

2023 Interim Area Transmission Review of the New York State Bulk Power Transmission System (Study Year 2028)

A Report by the
New York Independent System Operator

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Introduction

The New York Independent System Operator (NYISO) conducts an annual Area Transmission Review (ATR) of the New York State Bulk Power System (BPS) as required by the Northeast Power Coordinating Council (NPCC) [1] and the New York State Reliability Council (NYSRC) [2]. The ATR is required to assess the BPS. However, the NYISO assesses the Bulk Power Transmission Facilities (BPTF), as defined in this review. Notably, the BPTF include all the facilities designated by the NYISO to be part of the BPS as defined by NPCC and NYSRC, as well as certain additional non-BPS facilities. The purpose of this assessment is to demonstrate conformance with the applicable NPCC Transmission Design Criteria and NYSRC Reliability Rules.

The ATR is prepared in accordance with NPCC and NYSRC procedures that require the assessment to be performed annually, with a Comprehensive Area Transmission Review (CATR) performed at least every five years. Either an Interim or Intermediate Review can be conducted between CATRs, as appropriate. In an Interim Review, the planning coordinator summarizes the changes in planned facilities and forecasted system conditions since the last CATR and assesses the impact of those changes. No new analyses are required for an Interim Review. An Intermediate Review covers all the elements of a Comprehensive Review, but the analysis may be limited to addressing only significant issues, considering the extent of the system changes. The most recent NYISO CATR was performed in 2020 [3] evaluating year 2025. The NYISO 2020 CATR was approved by the NPCC Reliability Coordinating Council (RCC) in May 2021 and NYSRC in June 2021. In 2022, the NYISO completed an Interim ATR evaluating year 2027. The NYISO 2022 Interim ATR was approved by NYSRC in October 2022 and by NPCC RCC in December 2022. This report comprises the third Interim ATR submitted by NYISO since the 2020 NYISO CATR [3].

This assessment is conducted in accordance with the requirements for an Interim Review as described in the NPCC Directory #1 [1] - Appendix B “Guidelines and Procedures for NPCC Transmission Reviews” and the NYSRC “Procedure for New York Control Area Transmission Reviews” [2]. The 2023 Interim ATR assesses the reliability impacts of changes in forecasted system conditions and planned New York State BPTF since the 2020 NYISO CATR [3] in the reliability studies including and up to 2023 Quarter 2 Short-Term Assessment of Reliability [7] (STAR). This Interim ATR is conducted for the year 2028.

Forecasted System Conditions and Planned Facilities

The forecasted system conditions and planned generation and transmission facilities assessed in the NYISO 2020 CATR [3] were based on the 2020 NYISO Load and Capacity Data Report (“Gold Book”) for the

year 2025. This Interim Review is based on the forecasted conditions and planned facilities from the 2023 Gold Book [4] for the year 2028. Figures 1 through 5 summarize the forecasted conditions and planned facilities included in this Interim ATR and compares these assumptions with those used for the 2020 CATR [3]. Additional changes to transmission plans, generation additions/up-rates, or deactivations/re-ratings that occurred following the publication of the NYISO 2023 Gold Book [4] that were not captured in the 2023 Quarter 2 STAR [7] will be captured in future reviews.

Load & Capacity Forecast

Figure 1 provides a comparison of the transmission security margins under baseline normal weather expected load conditions from the 2020 CATR, as well as this 2023 Interim ATR. Transmission security margin is the ability to meet load plus losses and the largest loss-of-source contingency (i.e., total capability requirement) against the NYCA generation, NYCA generation derates, temperature based generation derates, and external area interchanges (i.e., total resources).¹ The NYCA generation (from line-item A) is comprised of the existing generation plus additions of future generation resources that meet the reliability planning process base case inclusion rules, the removal of generation that has completed a generator deactivation notice, and removal of generating units subject to the New York State Department of Environmental Conservation (DEC) Peaker Rule that are anticipated to be unavailable during the summer capability period. For the 2023 Interim ATR, the external area interchange increases 1,250 MW (line-item D) starting summer 2026 due to the inclusion of the Champlain Hudson Power Express (CHPE) project connecting Hydro Quebec to New York City (see Figure 6).

¹ the NYISO presented and discussed several enhancements to transmission security practices at the May 5, 2022 TPAS/ESPGWG ([here](#)) and May 23, 2022 ESPWG/TPAS ([here](#)) meetings in order to plan the transmission security of the grid for (1) expected availability of intermittent generation and (2) increased unavailability of thermal generation in the future due to forced outages and permit-driven operation limitations. These enhancements were documented in the NYISO Reliability Planning Process Manual, which was approved by the Operating Committee at the July 23, 2022 meeting ([here](#)). These enhancements were incorporated into the 2022 Reliability Needs Assessment and the Short-Term Reliability Process beginning with the 2022 Quarter 3 Short-Term Assessment of Reliability.

Figure 1: Comparison of NYCA Transmission Security Margins

	Line	Item	Summer Peak - Baseline Expected Summer Weather, Normal Transfer Criteria (MW)									
			2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2020 Comprehensive ATR	A	NYCA Generation (1)	37,653	38,200	37,473	37,473	36,867	36,867	36,867	36,867	36,867	36,867
	B	NYCA Generation Derates (2)	(4,160)	(5,156)	(5,177)	(5,178)	(5,116)	(5,116)	(5,116)	(5,116)	(5,116)	(5,117)
	C	Temperature Based Generation Derates	0	0	0	0	0	0	0	0	0	0
	D	External Area Interchanges (3)	1,844	1,844	1,844	1,844	1,844	1,844	1,844	1,844	1,844	1,844
	E	Total Resources (A+B+C+D)	34,887	34,887	34,140	34,139	33,595	33,595	33,595	33,595	33,595	33,594
	F	Load Forecast	(32,129)	(32,128)	(31,918)	(31,838)	(31,711)	(31,670)	(31,673)	(31,756)	(31,865)	(31,992)
	G	Largest Loss-of-Source Contingency	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)
	H	Total Capability Requirement (F+G)	(33,439)	(33,438)	(33,228)	(33,148)	(33,021)	(32,980)	(32,983)	(33,066)	(33,175)	(33,302)
	I	Statewide System Margin (E+H)	1,448	1,449	912	991	574	615	612	529	420	292
	2023 Interim ATR	A	NYCA Generation (1a)	38,041	38,266	38,266	38,266	38,266	38,266	38,266	38,266	38,266
B		NYCA Generation Derates (2)	(5,903)	(6,554)	(6,568)	(6,581)	(6,594)	(6,607)	(6,607)	(6,621)	(6,634)	(6,634)
C		Temperature Based Generation Derates	0	0	0	0	0	0	0	0	0	0
D		External Area Interchanges (3)	1,844	1,844	3,094	3,094	3,094	3,094	3,094	3,094	3,094	3,094
E		Total Resources (A+B+C+D)	33,981	33,555	34,792	34,779	34,766	34,752	34,752	34,739	34,726	34,726
F		Load Forecast	(32,243)	(32,150)	(32,005)	(31,881)	(31,753)	(31,715)	(31,855)	(32,115)	(32,475)	(32,885)
G		Largest Loss-of-Source Contingency	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)	(1,310)
H		Total Capability Requirement (F+G)	(33,553)	(33,460)	(33,315)	(33,191)	(33,063)	(33,025)	(33,165)	(33,425)	(33,785)	(34,195)
I		Statewide System Margin (E+H)	428	95	1,477	1,588	1,703	1,727	1,587	1,314	941	531

Notes:

1. Reflects the 2020 Gold Book existing summer capacity plus projected additions and deactivations.
- 1a. Reflects the 2023 Gold Book existing summer capacity plus projected additions and deactivations.
2. Reflects the derates for generating resources. For this evaluation land-based wind generation is assumed to have a capability of 5% of the total nameplate, off-shore wind at 10% of the total nameplate, solar generation is based on the ratio of solar PV nameplate capacity (2023 Gold Book Table I-9a) and solar PV peak reductions (2023 Gold Book Table I-9c). Derates for run-of-river hydro are included as well as the Oswego Export limit for all lines in-service. Includes derates for thermal resources based on NERC five-year class average EFORd data published August 2022 (<https://www.nerc.com/pa/RAPA/gads/Pages/Reports.aspx>).
3. Interchanges are based on ERAG MMWG values.

Generation Facilities

Proposed future generation projects and up-rates to existing generating facilities are listed in Figure 2. Figure 3 and Figure 4 provide a summary of the shutdowns/de-rates in generation.

In 2019, the DEC adopted a regulation to limit nitrogen oxides (NO_x) emissions from simple-cycle combustion turbines (referred to as the “Peaker Rule”).² Combustion turbines known as “peakers” typically operate to maintain bulk power system reliability during the most stressful operating conditions, such as periods of peak electricity demand. Many of these units also maintain transmission security by supplying energy within certain constrained areas of New York City and Long Island – known as load pockets. The Peaker Rule, which phases in compliance obligations between 2023 and 2025, will impact turbines located mainly in the lower Hudson Valley, New York City, and Long Island. The Peaker Rule required all impacted plant owners to file compliance plans by March 2, 2020. The plans indicate approximately 1,600 MW of peaker capability would be unavailable during the summer by 2025 to comply with the emissions requirements. Figure 5 provides a summary of the peaker units that are unavailable during the summer capability period. These changes were captured in the 2020 CATR.

Additional changes to generation additions/up-rates or shutdowns/de-ratings that occurred following the publication of the NYISO 2023 Gold Book [4] that were not captured in the 2023 Quarter 2 STAR [7] will be captured in future reviews.

Figure 2: Additions/Up-rates in Generation Facilities³

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	Zone	Type	2020 Comprehensive ATR	2023 Interim ATR
					Included/IS Date	Included/IS Date
387	Cassadaga Wind	126.5	A	W	Y/2021-12	Y/In-Service
758	Independence GS1 to GS4 {Dynegy Marketing and Trade, LLC}	+9	C	Gas	N/A	Y/In-Service
546	Roaring Brook Wind	79.7	E	W	Y/2021-12	Y/In-Service
731	Branscomb Solar (Branscomb Solar, LLC)	20	F	S	N/A	Y/In-Service
769	North County Energy Storage (New York Power Authority)	20	D	ES	N/A	Y/In-Service
759	KCE NY6	20	A	ES	N/A	Y/2022-04
768	Janis Solar (Janis Solar, LLC)	20	C	S	N/A	Y/In-Service

² [DEC Peaker Rule](#)

³ The values noted in this figure are from 2023 Q2 STAR Key Study Assumptions (found [here](#))

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	Zone	Type	2020 Comprehensive ATR	2023 Interim ATR
					Included/IS Date	Included/IS Date
775	Puckett Solar (Puckett Solar, LLC)	20	E	S	N/A	Y/2022-04
670	Skyline Solar (SunEast Skyline Solar, LLC)	20	E	S	N/A	Y/2022-04
584	Dog Corners Solar (SED NY Holdings, LLC)	20	C	S	N/A	Y/2023-05
682	Grissom Solar (Grissom Solar, LLC)	20	F	S	N/A	Y/In-Service
748	Regan Solar (Regan Solar, LLC)	20	F	S	N/A	Y/In-Service
678	Calverton Solar Energy Center (LI Solar Generation, LLC)	22.9	K	S	Y/2021-12	Y/In-Service
734	Ticonderoga Solar (ELP Ticonderoga Solar, LLC)	20	F	S	N/A	Y/2022-08
422	Eight Point Wind Energy Center (NextEra Energy Resources, LLC)	101.8	B	W	Y/2021-12	Y/In-Service
735	ELP Stillwater Solar (ELP Stillwater Solar, LLC)	20	F	S	N/A	Y/2022-09
666	Martin Solar (Martin Solar, LLC)	20	A	S	N/A	Y/2022-10
667	Bakerstand Solar (Bakerstand Solar LLC)	20	A	S	N/A	Y/2022-10
531	Number 3 Wind Energy (Invenergy Wind Development, LLC)	103.9	E	W	N/A	Y/In-Service
579	Bluestone Wind (Bluestone Wind, LLC)	111.8	E	W	N/A	Y/2022-10
565	Tayandenege Solar (Tayandenege Solar, LLC)	20	F	S	N/A	Y/2022-10
505	Ball Hill Wind (Ball Hill Wind Energy, LLC)	100.0	A	W	Y/2022-12	Y/2022-11
721	Excelsior Energy Center (Excelsior Energy Center, LLC)	280.0	A	S	N/A	Y/2022-11
618	High River Solar (High River Energy Center, LLC)	90.0	F	S	N/A	Y/2022-11
619	East Point Solar (East Point Energy Center, LLC)	50.0	F	S	N/A	Y/2022-11
570	Albany County 1 (Hecate Energy Albany 1, LLC)	20	F	S	N/A	Y/2022-12
598	Albany County 2 (Hecate Energy Albany 2, LLC)	20	F	S	N/A	Y/2022-12
638	Pattersonville (Pattersonville Solar Facility, LLC)	20	F	S	N/A	Y/2022-12
730	Darby Solar (Darby Solar, LLC)	20	F	S	N/A	Y/2022-12

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	Zone	Type	2020 Comprehensive ATR	2023 Interim ATR
					Included/IS Date	Included/IS Date
564	Rock District Solar (Rock District Solar, LLC)	20	F	S	N/A	Y/2022-12
572	Greene County 1 (Hecate Energy Greene 1, LLC)	20	G	S	N/A	Y/2023-01
573	Greene County 2 (Hecate Energy Greene 2, LLC)	10	G	S	N/A	Y/2023-03
592	Niagara Solar (Duke Energy Renewables Solar, LLC)	20	B	S	N/A	Y/2023-05
590	Scipio Solar (Duke Energy Renewables Solar, LLC)	18	C	S	N/A	Y/2023-05
545	Sky High Solar (Sky High Solar, LLC)	20	C	S	N/A	Y/2023-06
586	Watkins Road Solar (SED NY Holdings, LLC)	20	E	S	N/A	Y/2023-06
807	Hilltop Solar (SunEast Hilltop Solar, LLC)	20	E	S	N/A	Y/2022-07
581	Hills Solar (SunEast Hills Solar, LLC)	20	E	S	N/A	Y/2023-08
612	South Fork Wind Farm (South Fork Wind, LLC)	96.0	K	OSW	N/A	Y/2023-08
695	South Fork Wind Farm II (South Fork Wind, LLC)	40.0	K	OSW	N/A	Y/2023-08
637	Flint Mine Solar (Flint Mine Solar, LLC)	100.0	G	S	N/A	Y/2023-09
848	Fairway Solar (SunEast Fairway Solar, LLC)	20	E	S	N/A	Y/2023-10
720	Trelina Solar Energy Center (Trelina Solar Energy Center, LLC)	80.0	C	S	N/A	Y/2023-11
617	Watkins Glen Solar (Watkins Glen Energy Center, LLC)	50.0	C	S	N/A	Y/2023-11
855	NY13 Solar (Bald Mountain Solar, LLC)	20	F	S	N/A	Y/2023-11
396	Baron Winds (Baron Winds, LLC)	238.4	C	W	Y/2021-12	Y/In-Service
495	Mohawk Solar (Mohawk Solar LLC)	90.5	F	S	N/A	Y/2024-11

Figure 3: Completed Generator Deactivations

Owner/ Operator	Plant Name	Zone	Nameplate (MW)	CRIS (MW)		Capability (MW)		Status	Deactivation Date (2)	STAR Evaluation (3)
				Summer	Winter	Summer	Winter			
International Paper Company	Ticonderoga (1)	F	9.0	7.6	7.5	9.5	9.8	I	5/1/2017	-
Helix Ravenswood, LLC	Ravenswood 2-4	J	42.9	39.8	50.6	30.7	41.6	I	4/1/2018	-
	Ravenswood 3-1	J	42.9	40.5	51.5	31.9	40.8	I	4/1/2018	-
	Ravenswood 3-2	J	42.9	38.1	48.5	29.4	40.3	I	4/1/2018	-
	Ravenswood 3-4	J	42.9	35.8	45.5	31.2	40.8	I	4/1/2018	-
Exelon Generation Company LLC	Monroe Livingston	B	2.4	2.4	2.4	2.4	2.4	R	9/1/2019	-
Innovative Energy Systems, Inc.	Steuben County LF	C	3.2	3.2	3.2	3.2	3.2	R	9/1/2019	-
Consolidated Edison Co. of NY, Inc	Hudson Ave 4	J	16.3	13.9	18.2	14.0	16.3	R	9/10/2019	-
New York State Elec. & Gas Corp.	Auburn - State St	C	7.4	5.8	6.2	4.1	7.3	R	10/1/2019	-
Somerset Operating Company, LLC	Somerset	A	655.1	686.5	686.5	676.4	684.4	R	3/12/2020	-
Entergy Nuclear Power Marketing, LLC	Indian Point 2	H	1,299.0	1,026.5	1,026.5	1,011.5	1,029.4	R	4/30/2020	-
Cayuga Operating Company, LLC	Cayuga 1	C	155.3	154.1	154.1	151.0	152.0	R	6/4/2020	-
Entergy Nuclear Power Marketing, LLC	Indian Point 3	H	1,012.0	1,040.4	1,040.4	1,036.3	1,038.3	R	4/30/2021	-
Helix Ravenswood, LLC	Ravenswood GT 11	J	25.0	20.2	25.7	16.1	22.4	I	12/1/2021	2022 Q1
Helix Ravenswood, LLC	Ravenswood GT 1	J	18.6	8.8	11.5	7.7	11.1	I	1/1/2022	2022 Q1
Exelon Generation Company LLC	Madison County LF	E	1.6	1.6	1.6	1.6	1.6	I	4/1/2022	2022 Q2
Nassau Energy, LLC	Trigen CC	K	55.0	51.6	60.1	38.5	51.0	R	7/15/2022	2022 Q2
Consolidated Edison Co. of NY, Inc.	Hudson Ave 3	J	16.3	16.0	20.9	12.3	15.6	R	11/1/2022	2022 Q2
Consolidated Edison Co. of NY, Inc.	Hudson Ave 5	J	16.3	15.1	19.7	15.3	18.6	R	11/1/2022	2022 Q2
Astoria Generating Company, L.P.	Gowanus 1-1 through 1-8	J	160.0	138.7	181.1	133.1	182.2	R	11/1/2022	2022 Q2
Astoria Generating Company, L.P.	Gowanus 4-1 through 4-8	J	160.0	140.1	182.9	138.8	183.4	R	11/1/2022	2022 Q2
NRG Power Marketing LLC	Astoria GT 2-1	J	46.5	41.2	50.7	34.9	46.5	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 2-2	J	46.5	42.4	52.2	34.3	45.6	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 2-3	J	46.5	41.2	50.7	36.3	46.7	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 2-4	J	46.5	41.0	50.5	32.5	45.4	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 3-1	J	46.5	41.2	50.7	34.6	45.0	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 3-2	J	46.5	43.5	53.5	35.7	45.3	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 3-3	J	46.5	43.0	52.9	33.9	44.6	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 3-4	J	46.5	43.0	52.9	34.9	45.5	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 4-1	J	46.5	42.6	52.4	33.6	43.8	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 4-2	J	46.5	41.4	51.0	34.3	44.3	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 4-3	J	46.5	41.1	50.6	35.4	46.4	R	5/1/2023	2022 Q2
NRG Power Marketing LLC	Astoria GT 4-4	J	46.5	42.8	52.7	35.2	44.1	R	5/1/2023	2022 Q2
Helix Ravenswood, LLC	Ravenswood 10	J	25.0	21.2	27.0	16.1	20.3	R	5/1/2023	2022 Q3
Total			4,367.1	4,012.3	4,292.4	3,826.7	4,156.0			

Notes

- (1) Part of SCR program
- (2) This table only includes units that have entered into IIFO or have completed the generator deactivation process.
- (3) "-" denotes that the generator deactivation was assessed prior to the creation of the short-term reliability process

Figure 4: Additional Generator deactivations

Owner/ Operator	Plant Name (1)	Zone	Nameplate (MW)	CRIS (MW)		Capability (MW)		Status	Deactivation Date (2)	STAR Evaluation
				Summer	Winter	Summer	Winter			
Consolidated Edison Co. of NY, Inc.	74 St. GT 1 & 2	J	37	39.1	49.2	39.3	45.2	R	5/1/2023	2022 Q2
Eastern Generation, LLC	Astoria GT 01	J	16	15.7	20.5	13.6	19.0	R	5/1/2023	2022 Q4
		Total	53	54.8	69.7	52.9	64.2			

Notes

(1) This table includes units that have proposed to Retire or enter Mothball Outage and have a completed generator deactivation notice but have yet to complete the generator deactivation process.

(2) Date in which the generator proposed Retire (R) or enter Mothball Outage (MO)

Figure 5: Proposed Status Change to Comply with DEC Peaker Rule

Owner/Operator	Station	Zone	Nameplate (MW)	CRIS (MW) (1)		Capability (MW) (1)		Status Change Date (2)	STAR Evaluation or Other Assessment
				Summer	Winter	Summer	Winter		
National Grid	West Babylon 4 (6) (7)	K	52.4	49.0	64.0	41.2	63.4	12/12/2020 (R)	Other
National Grid	Glenwood GT 01 (4) (7)	K	16.0	14.6	19.1	13.0	15.3	2/28/2021 (R)	2020 Q3
Helix Ravenswood, LLC	Ravenswood 11	J	25.0	20.2	25.7	16.1	22.4	12/1/2021 (IIFO)	2022 Q1
Helix Ravenswood, LLC	Ravenswood 01	J	18.6	8.8	11.5	7.7	11.1	1/1/2022 (IIFO)	2022 Q1
Astoria Generating Company, L.P.	Gowanus 1-1 through 1-8	J	160.0	138.7	181.1	133.1	182.2	11/1/2022 (R)	2022 Q2
Astoria Generating Company, L.P.	Gowanus 4-1 through 4-8	J	160.0	140.1	182.9	138.8	183.4	11/1/2022 (R)	2022 Q2
Consolidated Edison Co. of NY, Inc.	Hudson Ave 3	J	16.3	16.0	20.9	12.3	15.6	11/1/2022 (R)	2022 Q2
Consolidated Edison Co. of NY, Inc.	Hudson Ave 5	J	16.3	15.1	19.7	15.3	18.6	11/1/2022 (R)	2022 Q2
Central Hudson Gas & Elec. Corp.	Coxsackie GT (8)	G	21.6	21.6	26.0	19.0	23.6	5/1/2023	
Central Hudson Gas & Elec. Corp.	South Cairo (8)	G	21.6	19.8	25.9	18.7	23.1	5/1/2023	
Consolidated Edison Co. of NY, Inc.	74 St. GT 1 & 2 (10)	J	37.0	39.1	49.2	37.8	43.6	5/1/2023	2022 Q2
Astoria Generating Company, L.P.	Astoria GT 01	J	16.0	15.7	20.5	13.4	19.1	5/1/2023	2022 Q4
NRG Power Marketing, LLC	Astoria GT 2-1, 2-2, 2-3, 2-4	J	186.0	165.8	204.1	138.0	184.2	5/1/2023 (R)	2022 Q2
NRG Power Marketing, LLC	Astoria GT 3-1, 3-2, 3-3, 3-4	J	186.0	170.7	210.0	139.1	180.4	5/1/2023 (R)	2022 Q2
NRG Power Marketing, LLC	Astoria GT 4-1, 4-2, 4-3, 4-4	J	186.0	167.9	206.7	138.5	178.6	5/1/2023 (R)	2022 Q2
Helix Ravenswood, LLC	Ravenswood 10	J	25.0	21.2	27.0	16.1	20.3	5/1/2023 (R)	2022 Q3
National Grid	Glenwood GT 03 (3) (4)	K	55.0	54.7	71.5	49.9	67.2	5/1/2023	
National Grid	Northport GT (9)	K	16.0	13.8	18.0	8.3	12.7	5/1/2023	
National Grid	Port Jefferson GT 01 (9)	K	16.0	14.1	18.4	13.0	15.3	5/1/2023	
National Grid	Shoreham 1 (3) (4)	K	52.9	48.9	63.9	41.3	61.4	5/1/2023	
National Grid	Shoreham 2 (3) (4)	K	18.6	18.5	23.5	16.5	20.3	5/1/2023	
Consolidated Edison Co. of NY, Inc.	59 St. GT 1	J	17.1	15.4	20.1	13.1	18.8	5/1/2025	
NRG Power Marketing, LLC	Arthur Kill GT 1	J	20.0	16.5	21.6	12.3	15.8	5/1/2025	
Astoria Generating Company, L.P.	Gowanus 2-1 through 2-8 (5)	J	160.0	152.8	199.6	142.1	182.0	5/1/2025	
Astoria Generating Company, L.P.	Gowanus 3-1 through 3-8 (5)	J	160.0	146.8	191.7	136.9	179.9	5/1/2025	
Astoria Generating Company, L.P.	Narrows 1-1 through 2-8 (5)	J	352.0	309.1	403.6	285.9	369.2	5/1/2025	
	Prior to Summer 2022		112.0	92.6	120.3	78.0	112.2		
	Prior to Summer 2023		1,190.3	1,081.7	1,369.3	949.1	1,249.6		
	Prior to Summer 2025		709.1	640.6	836.6	590.3	765.7		
	Total		2,011.4	1,814.9	2,326.2	1,617.4	2,127.5		

Notes

1. MW values are from the 2023 Load and Capacity Data Report
2. Dates identified by generators in their DEC Peaker Rule compliance plan submittals for transitioning the facility to Retired, Blackstart, or will be out-of-service in the summer ozone season or the date in which the generator entered (or proposed to enter) Retired (R) or Mothball Outage (MO) or the date on which the generator entered ICAP Ineligible Forced Outage (IIFO)
3. Generator changed DEC peaker rule compliance plan as compared to the 2020 RNA and all STARs prior to 2021 Q3
4. Long Island Power Authority (LIPA) has submitted notifications to the DEC per part 227-3 of the peaker rule stating that these units are needed for reliability allowing these units to operate until at least May 1, 2025. Due to the future nature of these units being operated only as designated by the operator as an emergency operating procedure the NYISO will continue to plan for these units be unavailable starting May 2023
5. These units have indicated they will be out-of-service during the ozone season (May through September) in their compliance plans in response to the DEC peaker rule.
6. This unit was evaluated in a stand-alone generator deactivation assessment prior to the creation of the Short-Term Reliability Process
7. Unit operating as a load modifier
8. Central Hudson submitted notification to the DEC per part 227-3 of the peaker rule stating these units are needed for reliability. The most recent LTP update from Central Hudson notes the planned retirement of South Cairo and Cocksackie generators in December 2024. <https://www.nyiso.com/documents/20142/26630522/Local-Transmission-Plan-2021.pdf>
9. On May 24, 2023 National Grid notified the New York State Public Service Commission that these units have been classified as black-start only units.
10. Unit no longer subject to NYISO dispatch and is used for local reliability only

Transmission Facilities

The transmission plans shown in Figure 6 reflect changes to the BPTF since the NYISO 2020 CATR [3]. Additional changes to transmission that occurred following the publication of the NYISO 2023 Gold Book [4] that were not captured in the 2023 Quarter 2 STAR [7] will be captured in future reviews.

Figure 6: Changes in the Bulk Power Transmission Facilities

NYISO Interconnection Queue #	Owner	Bulk Transmission	2020 Comprehensive ATR	2023 Interim ATR
			Included/IS Date	Included/IS Date (1)
N/A	Con Edison	B3402 and C3403 Cables	Out-of-Service	Out-of-Service
0430	HQ Energy Services US	Cedar Rapids Transmission Upgrade	N/A	Y/In-Service
N/A	National Grid	Clay – Dewitt 115 kV reconductoring	Y/2021S	Y/In-Service
N/A	National Grid	Clay – Teall 115 kV reconductoring	Y/2021S	Y/In-Service
0545A	NextEra Energy Transmission NY	Empire State Line (NextEra)	Y/2022S	Y/In-Service
N/A	NYSEG	Watercure 345/230 kV xfmr	Y/2020W	Y/In-Service
N/A	LIPA	Riverhead-Wildwood 69 kV to 138 kV conversion	N/A	Y/In-Service
N/A	RG&E	Rochester Transmission Reinforcement 345 kV Substation (Q#339)	Y/2020W	Y/In-Service
N/A	Central Hudson	Leeds-Hurley Series Compensation SDU	Y/2021S	Y/2023S
N/A	Con Edison	Rainey-Corona 345/138 kV xfmr/PAR/feeder	N/A	Y/2023S
566	NYPA	Moses - Adirondack 1 & 2 Replacement	N/A	Y/2023S
0556	LS Power, National Grid, NYPA	Segment A Double Circuit (2)	Y/2023W	Y/2023W
N/A	National Grid	Clay - Woodard 3% series reactor	N/A	Y/2023W
0543	National Grid, NY Transco, O&R, ConEdison	AC Transmission Project Segment B (2)	Y/2023W	Y/2023W
N/A	NYSEG	Wood St. 345/115 xfmr	Y/2023W	Y/2023W
580	NYPA	STAMP Substation	N/A	Y/2024S
N/A	NYSEG	Fraser 345/115 xfmr	Y/2022W	Y/2024S
N/A	O&R	Lovett 345 kV (New Station)	Y/2021S	Y/2024S
N/A	Con Edison	Gowanus-Greenwood 345/138 kV xfmr/PAR/feeder	N/A	Y/2025S
N/A	Con Edison	Goethals-Fox Hills 345/138 kV xfmr/PAR/feeder	N/A	Y/2025S
1125	NYPA, National Grid	Smart Path Connect Project	N/A	Y/2025W
0631/0887	Champlain Hudson Power Express (CHPE), LLC	NS Power Express	N/A	Y/2026S
N/A	NYSEG	Gardenville 230/115 kV xfmr	Y/2023W	Y/2026S
N/A	NYSEG	Oakdale 345/115/34.5 xfmr	N/2027S	Y/2027S
N/A	NYSEG	South Perry 230/115 kV xfmr	Y/2022W	Y/2027S
N/A	NYSEG	Coopers Corners 345/115 xfmr	N/2025W	N/2031S

Notes:

1. Dates from 2023 Gold Book Section VII
2. This project has several changes to transmission topology that may have various in-service dates identified in the 2023 Gold Book Section VII.

Impact Assessments

Steady State, Stability, and Fault Current Assessments

The 2020 CATR [3] assessed and evaluated thermal, voltage, fault current, and stability performance of the New York State BPTF for design and extreme contingencies as required by NPCC Directory #1 [1] and NYSRC Reliability Rules [2].

Consistent with the 2020 RNA [5], the NYISO identified in the 2020 CATR [3] dynamics stability issues within the Con Edison service territory. As reflected in Figure 5, Con Edison presented its Local Transmission Owner Plan (LTP) updates comprised of the following facilities and in-service dates (ISD):

- A new (2nd) 345/138 kV PAR controlled 138 kV Rainey – Corona feeder (ISD summer 2023)
- A new (3rd) 345/138 kV PAR controlled 138 kV Gowanus – Greenwood feeder (ISD summer 2025)
- A new 345/138 kV PAR controlled 138 kV Goethals – Fox Hills feeder (ISD summer 2025)

Additionally, the NYISO identified in the 2020 Q3 STAR a short-term reliability process need that would be addressed by changes in the planned operating status of existing series reactors, starting summer 2023 through 2030, as follows:

- In-service: series reactors on the following 345 kV cables: 71, 72, M51, M52
- Bypass: series reactors on the following 345 kV cables: 41, 42, Y49

Following these updates, the transient voltage response issues continued to be observed on Con Edison's non-BPTF system from 2025 through 2030, while the BPTF violations were observed starting in 2029.⁴ Con Edison provided an LTP update to address the non-BPTF dynamic findings, which also addressed the BPTF dynamics findings at the July 23, 2021 ESPWG/TPAS meeting.⁵

The NYISO studied the system changes noted in Figures 1, 2, 3, 4 and 5 in either the 2020 CATR [3], the 2022 Reliability Needs Assessment,⁶ or pursuant to the NYISO Short-Term Reliability Process (STRP) and

⁴ See 2020-2021 Reliability Planning Process: Post-RNA Base Case Updates presentation at the February 23, 2021 ESPWG/TPAS meeting ([here](#))

⁵ CECONY's Updated Local Transmission Plan (LTP) from the July 23, 2021, meeting can be found [here](#)

⁶ The 2022 RNA preliminary ("1st pass") reliability needs were discussed with stakeholders at the July 1, 2022 ESPWG/TPAS meeting ([here](#)). Updates to the transmission security related reliability needs were discussed with stakeholders at the August 1, 2022 TPAS/ESPGWG ([here](#)) as well as the August 23, 2022 ESPWG ([here](#)). There are no transmission security reliability needs that are being addressed in the RNA.

found no adverse impact on the reliability of the BPTF.⁷ In consideration of the Corrective Action Plans identified in the 2020 CATR [3] and the subsequent corrective action plans provided by Con Edison, as well as the analysis performed in 2022 RNA [6] and subsequent STARs, the NYISO confirmed that the planned system continues to conform to the applicable criteria. As such, no additional Corrective Action Plans to address BPTF issues were required.

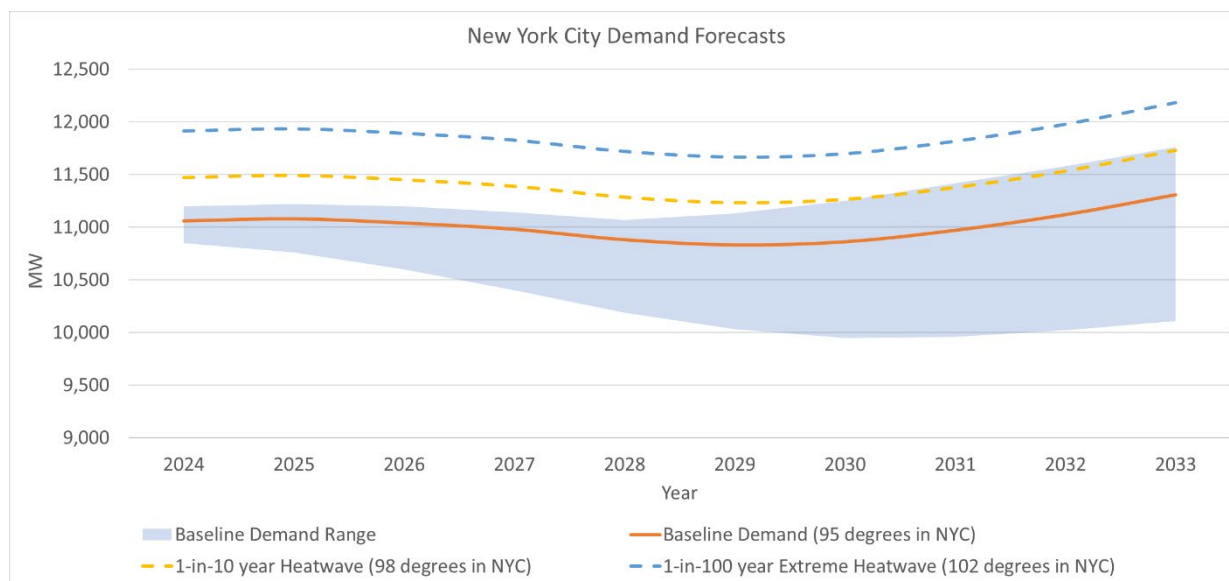
The 2023 Quarter 2 STAR [7] found a reliability need beginning in summer 2025 within New York City primarily driven by a combination of forecasted increases in peak demand and the assumed unavailability of certain generation in New York City affected by the DEC Peaker Rule. As of May 1, 2023, 1,027 MW of affected peakers have deactivated or limited their operation. An additional 590 MW of peakers are expected to become unavailable beginning May 1, 2025, all of which are in New York City. With the additional peakers unavailable, the bulk power transmission system will not be able to securely and reliably serve the forecasted demand in New York City (Zone J). Specifically, the New York City zone is deficient by as much as 446 MW for a duration of nine hours on the peak day during expected weather conditions when accounting for forecasted economic growth and policy-driven increases in demand.

The reliability need is based on a deficient transmission security margin that accounts for expected generator availability, transmission limitations, and updated demand forecasts using data published in the 2023 Gold Book. The transmission security margin represents the balance between demand for electricity and the power supply available from generation and transmission to serve that demand. This assessment recognizes that there is uncertainty in the demand forecast due to uncertainties in key assumptions including population and economic growth, the proliferation of energy efficiency, the installation of behind-the-meter renewable energy resources, and electric vehicle adoption and charging patterns (*see* Figure 6). These risks are accounted for in the transmission security margin calculations by incorporating the lower and higher bounds as a range of forecasted conditions during expected weather, specified in the 2023 Gold Book as the policy scenario forecasts. The lower and higher demand policy scenario forecasts reflect achievement of policy targets through alternative pathways and assume the same weather factors as the baseline demand forecast.

⁷ See Quarterly Short-Term Assessments of Reliability (STAR) found [here](#).

⁸ See STRP solicitation notice ([here](#)).

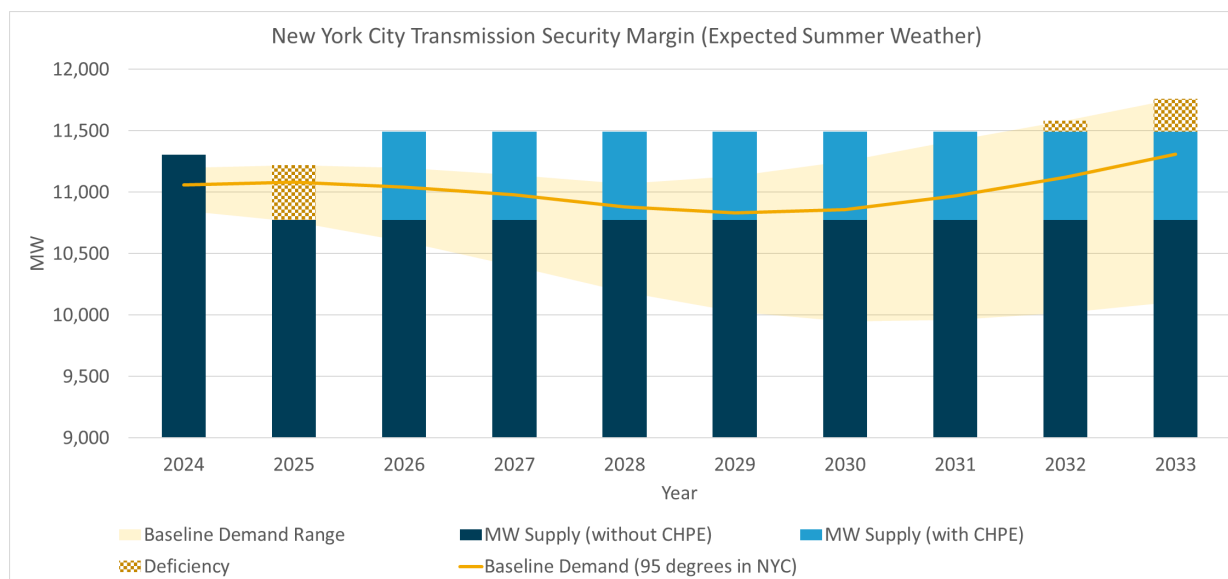
Figure 7: New York City Demand Forecasts



Under the baseline forecast for coincident summer peak demand, the New York City transmission security margin would be deficient by 306 MW in 2025 for a duration of 7 hours. However, accounting for uncertainties in key demand forecast assumptions, the higher bound of expected demand under baseline weather conditions (95 degrees Fahrenheit) in 2025 results in a deficiency of 446 MW over 9 hours. The deficiency would be significantly greater if New York City experiences a heatwave (98 degrees Fahrenheit) or an extreme heatwave (102 degrees Fahrenheit).

Overall, the New York City transmission security margin is expected to improve in 2026 if the CHPE connection from Hydro Quebec to New York City enters service on schedule in spring 2026. However, the margin gradually erodes through time thereafter as expected demand for electricity grows (see Figure 7). Beyond 2025, the forecasted reliability margins within New York City may not be sufficient if (i) the CHPE project experiences a significant delay, (ii) additional power plants become unavailable, or (iii) demand significantly exceeds current forecasts. Without the CHPE project in service or other offsetting changes or solutions, the reliability margins continue to be deficient for the ten-year planning horizon. In addition, while CHPE is expected to contribute to reliability in the summer, the facility is not expected to provide any capacity in the winter.

Figure 8: New York City Transmission Security Margin



The corrective action plan to address the deficiency within New York City is being determined through the NYISO’s STRP. On August 4, 2023, the NYISO issued a solicitation requesting the submission of proposed solutions to address the need within New York City.⁸ Solutions were received on October 3, 2023, and the NYISO is currently in the process of evaluating the viability and sufficiency of the proposed solutions. One potential outcome could include relying on generators that are subject to the DEC’s Peaker Rule to remain in operation until a permanent solution is in place. The DEC’s Peaker Rule anticipated this possibility when it authorized the NYISO to designate peakers to remain in operation beyond 2025 on an as-needed basis for reliability. Based on findings from its STRP, the NYISO may designate certain units, in sufficient quantity to protect reliability, to remain in operation for an additional two years (until May 1, 2027) with the potential of an additional two-year extension (to May 1, 2029) if a permanent solution that is needed to maintain reliability has been selected but is not yet online. The NYISO would only temporarily retain peakers as a last resort if it does not expect sufficient solutions to be in place by the time the identified reliability need is expected in 2025.

Taking into account the system changes that have occurred since the completion of the 2020 CATR, which have been included in subsequent reliability studies such as the 2022 RNA and the quarterly STARS, there are no outstanding reliability needs to address in this ATR with no criteria violations observed in years 4-6 of the planning horizon.

⁸ Short-Term Reliability Process Solution Solicitation Regarding Near-Term Reliability Need, August 4, 2023 ([here](#))

Special Protection Systems/Remedial Action Schemes

Since the 2020 CATR [3], there has been no changes to the classification of remedial action schemes (RAS) within the NYCA for new RAS proposals. However, there has been a retirement of an existing RAS,⁹ as well as a functional modification of another existing RAS,¹⁰ both of which have been reviewed through the NPCC process outlined in Directory #7. Details of the RAS retirement and functional modification are provided in Appendix D.

Review of Exclusions from NPCC Basic Criteria

NPCC Directory #1 [1] contains a provision that allows a member to request an exclusion from criteria contingencies that are simultaneous permanent phase to ground faults on different phases of each of two adjacent transmission circuits on a multiple circuit tower, with normal fault clearing. Given that the NYCA does not have any such exclusion at this time, none were reviewed. Furthermore, no requests for exclusions are anticipated in the near future.

System Restoration Assessment

NYSRC Reliability Rules B.2 R1.3 [2] require the NYISO to evaluate the impact of system expansion or configuration facility plans on the NYCA System Restoration Plan. The list below outlines planned system expansion facilities which may have an impact on the NYCA System Restoration Plan:

- The NYSEG South Perry 230/115 kV transformer is an addition to the existing South Perry facility.
- The NYSEG Gardenville 230/115 kV transformer is an addition to the Gardenville facility. Additionally, the Gardenville 230/115 kV substation has reconfiguration plans and existing Gardenville 230/115 kV transformers TB#3 and TB#4 will be replaced.
- The NYSEG Oakdale 345/115/34.5 kV transformer is an addition to the existing Oakdale facility. The Oakdale 345 kV substation has reconfiguration plans.
- The NYSEG Coopers Corners 345/115 kV transformer is an addition to the existing Coopers Corners facility. The Coopers Corners 345 kV substation has reconfiguration plans.
- The NYSEG Fraser 345/115 kV transformer is an addition to the existing Fraser facility. Additionally, the Fraser 345 kV substation has reconfiguration plans.
- The LS Power Grid New York/NYPA Segment A double circuit project (Q#556) includes: retiring two Porter – Rotterdam 230 kV Lines #30 and #31; constructing a new Gordon Road 345 kV

⁹ The retirement of this RAS was reviewed at the March 8, 2021 NPCC TFCP

¹⁰ The modification of this RAS was reviewed and approved by NPCC TFSS at the September 20, 2023 NPCC TFSS meeting

substation which loops in the existing Edic to New Scotland 345 kV transmission line; constructing a new Princetown 345 kV substation interconnecting Gordon Road to New Scotland 345 kV; and building two new 345 kV transmission lines from Edic to Princetown to New Scotland 345 kV.

- The NY Transco Segment B project (Q#543) includes: (i) a new Knickerbocker 345 kV substation between New Scotland 345 kV and Alps 345 kV stations, (ii) a new 345 kV line between Knickerbocker and Pleasant Valley, (iii) new series compensation capacitor bank with bypass switching provision on the new Knickerbocker – Pleasant Valley 345 kV line at the proposed Knickerbocker 345 kV Switching Station, (iv) a new Van Wagner 345 kV substation between Athens, Leeds, and Pleasant Valley 345 kV substations, (v) a new Dover PAR substation between Cricket Valley 345 kV and Long Mountain 345 kV, and (vi) a new 115 kV transmission line and 138/115 kV transformer between the Rock Tavern 115 kV and Sugarloaf 115 kV substations.
- The New York Power Authority (NYPA) Moses – Adirondack 230 kV project is a replacement of approximately 78 miles of the Moses to Adirondack 230 kV circuits 1 and 2.
- The NYPA Smart Path Connect Project (Q#1125) primarily adds of a new 345 kV substation (Haverstock), which loops in three existing 230 kV circuits from the Moses 230 kV substation (MA1, MA2, and MW2) via 230/345 kV transformers; rebuilds the existing Moses-Willis 230 kV lines (MW1 and MW2) to 345 kV; moves the connection from Moses 230 kV to Haverstock 345 kV; and connects to the new Willis 230 kV substation via 345/230 kV transformers. The new Willis 230 kV substation will connect to existing Willis 230 kV station with two very short 230 kV lines; rebuilds the existing Willis-Patnode (WPN-1) and Willis-Ryan (WRY-2)) to each accommodate two 230 kV circuits (total four 230 kV circuits in the Right-of-way WPN-1, WPN-2, WRY-1, WRY-2); replace the 230 kV Chases Lake substation with the Austin Road 345 kV substation; rebuild the exiting Adirondack-Porter and Adirondack-Chases Lake-Porter 230 kV lines to be 345 kV lines that connect to the existing Marcy and Edic 345 kV substations; and install series reactors on the Moses-Massena 230 kV lines.
- The NYPA STAMP project is a new 345 kV substation for load interconnection looping in the Dysinger-Henrietta 345 kV transmission lines.

The potential impacts of the system expansion plans listed above have been communicated to NYISO Operations Engineering for consideration in the annual review and update of the NYCA System Restoration Plan.

Consideration of NYSRC Local Rules G.1 through G.3 (B.2 R1.2)

NYSRC has adopted Local Reliability Rules that apply to the New York City and Long Island zones to protect the reliable delivery of electricity for specific electric system and load characteristics relative to these zones. The NYISO requests information from the Transmission Owners on changes in local system conditions that would impact the New York State transmission system at the beginning of every year. The base conditions are described earlier in this report which illustrate the application of the following local rules to the system models used for this year’s assessments:

- *G.1(R1)*
 - The BPTF in Con Edison’s service territory that are required to be planned and operated for the occurrence of a second contingency were evaluated in the 2020 CATR [3]. Additionally, this criterion is also considered in other reliability studies such as the STARs and RNA.
- *G.1(R2) Operating Reserves/Unit Commitment, G.1(R3) Locational Reserves (New York City)*
 - Local Operating Reserve rules are considered in the development of the base case used for all reliability assessments.
- *G.1(R4) Thunderstorm Watch (New York City)*
 - Proposed facilities [4] included in this assessment may impact the Thunderstorm Watch contingency list due to substation reconfiguration and facility additions. The contingencies impacted by system facility changes will be evaluated before the proposed facilities are in service.
- *G.2 Loss of Generator Gas Supply (New York City), G.3 Loss of Generator Gas Supply (Long Island)*
 - Specific loss of generator gas supply studies are performed by Con Edison and PSEG-Long Island and are reviewed by the NYISO. The planned system is expected to be compatible with local rules regarding loss of generator gas supply.

Conclusion

The annual assessment performed in this Interim ATR of the changes in forecasted NYCA system conditions and planned facilities indicate that the New York State BPTF, as planned through the year 2028, conform to the reliability criteria listed in NPCC Directory #1 [1] and the NYSRC Reliability Rules [2].

References

1. Northeast Power Coordinating Council, “NPCC Regional Reliability Reference Directory #1, Design and Operation of the Bulk Power System”, Version 5, dated December 6, 2022.
2. New York State Reliability Council, “Reliability Rules and Compliance Manual”, Version 46, dated June 10, 2022.
3. New York Independent System Operator, 2020 Comprehensive Area Transmission Review of the New York State Bulk Power Transmission System (Study Year 2025), dated June 2021.
4. New York Independent System Operator, 2023 Load and Capacity Data Report, dated April 2023.
5. New York Independent System Operator, 2020 Reliability Needs Assessment, dated November 2020.
6. New York Independent System Operator, 2022 Reliability Needs Assessment, dated November 2022.
7. Short-Term Assessment of Reliability: 2023 Quarter 2, dated July 14, 2023.