 2019 Gold Book, respectively.

Capacity projections are broken into two curves in Figure 5. The first one labeled "CY completed" contains resource additions and re-ratings that have completed their Class Year ("CY") facilities study or CRIS requests and have accepted their cost allocations. The second curve labeled "IA completed" shows the projection of capacity assuming inclusion of projects that are identified on the NYISO Interconnection Queue as having completed an Interconnection Agreement ("IA") as of April 2019.

Appendix 1 is based on the "Proposed Generator Additions & CRIS Requests" table (Table IV-1) of the 2019 Gold Book and has been revised to include re-ratings and deactivations. The appendices, including appendices 1A and 1B, detail the units under consideration for the capability projections. The firm capacity backed contracts that are associated with UDRs are included under the net purchases.

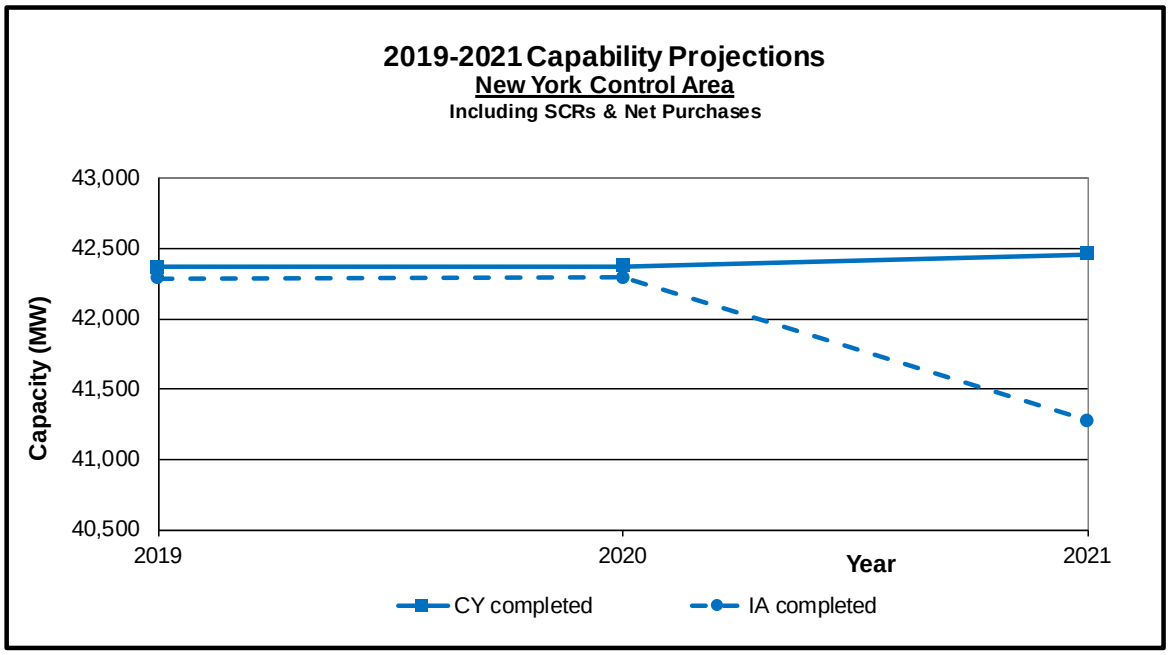

Figure 5. Capability projections for the New York Control Area

[12] The capacity values listed include wind units at their full rated value as provided in the 2019 Gold Book under Table III-3a.

[13] 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.

Figures 6, 7, and 8 show the capability projections under the two cases as described above for New York City, Long Island, and the G-J Locality, respectively. Figure 6 shows that both cases for New York City overlap. In addition, there are no capacity additions identified for New York City during the period of 2019-2021. Similarly, both cases for the G-J Locality also overlap throughout the assessment period.

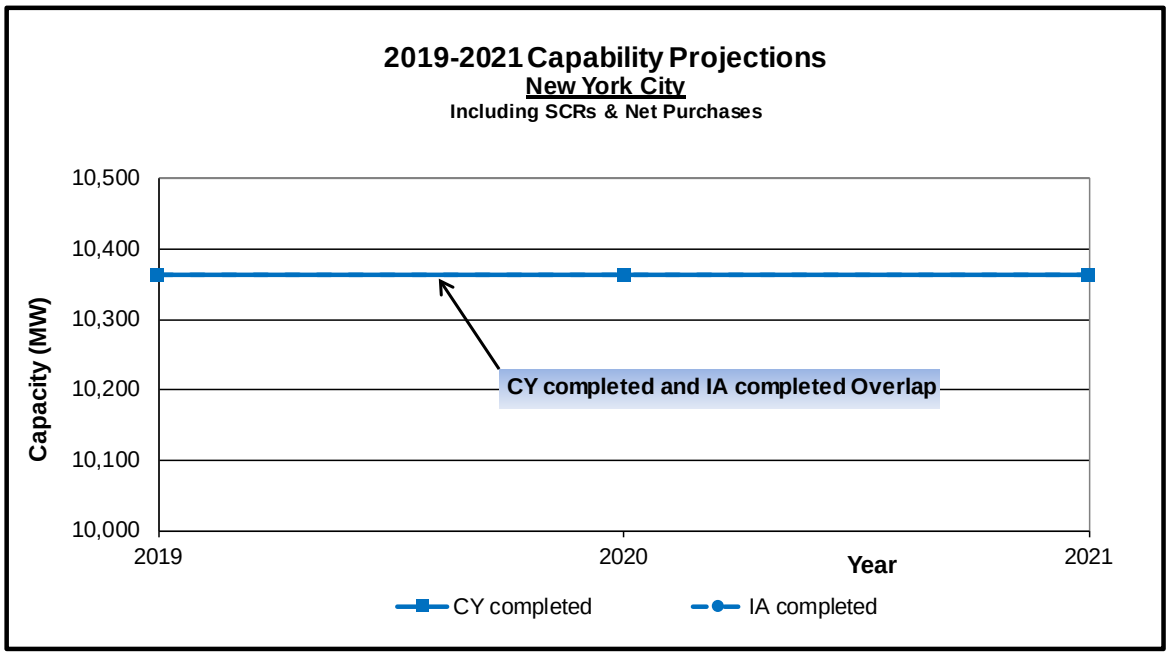

Figure 6. Capability projections for New York City

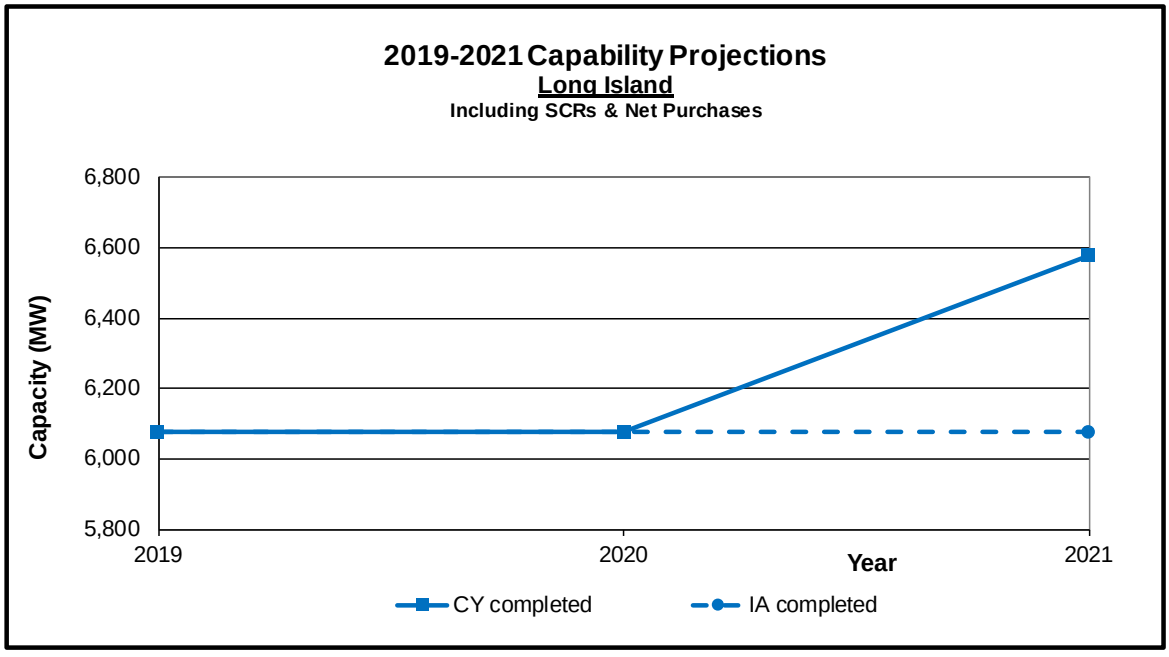

Figure 7. Capability projections for Long Island

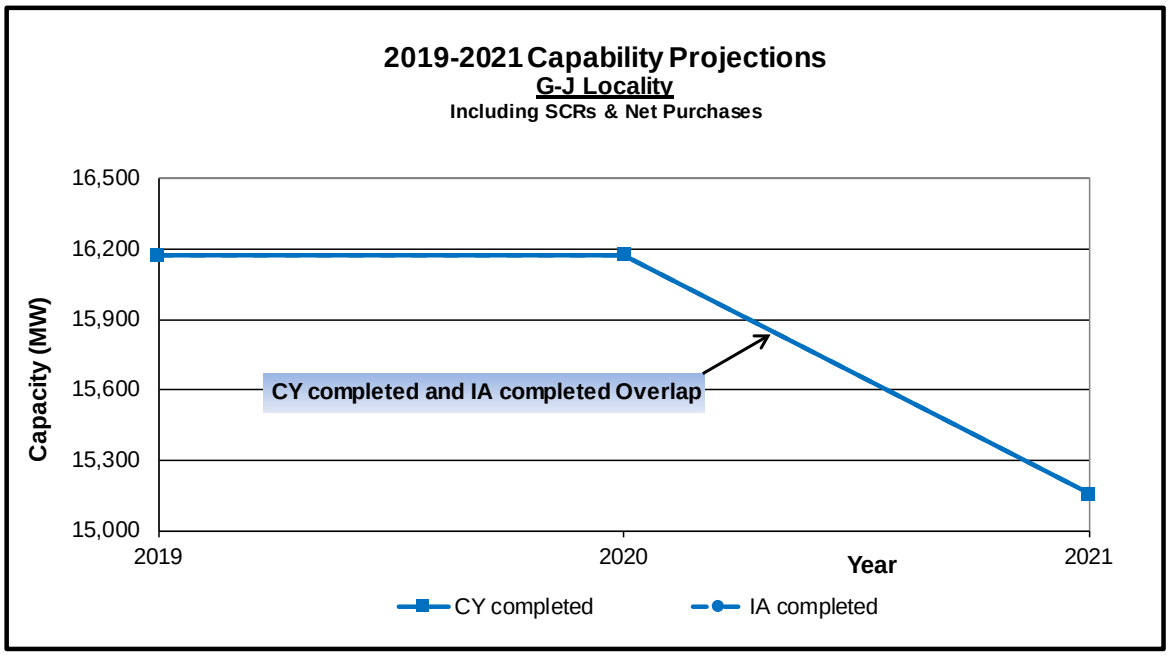

Figure 8. Capability projections for G-J Locality

RESERVE MARGIN LEVELS

From previous figures of projected load forecast and capability, the NYISO derived projections of NYCA installed capacity reserve margin and the capacity-to-load ratios for the Localities for the period of 2019-2021, as shown in Figures 9 through 16.

In the analysis, both cases of "CY completed" and "IA completed" are considered against the baseline forecast of peak load. The IRM and LCRs over the assessment period are assumed to be the same as current requirements for the NYCA IRM and for the LCRs for the Localities, respectively.

In addition to the scenario with the baseline forecast of peak load, the NYISO also evaluated the "CY completed" and "IA completed" cases under the extreme scenario utilizing the 90th percentile forecast of peak load.

Figure 9 indicates that a 17.0% NYCA IRM would be met throughout the assessment period for both cases with the baseline forecast of peak load. In the scenario of a 90th percentile forecast of peak load, based on a deterministic assessment that only uses expected New York Control Area resources, as shown in Figure 10, a 17.0% IRM would still be met throughout the assessment period.

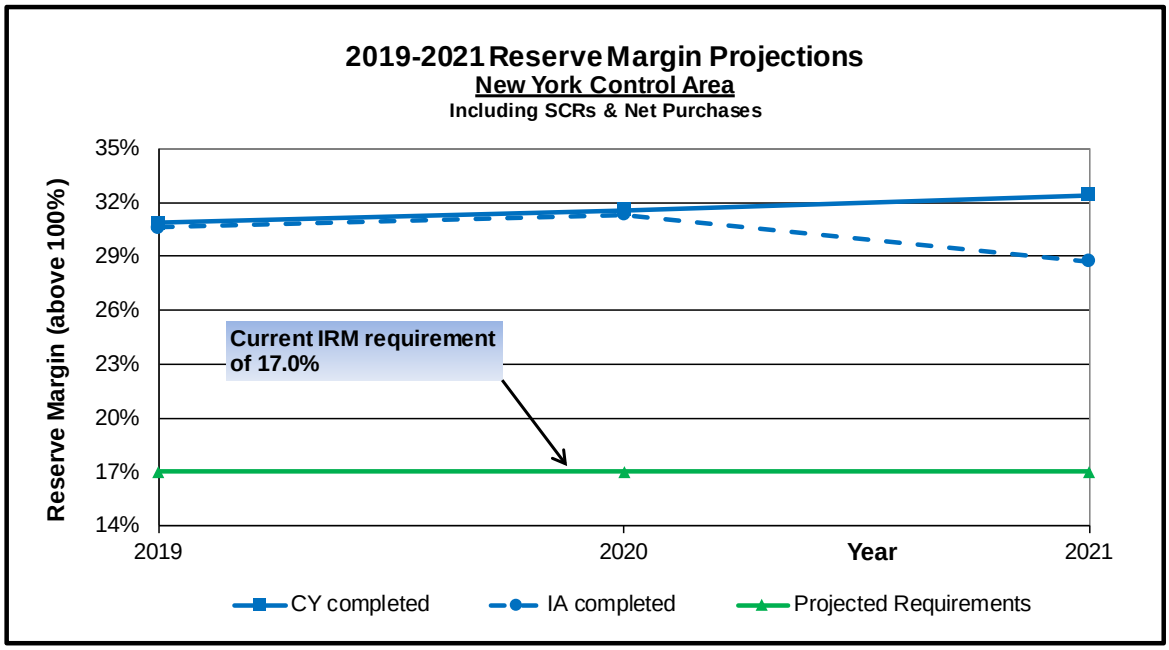

Figure 9. Reserve margin projections for the New York Control Area

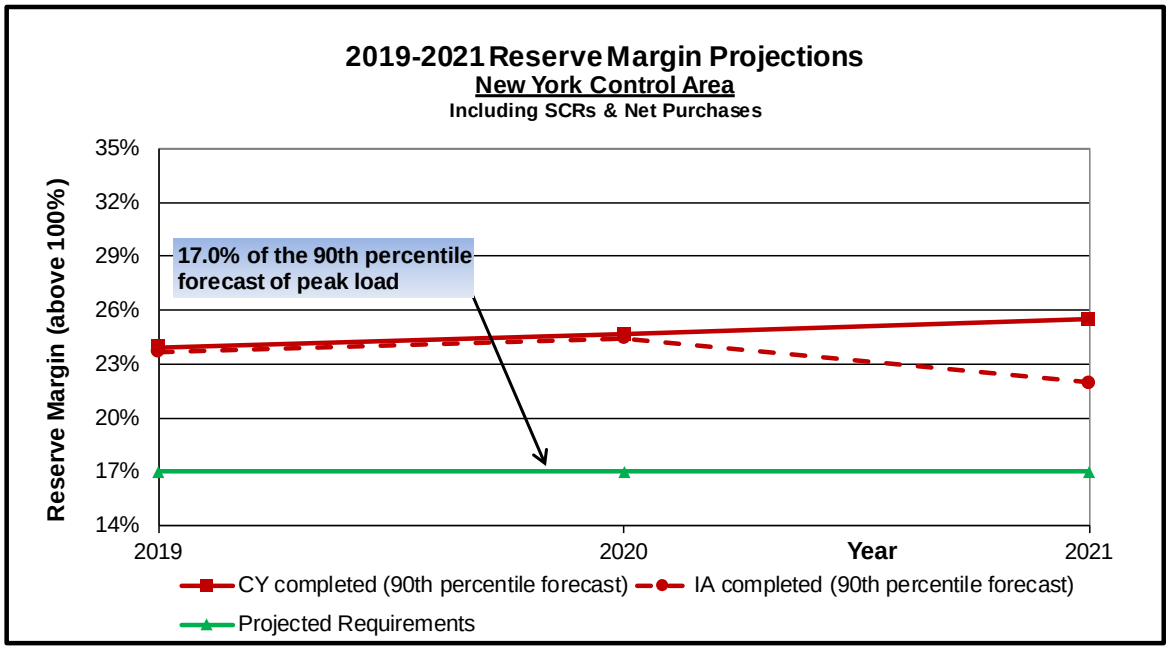

Figure 10. Reserve margin projections for the New York Control Area (high load forecast)

Figure 11 shows that New York City would meet an 82.8% LCR throughout the assessment period with the baseline forecast of peak load for both "CY completed" and "IA completed" cases. Since there are no capacity additions identified for New York City during 2019-2021, both of these cases are the same. Under the scenario of a 90th percentile forecast of peak load, as shown in Figure 12, an 82.8% LCR for New York City would still be met for both cases throughout the assessment period.

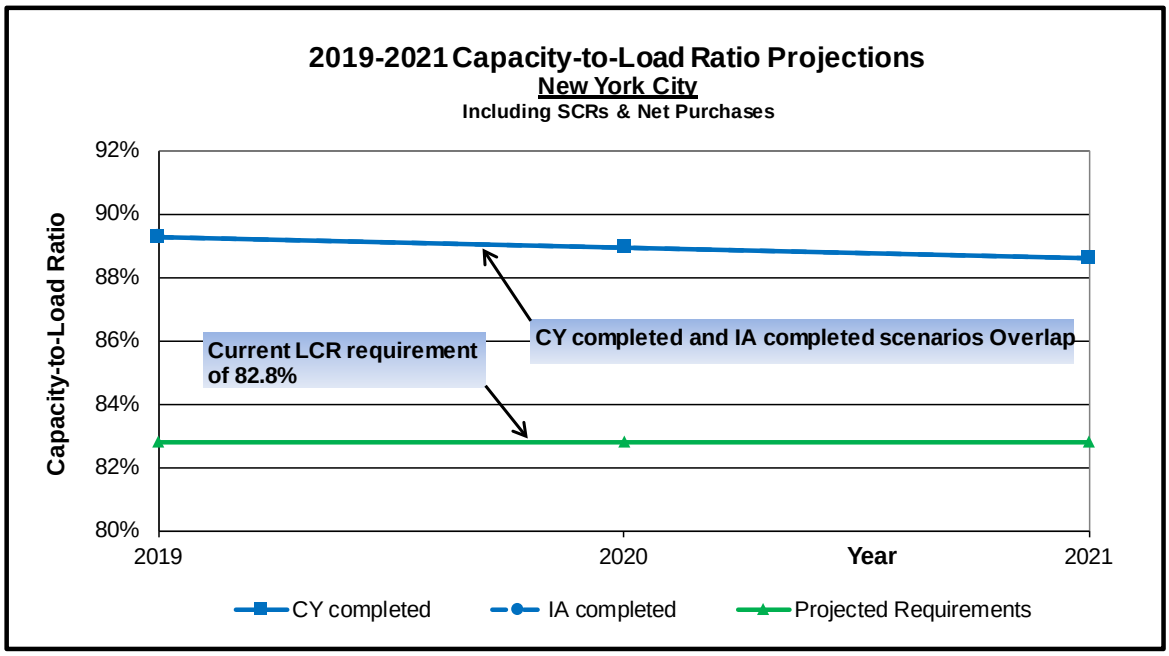

Figure 11. Capacity-to-Load Ratio Projections for New York City

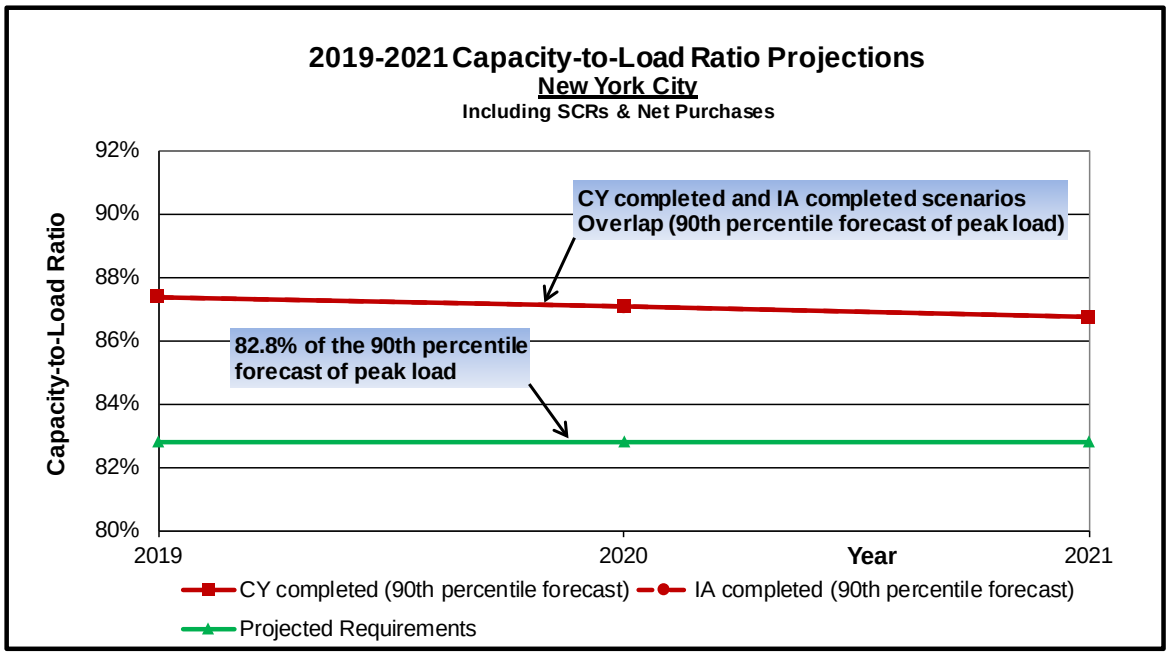

Figure 12. Capacity-to-Load Ratio Projections for New York City (high load forecast)

Figure 13 shows that Long Island would meet a 104.1% LCR throughout the assessment period with the baseline forecast of peak load for both "CY completed" and "IA completed" cases. Under the scenario of a 90th percentile forecast of peak load, as shown in Figure 14, a 104.1% LCR would still be met for both cases throughout the assessment period.

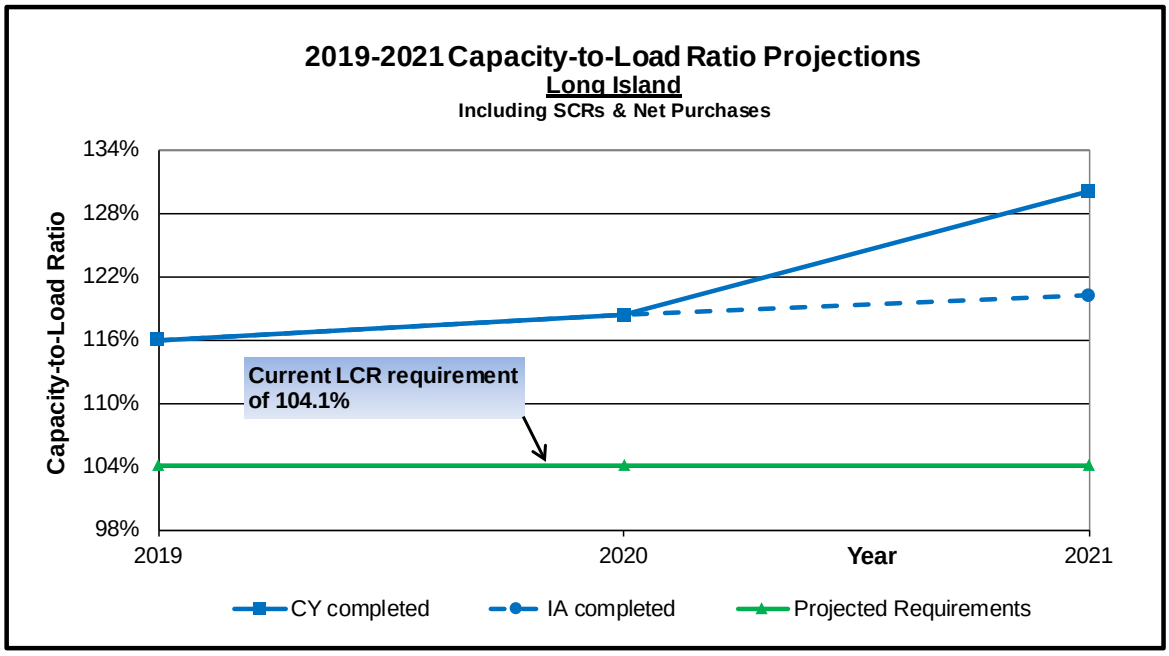

Figure 13. Capacity-to-Load Ratio Projections for Long Island

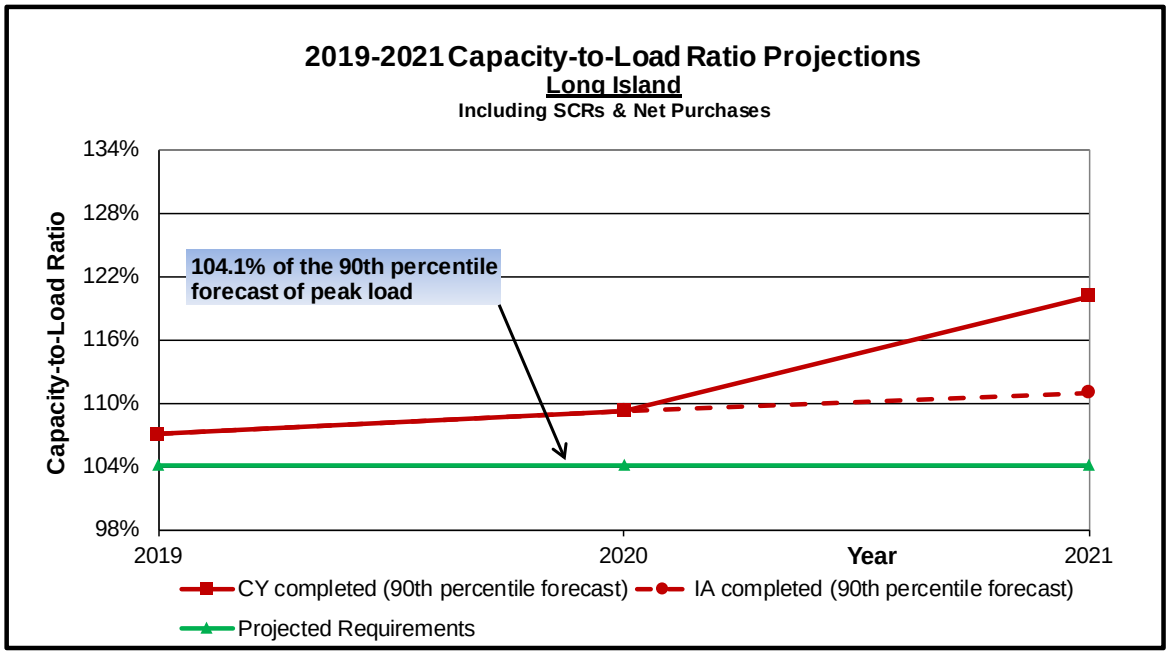

Figure 14. Capacity-to-Load Ratio Projections for Long Island (high load forecast)

Figure 15 shows that the G-J Locality would meet a 92.3% LCR throughout the assessment period for both "CY completed" and "IA completed" cases with the baseline forecast of peak load, including the removal of the two Indian Point Energy Center units that are scheduled to retire in 2020 and 2021, respectively. In addition, both of these cases are identical due to the same proposed 2019-2021 resource additions. Under the scenario of the 90th percentile forecast of peak load, as shown in Figure 16, a 92.3% LCR for the G-J

Locality would still be met for both cases with the retirement of Indian Point Energy Center units.

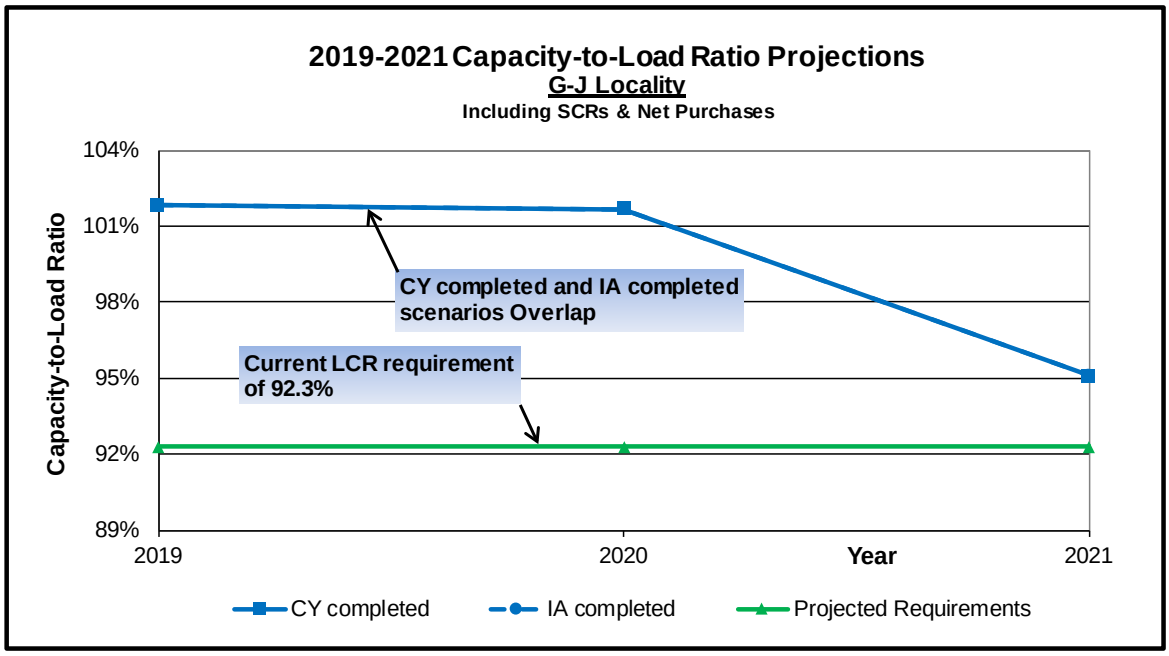

Figure 15. Capacity-to-Load Ratio Projections for G-J Locality

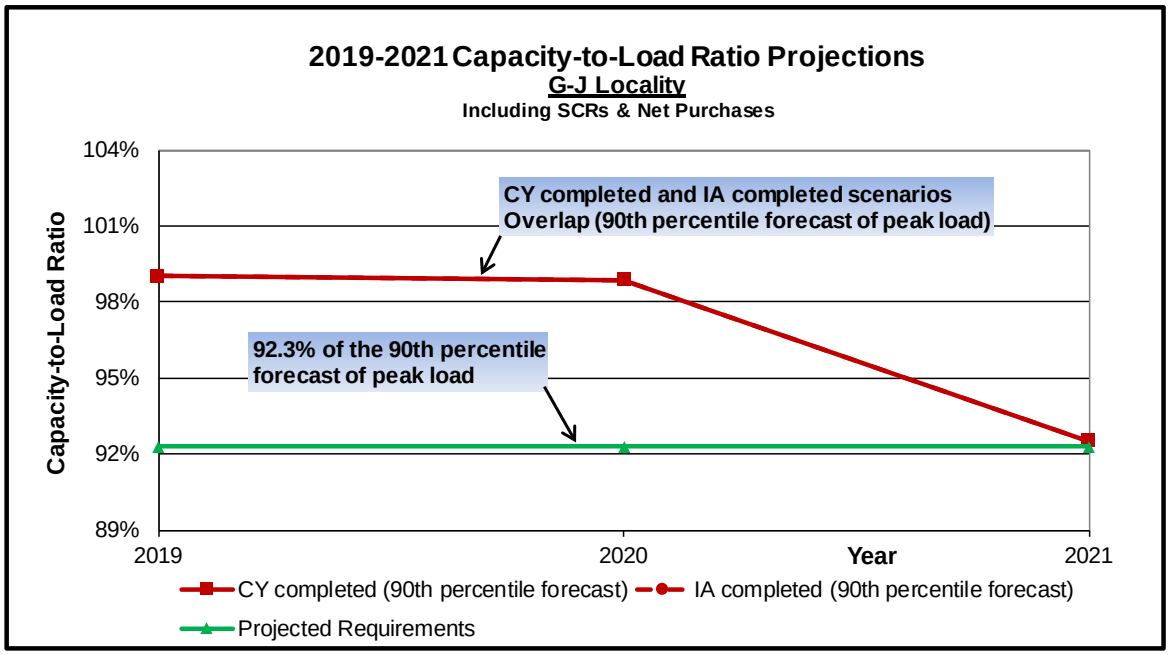

Figure 16. Capacity-to-Load Ratio Projections for G-J Locality (high load forecast)

CONCLUSION

With the baseline forecast of peak load, a 17.0% statewide IRM would be met throughout the 2019-2021 assessment period. A 17.0% statewide IRM is based on the assumption of a probabilistic model of the load forecast that utilizes a range of higher than expected and lower than expected load forecasts including a 90th percentile peak load demand forecast. To consider the results for a specific forecast, such as the 90th percentile forecast of peak load, a deterministic assessment needs to be performed. Based on a deterministic assessment, a 17.0% IRM would still be met for the 90th percentile forecast of peak load throughout the assessment period.

With the baseline forecast of peak load, New York City would meet an LCR of 82.8% over the assessment period of 2019-2021.

With the baseline forecast of peak load and the proposed 2019-2021 resource additions, Long Island would meet an LCR of 104.1% throughout the assessment period.

With the baseline forecast of peak load and the proposed 2019-2021 resource additions, the G-J Locality would meet an LCR of 92.3% over the assessment period.

Similar to the IRM study, the probabilistic model of the NYISO's annual LCR study has also adopted the LFU model in the baseline load forecast data. To consider a specific forecast, such as the 90th percentile forecast of peak load, a deterministic assessment needs to be performed. Based on a deterministic assessment of the 90th percentile forecast of peak load and the proposed 2019-2021 resource additions, New York City, Long Island, and the G-J Locality would still meet LCRs of 82.8%, 104.1%, and 92.3% throughout the assessment period, respectively.

It is important to note that any deterministic assessment, including the extreme scenarios utilizing the 90th percentile forecast of peak load, only provide limited "what if" information and, without a probabilistic assessment, do not test resource adequacy. For purposes of this report, the current IRM and LCRs are applied to assess resource adequacy over the current year and two future years (*i.e.,* 2019, 2020, and 2021). Since the current IRM and LCRs are calculated only for the first year (2019) and those probabilistic calculations are dependent on current system conditions that are likely to change over time, the current IRM and LCR values are not necessarily a projection of IRM and LCR values in the future.

Appendix 1*

Proposed Resource Changes

QUEUE POS.	OWNER / OPERATOR	STATION UNIT	ZONE	DATE	CRIS (MW)	SUMMER (MW)	UNIT TYPE	CLASS YEAR	NOTES	Increase of Lessor of CRIS & Summer DMNC
Generator Additions										
	Cubit Power One Inc.	Arthur Kill Cogen	J	5/22/2018	11.1	11.1	Internal Combustion		(1)	11.1
	Shoreham Solar Commons LLC	Shoreham Solar	K	7/1/2018	24.9	24.9	Photovoltaic		(1)	24.9
	LI Energy Storage System, LLC	East Hampton Battery Storage	K	8/1/2018	5.0	5.0	Energy Storage		(1)	5.0
	EDP Renewables NA	Arkwright Summit Wind Farm	A	9/1/2018	78.4	78.4	Wind Turbines		(1)	78.4
	LI Energy Storage System, LLC	Montauk Battery Storage	K	10/1/2018	5.0	5.0	Energy Storage		(1)	5.0
	EDF Renewable Energy	Copenhagen Wind Farm	E	12/1/2018	79.9	79.9	Wind Turbines		(1)	79.9
477	Riverhead Solar Farm, LLC	Riverhead Solar	K	May 2019	20.0	20.0	Photovoltaic		(2) (3)	20.0
511	AG Energy, LP	Ogdensburg	E	Jun 2019	79.0	79.0	Combined Cycle	2017		79.0
444	Cricket Valley Energy Center, LLC	Cricket Valley Energy Center II	G	Mar 2020	1020.0	1020.0	Combined Cycle	2017	(2)	1020.0
387	Cassadaga Wind, LLC	Cassadaga Wind	A	Dec 2020	126.0	126.0	Wind Turbines	2017		126.0
396	Baron Winds, LLC	Baron Winds	C	Dec 2020	300.0	300.0	Wind Turbines	2017		300.0
422	NextEra Energy Resources, LLC	Eight Point Wind Enery Center	B	Dec 2020	101.2	101.2	Wind Turbines	2017		101.2
363	Anbaric Development Parners, LLC	Poseidon Offshore	K	Jan 2021	500.0	500.0	Wind Turbines	2015		500.0
349	Taylor Biomass Energy Montgomery, LLC	Taylor Biomass	G	Apr 2021	19.0	19.0	Solid Waste	2011	(2)	19.0
430	HQUS	Cedar Rapids Transmission Upgrade	D	2021	80.0	80.0	External CRIS		(3)	80.0
Generator Deactivations (Retirement / Mothballing / IIFO)										
	New York Power Authority	Gilboa 1	F	1/1/2019	290.7	293.7	Pumped Storage Hydro		(4)	-290.7
	Entergy Nuclear Power Marketing, LLC	Indian Point 2	H	4/30/2020	1026.5	1016.1	PWR Nuclear			-1016.1
	Entergy Nuclear Power Marketing, LLC	Indian Point 3	H	4/30/2021	1040.4	1037.9	PWR Nuclear			-1037.9
GRAND TOTAL										**104.8**

* This table is modified from Table IV-1, "Proposed Generator Additions & CRIS Requests" in 2019 Gold Book.
(1) These new generation resources are already in service but have no available DMNC data in 2019 Gold Book.
(2) These projects are identified on the NYISO Interconnection Queue as having completed an Interconnection Agreement as of 4/30/2019.
(3) These new generation resources are identified as having their CRIS requests completed in 2019 Gold Book.
(4) Gilboa 1 intends to return to service in Summer 2019.

Appendix 1A – Determination of Annual Capacities

Units with Their Class Year Facilities Study or CRIS Requests Completed

	2019				2020				2021			
	NYCA	NYC	LI	G-J	NYCA	NYC	LI	G-J	NYCA	NYC	LI	G-J
2019 Gold Book Summer DMNC	39294.5	9559.3	5241.2	15261.9	39294.5	9559.3	5241.2	15261.9	39294.5	9559.3	5241.2	15261.9
Lesser of CRIS & Summer DMNC	**39107.2**	**9543.0**	**5215.5**	**15238.8**	**39107.2**	**9543.0**	**5215.5**	**15238.8**	**39107.2**	**9543.0**	**5215.5**	**15238.8**
Arthur Kill Cogen	11.1	11.1		11.1	11.1	11.1		11.1	11.1	11.1		11.1
Shoreham Solar	24.9		24.9		24.9		24.9		24.9		24.9	
East Hampton Battery Storage	5.0		5.0		5.0		5.0		5.0		5.0	
Arkwright Summit Wind Farm	78.4				78.4				78.4			
Montauk Battery Storage	5.0		5.0		5.0		5.0		5.0		5.0	
Copenhagen Wind Farm	79.9				79.9				79.9			
Riverhead Solar	20.0		20.0		20.0		20.0		20.0		20.0	
Ogdensburg	79.0				79.0				79.0			
Cricket Valley Energy Center II					1020.0			1020.0	1020.0			1020.0
Cassadaga Wind									126.0			
Baron Winds									300.0			
Eight Point Wind Enery Center									101.2			
Poseidon Offshore									500.0		500.0	
Taylor Biomass									19.0			19.0
Cedar Rapids Transmission Upgrade									80.0			
Deactivations												
Gilboa 1	-290.7				-290.7				-290.7			
Indian Point 2					-1016.1			-1016.1	-1016.1			-1016.1
Indian Point 3									-1037.9			-1037.9
Total:	39119.8	9554.1	5270.4	15249.9	39123.7	9554.1	5270.4	15253.8	39212.0	9554.1	5770.4	14234.9

Appendix 1B – Determination of Annual Capacities

Units with Their Interconnection Agreement Completed

	2019				2020				2021			
	NYCA	NYC	LI	G-J	NYCA	NYC	LI	G-J	NYCA	NYC	LI	G-J
2019 Gold Book Summer DMNC	39294.5	9559.3	5241.2	15261.9	39294.5	9559.3	5241.2	15261.9	39294.5	9559.3	5241.2	15261.9
Lesser of CRIS & Summer DMNC	**39107.2**	**9543.0**	**5215.5**	**15238.8**	**39107.2**	**9543.0**	**5215.5**	**15238.8**	**39107.2**	**9543.0**	**5215.5**	**15238.8**
Arthur Kill Cogen	11.1	11.1		11.1	11.1	11.1		11.1	11.1	11.1		11.1
Shoreham Solar	24.9		24.9		24.9		24.9		24.9		24.9	
East Hampton Battery Storage	5.0		5.0		5.0		5.0		5.0		5.0	
Arkwright Summit Wind Farm	78.4				78.4				78.4			
Montauk Battery Storage	5.0		5.0		5.0		5.0		5.0		5.0	
Copenhagen Wind Farm	79.9				79.9				79.9			
Riverhead Solar	20.0		20.0		20.0		20.0		20.0		20.0	
Ogdensburg												
Cricket Valley Energy Center II					1020.0			1020.0	1020.0			1020.0
Cassadaga Wind												
Baron Winds												
Eight Point Wind Enery Center												
Poseidon Offshore												
Taylor Biomass									19.0			19.0
Cedar Rapids Transmission Upgrade												
Deactivations												
Gilboa 1	-290.7				-290.7				-290.7			
Indian Point 2					-1016.1			-1016.1	-1016.1			-1016.1
Indian Point 3									-1037.9			-1037.9
Total:	39040.8	9554.1	5270.4	15249.9	39044.7	9554.1	5270.4	15253.8	38025.8	9554.1	5270.4	14234.9