New York ISO
Independent System Operator

Short-Term Assessment of Reliability: 2022 Q1 Key Study Assumptions

Keith Burrell

Manager, Transmission Studies

ESPWG/TPAS

January 25, 2022

STAR Process Information

- The NYISO is assessing the reliability of the Bulk Power Transmission Facilities (BPTF)
- The assessment of the non-BPTF for the generator deactivations includes Con Edison (Ravenswood GT 1 and Ravenswood GT 11), National Grid (Allegheny Cogen, Batavia, and Sterling), and NYSEG/RG&E (Allegheny Cogen)
- The NYISO posted the 2021 Q4 STAR on January 13, 2022
  - This assessment did not identify any Short-Term Reliability Needs
- The NYISO plans to post the 2021 Q1 STAR by April 15, 2022
- The 2022 Q2 STAR will commence on April 15, 2022

New York ISO

Study Assumptions

- **The most recent base cases from the Reliability Planning Process are those used for the 2020 Reliability Needs Assessment (RNA) (Link to RNA) and updated for the prior STAR**
  - The 2020 RNA Base Case and the Inclusion Rules Application as well as the DEC's Peaker Rule Impacts on the 2020 RNA Base Case presented at the June 19, 2020 ESPWG/TPAS are provided at the end of this presentation for reference
  - Post-RNA base case updates were presented to stakeholders at the February 23, 2021 (here) and March 26, 2021 (here) ESPWG/TPAS meetings
  - The 2021 Q4 key assumptions were presented at the October 25, 2021 ESPWG/TPAS meeting (here)
- **Study Period**
  - January 15, 2022 (STAR Start Date) through January 15, 2027

New York ISO

Updated Study Assumptions for 2022 Q1 STAR

New York ISO

Updated Generation Assumptions

- **The changes to generation assumptions compared to the prior STAR include the following:**
  - Generator deactivations:
    - Allegheny Cogen (Zone B, 67 MW (nameplate)), proposing to Retire on May 2, 2022
    - Sithe Batavia (Zone B, 67.3 MW (nameplate)), proposing to Retire on May 2, 2022
    - Sithe Sterling (Zone E, 65.3 MW (nameplate)), proposing to Retire on May 2, 2022
    - Ravenswood GT 11 (Zone J, 25 MW (nameplate)), entered IIFO effective December 1, 2021
    - Ravenswood GT 1 (Zone J, 18.6 MW (nameplate)), entered IIFO effective January 1, 2022
  - Generator return-to-service:
    - No units have returned to service beyond those included in the prior STAR
  - Additions:
    - No additions beyond those included in the prior STAR, however, the commercial operation date of several projects has changed. A summary of these changes is provided on the next slide
    - The Roaring Brook Wind (Q#0546) and Orangeville Battery (Q#0513) are now in-service
  - Other:
    - In December, 2021 Eastern Generation updated their DEC peaker rule compliance plans for the Astoria GT 01, Gowanus 1-1 through 1-8, and Gowanus 4-1 through 4-8 to retire by May 2023
      - Prior to this update the plan was for these units to be unavailable during the summer ozone season

New York ISO

Updated Generation Assumptions

- Updated commercial operation date changes of generation projects included in the prior STAR is provided below:

Queue	Proposed Generator Project	Zone	Prior STAR COD	Current STAR COD	Requested CRIS (MW)	Summer (MW)	STAR Assessment
0768	Janis Solar	C	07/2021	04/2022	N/A	20.0	2021 Q3
0775	Puckett Solar	E	08/2021	04/2022	N/A	20.0	2021 Q3
0592	Niagara Solar	B	12/2022	05/2023	N/A	20.0	2021 Q3
0590	Scipio Solar	C	12/2022	05/2023	N/A	18.0	2021 Q3
0589	North Country Solar	E	11/2021	09/2022	N/A	15.0	2021 Q3
0531	Number 3 Wind Energy	E	09/2022	10/2022	N/A	103.9	2021 Q3
0565	Tayandenega Solar	F	09/2021	10/2022	N/A	20.0	2021 Q3
505	Ball Hill Wind	A	12/2022	11/2022	100.0	100.0	2020 Q3
678	Calverton Solar Energy Center	K	12/2020	12/2021	22.9	22.9	2020 Q3
0564	Rock District Solar	F	04/2021	12/2022	N/A	20.0	2021 Q3
396	Baron Winds	C	07/2023	12/2023	300.0	238.4	2020 Q3

New York ISO

Load Assumptions

- This study utilizes the forecast from the 2021 Load and Capacity Data Report ("Gold Book")
- The list of additional load projects has not changed from the prior STAR; however, their forecasts have changed compared to the prior STAR (details provided on the next slide)
- The load projects included in this STAR are the following:
  - Q0580 – WNY STAMP
  - Q0776 – Greenidge Load
  - Q0849 – Somerset Load
  - Q0580 – Cayuga load
  - Q0979 – North Country Data Center (load increase)
    - As an SIS has yet to be complete for Q0979 this load will only be included in the resource adequacy evaluations

New York ISO

Load Assumptions

- Increased zonal load forecast based on load queue project additions are shown below, including the differences in zonal forecast as compared to the 2021 Gold Book

Prior STAR (As Compared to 2021 Gold Book)													
	Annual Energy GWh Delta					Summer Peak MW Delta					Winter Peak MW Delta			
Year	A	C	D	Total	Year	A	C	D	Total	Year	A	C	D	Total
2022	860	160	620	1,640	2022	90	10	75	175	2022-23	180	40	125	345
2023	2,130	570	1,120	3,820	2023	265	70	135	470	2023-24	295	80	145	520
2024	2,490	740	1,280	4,510	2024	325	90	155	570	2024-25	355	100	165	620
2025	2,840	900	1,450	5,190	2025	385	110	175	670	2025-26	415	110	185	710
2026	3,210	900	1,620	5,730	2026	445	110	195	750	2026-27	465	110	205	780

2022 Q1 STAR (As Compared to 2021 Gold Book)													
	Annual Energy GWh Delta					Summer Peak MW Delta					Winter Peak MW Delta			
Year	A	C	D	Total	Year	A	C	D	Total	Year	A	C	D	Total
2022	320	0	0	320	2022	0	0	0	0	2022-23	245	0	0	245
2023	1,950	580	490	3,020	2023	245	110	75	430	2023-24	255	110	125	490
2024	2,100	860	1,110	4,070	2024	270	110	135	515	2024-25	285	110	145	540
2025	2,340	860	1,280	4,480	2025	300	110	155	565	2025-26	315	110	165	590
2026	2,580	860	1,440	4,880	2026	330	110	175	615	2026-27	345	110	185	640

New York ISO

Transmission Assumptions

- **The changes to transmission assumptions compared to the prior STAR include the following:**
  - Existing transmission
    - Moses/St. Lawrence L33P 230 kV circuit now planned to return-to-service May 2022
    - The Newbridge 345/138 kV transformer is modeled out-of-service through August 2022
  - Proposed transmission
    - No other changes to proposed transmission assumptions compared to the prior STAR are included in this assessment

New York ISO

Questions?

New York ISO

Changes to Study Assumptions for Q1 2022 STAR: Compared to RNA Assumptions Included in Prior STAR

DEC Peaker Rule Assumptions

Owner/Operator	Station	Zone	Nameplate (MW)	CRIS (MW) (1)		Capability (MW) (1)		Status Change Date (2)
				Summer	Winter	Summer	Winter	
Central Hudson Gas & Elec. Corp.	Coxsackie GT	G	21.6	21.6	26.0	19.3	24.8	5/1/2023
Central Hudson Gas & Elec. Corp.	South Cairo	G	21.6	19.8	25.9	18.4	22.9	5/1/2023
Consolidated Edison Co. of NY, Inc.	74 St. GT 1 & 2	J	37.0	39.1	49.2	39.3	42.4	5/1/2023
Astoria Generating Company, L.P.	Astoria GT 01	J	16.0	15.7	20.5	13.6	19.3	5/1/2023
NRG Power Marketing, LLC	Astoria GT 2-1, 2-2, 2-3, 2-4	J	186.0	165.8	204.1	140.4	181.7	5/1/2023
NRG Power Marketing, LLC	Astoria GT 3-1, 3-2, 3-3, 3-4	J	186.0	170.7	210.0	142.3	180.8	5/1/2023
NRG Power Marketing, LLC	Astoria GT 4-1, 4-2, 4-3, 4-4	J	186.0	167.9	206.7	133.7	178.4	5/1/2023
Astoria Generating Company, L.P.	Gowanus 1-1 through 1-7	J	140.0	122.6	160.1	124.7	159.7	5/1/2023
Astoria Generating Company, L.P.	Gowanus 1-8	J	20.0	16.1	21.0	16.0	21.0	2/1/2021 (IIFO)
Astoria Generating Company, L.P.	Gowanus 4-1 through 4-8	J	160.0	140.1	182.9	142.5	184.5	5/1/2023
Consolidated Edison Co. of NY, Inc.	Hudson Ave 3	J	16.3	16.0	20.9	16.6	19.5	5/1/2023
Consolidated Edison Co. of NY, Inc.	Hudson Ave 5	J	16.3	15.1	19.7	14.2	18.5	5/1/2023
Helix Ravenswood, LLC	Ravenswood 01	J	18.6	8.8	11.5	7.7	9.4	1/1/2022 (IIFO)
Helix Ravenswood, LLC	Ravenswood 10	J	25.0	21.2	27.0	16.0	21.8	5/1/2023
Helix Ravenswood, LLC	Ravenswood 11	J	25.0	20.2	25.7	16.1	22.2	12/1/2022 (IIFO)
National Grid	Glenwood GT 01 (4)	K	16.0	14.6	19.1	13.0	15.3	2/28/2021 (R)
National Grid	Northport GT	K	16.0	13.8	18.0	11.9	15.6	5/1/2023
National Grid	Port Jefferson GT 01	K	16.0	14.1	18.4	12.7	17.5	5/1/2023
National Grid	Shoreham 1 (3) (4)	K	52.9	48.9	63.9	42.7	65.5	5/1/2023
National Grid	Shoreham 2 (3) (4)	K	18.6	18.5	23.5	15.7	20.4	5/1/2023
National Grid	Glenwood GT 03 (3) (4)	K	55.0	54.7	71.5	53.1	68.1	5/1/2023
Consolidated Edison Co. of NY, Inc.	59 St. GT 1	J	17.1	15.4	20.1	15.6	19.5	5/1/2025
NRG Power Marketing, LLC	Arthur Kill GT 1	J	20.0	16.5	21.6	12.2	15.8	5/1/2025
Astoria Generating Company, L.P.	Gowanus 2-1 through 2-8	J	160.0	152.8	199.6	144.1	185.0	5/1/2025
Astoria Generating Company, L.P.	Gowanus 3-1 through 3-8	J	160.0	146.8	191.7	136.5	179.4	5/1/2025
Astoria Generating Company, L.P.	Narrows 1-1 through 2-8	J	352.0	309.1	403.6	291.5	376.2	5/1/2025
	Prior to 2023		79.6	59.7	77.3	52.8	67.9	
	2023 Total		1,170.3	1,065.6	1,348.3	957.1	1,241.4	
	2025 Total		709.1	640.6	836.6	599.9	775.9	
	Total		1,959.0	1,765.9	2,262.2	1,609.8	2,085.2	

Notes

1. MW values are from the 2021 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

New York ISO

Generator Deactivations

Owner/ Operator	Plant Name	Zone	CRIS (MW)		Capability (MW)			Deactivation date
			Summer	Winter	Summer	Winter	Status	
International Paper Company	Ticonderoga (1)	F	7.6		9.5	9.8	I	05/01/2017
Helix Ravenswood, LLC	Ravenswood 09	J	21.7	27.6	16.3	22.8	R	11/01/2017
Binghamton BOP, LLC	Binghamton	C	43.8	57.2	43.7	47.1	I	01/09/2018
Helix Ravenswood, LLC	Ravenswood 2-1	J	40.4	51.4	31.4	41.7	I	04/01/2018
	Ravenswood 2-2	J	37.6	47.8	29.9	41.9	I	04/01/2018
	Ravenswood 2-3	J	39.2	49.9	28.9	37.3	I	04/01/2018
	Ravenswood 2-4	J	39.8	50.6	30.7	41.6	I	04/01/2018
	Ravenswood 3-1	J	40.5	51.5	31.9	40.8	I	04/01/2018
	Ravenswood 3-2	J	38.1	48.5	29.4	40.3	I	04/01/2018
	Ravenswood 3-4	J	35.8	45.5	31.2	40.8	I	04/01/2018
Lyonsdale Biomass, LLC	Lyonsdale	E	20.2	20.2	19.3	19.7	R	07/18/2019
Exelon Generation Company LLC	Monroe Livingston	B	2.4	2.4	2.4	2.4	R	09/01/2019
Innovative Energy Systems, Inc.	Steuben County LF	C	3.2	3.2	3.2	3.2	R	09/01/2019
Consolidated Edison Co. of NY, Inc	Hudson Ave 4	J	13.9	18.2	14.0	16.3	R	09/10/2019
New York State Elec. & Gas Corp.	Auburn - State St	C	5.8	6.2	4.1	7.3	R	10/01/2019
Somerset Operating Company, LLC	Somerset	A	686.5	686.5	676.4	684.4	R	02/15/2020
Entergy Nuclear Power Marketing, LLC	Indian Point 2	H	1,026.5	1,026.5	1,011.5	1,029.4	R	04/30/2020
Cayuga Operating Company, LLC	Cayuga 1	C	154.1	154.1	151.0	152.0	R	05/15/2020
Cayuga Operating Company, LLC	Cayuga 2	C	154.7	154.7	139.6	158.0	R	05/15/2020
Albany Energy, LLC	Albany LFGE (3)	F	4.5	4.5	5.6	5.6	I	07/01/2020
National Grid	West Babylon 4	K	49.0	64.0	50.2	65.4	R	12/11/2020 (2)
Eastern Generation, LLC	Gowanus 1-8 (4)	J	16.1	21.0	15.3	21.7	I	02/01/2021
National Grid	Glenwood GT 01 (3)	K	14.6	19.1	11.4	14.5	R	2/28/2021 (2)
Entergy Nuclear Power Marketing, LLC	Indian Point 3	H	1040.4	1040.4	1036.3	1038.3	R	04/30/2021
Helix Ravenswood, LLC	Ravenswood GT 11 (5)	J	20.2	25.7	16.1	22.2	I	12/01/2021
Helix Ravenswood, LLC	Ravenswood GT 1 (5)	J	8.8	11.5	7.7	9.4	I	01/01/2022
		Total	3,565.4	3,688.2	3,447.0	3,613.9		

Notes
(1) Part of SCR program
(2) This date is the proposed Generator Deactivation Date stated in the generator deactivation notice.
(3) The Generator Deactivation Assessment for this facility is included in the 2020 Quarter 3 STAR
(4) The Generator Deactivation Assessment for this facility is included in the 2021 Quarter 1 STAR
(5) The Generator Deactivation Assessment for this facility is included in the 2022 Quarter 1 STAR

New York ISO

Generator Return-to-Service

Generator Name	Zone	MW (Nameplate)	Returned to Service	STAR Assessment	Notes
Hudson Ave 3	J	16.3	10-Jul-20	2020 Q4	1

Notes

1. This generator status changes May 2023 to comply with the DEC Peaker Rule

New York ISO

Generation Additions

Queue	Proposed Generator Project	Zone	Prior STAR COD	Current STAR COD (if changed from prior STAR)	Requested CRIS (MW)	Summer (MW)	STAR Assessment
387	Cassadaga Wind	A	In-Service	-	126.0	126.5	2020 Q3
396	Baron Winds	C	06/2023	12/2023	300.0	238.4	2020 Q3
422	Eight Point Wind Enery Center	B	09/2022	-	101.2	101.8	2020 Q3
505	Ball Hill Wind	A	12/2022	-	100.0	100.0	2020 Q3
430	Cedar Rapids Transmission Upgrade	D	10/2021	-	80.0	N/A	2020 Q3
546	Roaring Brook Wind	E	12/2021	In-Service	79.7	78.0	2020 Q3
678	Calverton Solar Energy Center	K	12/2020	-	22.9	22.9	2020 Q3
758	Sithe Independence	C	In-Service	-	56.6	10.9 (2)	2020 Q4 (1)
N/A	Ontario Landfill	B	In-Service	-	N/A	3.6	2021 Q3
N/A	Fulton County Landfill	F	In-Service	-	N/A	3.2	2021 Q3
N/A	Dahowa Hydroelectric	F	In-Service	-	N/A	10.5	2021 Q3
N/A	Fenner Wind	C	06/2021	-	N/A	30.0	2021 Q3
N/A	Bowline 1	G	06/2021	-	N/A	16.3	2021 Q3
N/A	Bowline 2	G	06/2021	-	N/A	7.6	2021 Q3
0564	Rock District Solar	F	04/2021	12/2022	N/A	20.0	2021 Q3
0768	Janis Solar	C	07/2021	04/2022	N/A	20.0	2021 Q3
0513	Orangeville Battery	C	08/2021	In-Service	N/A	20.0	2021 Q3
0775	Puckett Solar	E	08/2021	04/2022	N/A	20.0	2021 Q3
0565	Tayandenega Solar	F	09/2021	10/2022	N/A	20.0	2021 Q3
0589	North Country Solar	E	11/2021	09/2022	N/A	15.0	2021 Q3

Notes

(1) CRIS increase for this unit was included in the 2021 Q4 STAR. The Summer MW increase was included in the

(2) MW increase has an in-service date of March 2022.

New York ISO

Generation Additions (continued)

Queue	Proposed Generator Project	Zone	Prior STAR COD	Current STAR COD (if changed from prior STAR)	Requested CRIS (MW)	Summer (MW)	STAR Assessment
0570	Albany County 1	F	11/2021	-	N/A	20.0	2021 Q3
0598	Albany County 2	F	11/2021	-	N/A	20.0	2021 Q3
0731	Branscomb Solar	F	11/2021	In-Service	N/A	20.0	2021 Q3
0730	Darby Solar	F	11/2021	-	N/A	20.0	2021 Q3
0735	ELP Stillwater Solar	F	11/2021	-	N/A	20.0	2021 Q3
0638	Pattersonville	F	11/2021	-	N/A	20.0	2021 Q3
0572	Greene County 1	G	11/2021	-	N/A	20.0	2021 Q3
0573	Greene County 2	G	11/2021	-	N/A	10.0	2021 Q3
0682	Grissom Solar	F	12/2021	-	N/A	20.0	2021 Q3
0748	Regan Solar	F	12/2021	-	N/A	20.0	2021 Q3
0670	Skyline Solar	E	04/2022	-	N/A	20.0	2021 Q3
0584	Dog Corners Solar	C	05/2022	-	N/A	20.0	2021 Q3
0545	Sky High Solar	C	08/2022	-	N/A	20.0	2021 Q3
0531	Number 3 Wind Energy	E	09/2022	10/2022	N/A	103.9	2021 Q3
0667	Bakerstand Solar	A	10/2022	-	N/A	20.0	2021 Q3
0666	Martin Solar	A	10/2022	-	N/A	20.0	2021 Q3
0592	Niagara Solar	B	12/2022	05/2023	N/A	20.0	2021 Q3
0590	Scipio Solar	C	12/2022	05/2023	N/A	18.0	2021 Q3
0586	Watkins Road Solar	E	06/2023	-	N/A	20.0	2021 Q3

Notes

(1) CRIS increase for this unit was included in the 2021 Q4 STAR. The Summer MW increase was included in the 2021 Q3 STAR.

(2) MW increase has an in-service date of March 2022.

New York ISO

Existing Transmission Facilities Modeled Out-of-Service

From	To	kV	ID	Out-of-Service Through	
				Prior STAR	Current STAR
Marion	Farragut	345	B3402	Long-Term	
Marion	Farragut	345	C3403	Long-Term	
Moses	St. Lawrence	230	L33P	10/2022	05/2022
Plattsburg (1)	Plattsburg	230/115	AT1	12/2022	
Moses	Moses	230/115	AT2	12/2022	
Newbridge	Newbridge	345/138	BK1	02/2022	08/2022

Notes
(1) A spare transformer is placed in-service during the outage

New York ISO

Changes to Planned Transmission Assumptions

- The table below presents the Con Edison series reactor assumptions

Terminals		ID	kV	Prior to Summer 2023	Starting Summer 2023
Dunwoodie	Mott Haven	71	345	By-Passed	In-Service
Dunwoodie	Mott Haven	72	345	By-Passed	In-Service
Sprainbrook	W. 49th Street	M51	345	By-Passed	In-Service
Sprainbrook	W. 49th Street	M52	345	By-Passed	In-Service
Farragut	Gowanus	41	345	In-Service	By-Passed
Farragut	Gowanus	42	345	In-Service	By-Passed
Sprainbrook	East Garden City	Y49	345	In-Service	By-Passed

New York ISO

Changes to Planned Transmission Assumptions

- Changes to firm Transmission Owner transmission plans are captured in Section VII of the 2021 Load and Capacity Data report (here)
- A document containing the firm transmission plans (from the 2021 Load and Capacity Data Report Section VII) included in the 2021 Quarter 4 STAR Appendix C (Figure 16) is provided as a reference for this presentation.

New York ISO

Changes to Planned Transmission Assumptions

- Updates to local transmission plans not included in the 2021 Load and Capacity Data report but that have been included in prior STARs are listed below:

From Bus	To Bus	ID	Voltage (kV)	Project Description	Planned In-Service Date
Clay	Volney	6	345	Upgrade terminal equipment	6/1/2022
Clay	Woodard	17	115	3% series reactor	12/31/2023

New York ISO

2020 RNA
Major Assumptions

New York ISO

2020 RNA: Summer Peak Load Forecast Assumptions

High Load Scenario, Baseline and Adjusted Summer Peak Forecast

Annual MW	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2020 High Load Scenario[1]	32,452	32,502	32,743	32,611	32,623	32,641	32,863	33,163	33,562	33,976	34,380
+ 2020 Solar PV (Impact on High Load)	539	658	779	904	1,006	1,101	1,176	1,229	1,260	1,271	1,268
2020 RNA High Load Scenario Case[3]	32,991	33,160	33,522	33,515	33,629	33,742	34,039	34,392	34,822	35,247	35,648
2020 Gold Book Baseline[2]	32,296	32,129	32,128	31,918	31,838	31,711	31,670	31,673	31,756	31,865	31,992
+ 2020 Solar PV (Impact on Baseline)	555	707	841	986	1,102	1,204	1,287	1,351	1,392	1,411	1,411
2020 RNA Base Case[3]	32,851	32,836	32,969	32,904	32,940	32,915	32,957	33,024	33,148	33,276	33,403

1. High Load forecast from 2020 Gold Book
2. The transmission security power flow RNA Base Cases use this Gold Book Baseline forecast
3. For the resource adequacy (RA) study RNA Base Case, the 2020 Gold Book Baseline and High Load forecast were modified by removing the behind-the-meter (BtM) solar PV impacts in order to model the solar PV explicitly as a generation resource to account for the intermittent nature of its availability

Note: The 2020 Gold Book contains additional details on the load forecast: https://www.nyiso.com/documents/20142/2226333/2020-Gold-Book-Final-Public.pdf

Comparison of Base Case Peak Forecasts - 2018 & 2020 RNA (MW)

Annual MW	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
2018 RNA Base Case[1]	33,344	33,423	33,318	33,225	33,182	33,173	33,204	33,262	33,332	33,420	33,507	NA	NA
2020 RNA Base Case[1]			32,851	32,836	32,969	32,904	32,940	32,915	32,957	33,024	33,148	33,276	33,403
Change from 2020 RNA	NA	NA	-467	-389	-213	-269	-264	-347	-375	-396	-359	NA	NA

[1] For the resource adequacy study, the Gold Book baseline load forecast was modified by removing the behind-the-meter solar PV impacts in order to model the solar PV explicitly as a generation resource to account for the intermittent nature of its availability

New York ISO

2020 Gold Book Load Forecast Components

Year	(a) End-Use Peak Demand	(b) (-) EE and C&S	(c) (-) Solar PV, BTM	(d) (-) Non-Solar DG, BTM	(e) (-) BTM Storage Peak Reductions	(f) (+) EV Peak Demand	(g) (+) Non-EV Electrification	(h) =a-b-c-d-e+f+g Baseline Summer Peak Forecast
2021	33,599	591	707	251	14	68	25	32,129
2022	33,978	943	841	189	26	103	46	32,128
2023	34,220	1,322	986	169	44	147	72	31,918
2024	34,555	1,709	1,102	148	63	201	104	31,838
2025	34,861	2,108	1,204	154	91	261	146	31,711
2026	35,208	2,488	1,287	158	125	333	187	31,670
2027	35,524	2,825	1,351	164	159	418	230	31,673
2028	35,848	3,116	1,392	170	206	513	279	31,756
2029	36,108	3,360	1,411	174	250	625	327	31,865
2030	36,324	3,579	1,411	177	292	748	379	31,992

New York ISO

2020 RNA: Inclusion Rules Application

- **Proposed generation and transmission to be included:**
  - Next slide contains a list of added projects
- **Generation deactivations: all plant deactivations listed in the 2020 Gold Book Section IV are modeled out of service in the RNA Base Case**
  - Certain peaker units listed in Table IV-6 are assumed out-of-service during summer ozone season only (additional details in this presentation)
- **Proposed Local Transmission Owner Plans (LTP) to be included:**
  - All BPTF LTPs listed in the 2020 GB Section VII as firm, with consideration for the in-service date
  - All non-BPTF LTPs listed by the Transmission Owner as firm
- **Existing transmission facilities modeled out-of-service include:**
  - Con Edison's B3402 and C3403 345 kV cables for the entire study period

New York ISO

Proposed Projects (Additions) Included in the 2020 RNA Base Case

also included in the 2018-2019 RPP Base Cases

Project Types	Queue #	Project Name	SP MW	Interconnection Status	2020RNA COD
Large Gens	387	Cassadaga Wind	126.5	CY17	12/2021
	396	Baron Winds	238.4	CY17	12/2021
	422	Eight Point Wind Energy Center	101.8	CY17	12/2021
	505	Ball Hill Wind	100.0	CY17	12/2022
	546	Roaring Brook Wind	79.7	CY19	12/2021
	678	Calverton Solar Energy Center	22.9	CY19	12/2021
Regulated Transmission Solutions	Q545A	Empire State Line	n/a	completed TIP Facility Study (Western NY PPTPP)	6/2022
	556	Segment A Double Circuit		TIP Facility Study in progress (AC PPTPP)	12/2023
	543	Segment B Knickerbocker-Pleasant Valley 345 kV		TIP Facility Study in progress (AC PPTPP)	12/2023
	430	Cedar Rapids Transmission Upgrade		CY17	10/2021
System Deliverability		Leeds-Hurley SDU	n/a	SDU triggered for construction in CY11	summer 2021

Acronyms:
CYxx: (Interconnection) Class Year (Facilities Studies) + last 2 digits of the year
TIP: Transmission Interconnection Process
AC PPTPP: Alternating Current Public Policy Transmission Planning Process
COD: Commercial Operation Date

New York ISO

Generation Additions by Year

Summer of Year	New Unit Additions	Zone	MW (Summer)	Total Additions
Y2021	-	-	0	0
Y2022	Cassadaga Wind	A	126	126
Y2022	Baron Winds	C	238	364
Y2022	Eight Point Wind Enery Center	B	101	466
Y2022	Roaring Brook Wind	E	80	545
Y2022	Calverton Solar Energy Center	K	23	568
Y2023	Ball Hill Wind	A	100	668
Y2024	-	-	0	668
Y2025	-	-	0	668
Y2026	-	-	0	668
Y2027	-	-	0	668
Y2028	-	-	0	668
Y2029	-	-	0	668
Y2030	-	-	0	668

New York ISO

Generation Deactivations

Notes:
*Consistent with deactivation dates

Other notes in this table are from the 2020 Gold Book, posted here

change in status

2020 GB Table	Owner/ Operator	Plant Name	Zone	CRIS	2020 RNA Base Case Status*	2018 RPP Base Case Status
Table IV-3: Deactivated Units with Unexpired CRIS Rights Not Listed in Existing Capacity Table III-2	International Paper Company	Ticonderoga [4]	F	7.6	out	out
	Helix Ravenswood, LLC	Ravenswood 09	J	21.7	out	out
	Binghamton BOP, LLC	Binghamton	C	43.8	out	out
	Helix Ravenswood, LLC	Ravenswood 2-1	J	40.4	out	out
		Ravenswood 2-2	J	37.6		
		Ravenswood 2-3	J	39.2		
		Ravenswood 2-4	J	39.8		
		Ravenswood 3-1	J	40.5		
		Ravenswood 3-2	J	38.1		
		Ravenswood 3-4	J	35.8		
	Cayuga Operating Company, LLC	Cayuga 2 [5]	C	154.7	out	out
	Lyonsdale Biomass, LLC	Lyonsdale	E	20.2	out	in
Table IV-4: Deactivated Units Listed in Existing Capacity Table III-2	Exelon Generation Company LLC	Monroe Livingston	B	2.4	out	in
	Innovative Energy Systems, Inc.	Steuben County LF	C	3.2	out	in
	Consolidated Edison Co. of NY, Inc	Hudson Ave 4	J	13.9	out	in
	New York State Elec. & Gas Corp.	Auburn - State St	C	5.8	out	in
	Cayuga Operating Company, LLC	Cayuga 1 [3]	C	154.1	out	in
	Consolidated Edison Co. of NY, Inc	Hudson Ave 3	J	16.0	out	in
Table IV-5: Notices of Proposed Deactivations as of March 15, 2020	Albany Energy, LLC	Albany LFGE	F	4.5	out	in
	Somerset Operating Company, LLC	Somerset	A	686.5	out	in
	National Grid	West Babylon 4	K	49.0	out	in
	Entergy Nuclear Power Marketing, LLC	Indian Point 2	H	1,026.5	out	in
		Indian Point 3		1,040.4		

Peaker Rule Status Change

Notes:
*Consistent with status change dates

** Certain peakers will be out of service in the ozone season only (details in following slides)

Other notes in this table are from the 2020GB, posted here

change in status

2020 GB Table	Owner/ Operator	Plant Name	Zone	CRIS	2020 RNA Base Case Status*	2018 RPP Base Case Status
Table IV-6: Proposed Staus Change to Comply with DEC Peaker Rule**	Central Hudson Gas & Elec. Corp.	Coxsackie GT	G	19.9	out	in
		South Cairo	G	19.8		
	Consolidated Edison Co. of NY, Inc.	74 St. GT 1 & 2	J	39.1	out	in
		Hudson Ave 5		15.1		
		59 St. GT 1		15.4		
	Helix Ravenswood, LLC	Ravenswood 01	J	8.8	out	in
		Ravenswood 10		21.2		
		Ravenswood 11		20.2		
	National Grid	Glenwood GT 1	K	14.6	out	in
		Northport GT		13.8		
		Port Jefferson GT 01		14.1		
	NRG Power Marketing, LLC	Astoria GT 2-1, 2-2, 2-3, 2-4	J	165.8	out	in
		Astoria GT 3-1, 3-2, 3-3, 3-4		170.7		
		Astoria GT 4-1, 4-2, 4-3, 4-4		167.9		
		Arthur Kill GT1		16.5		
	Astoria Generating Company, L.P.	Gowanus 1-1 through 1-8	J	138.7	out	in
		Gowanus 4-1 through 4-8		140.1		
		Astoria GT 01		15.7		
		Gowanus 2-1 through 2-8		152.8		
		Gowanus 3-1 through 3-8		146.8		
		Narrows 1-1 through 2-8		309.1		

New York ISO

Deactivations and Peaker Rule Status Change by Year

Summer of Year	Retired Unit	Zone	MW (Summer)	Total Removal
Y2021	Somerset	A	676	676
Y2021	Albany LFG	F	5	681
Y2021	Indian Point 2	H	1,012	1,692
Y2021	West Babylon	K	49	1,741
Y2021	Indian Point 3	H	1,036	2,778
Y2022	-	-	0	2,778
Y2023	Zone A	A	0	2,778
	Zone G	G	38	2,816
	Zone J	**J**	**773**	3,589
	Zone K	K	36	3,625
Y2024	-	-	0	3,625
Y2025	Zone A	A	0	3,625
	Zone G	G	0	3,625
	Zone J	**J**	**605**	4,230
	Zone K	K	0	4,230
Y2026	-	-		4,230
Y2027	-	-		4,230
Y2028	-	-		4,230
Y2029	-	-		4,230
Y2030	-	-		4,230

Notes:

- 'MW Summer' is min(CRIS, DMNC) for individual units
- Plants impacted by the DEC Peaker Rule not specifically listed by name have not entered into the deactivation process identified in OATT Attachment FF at the time of this presentation
- Additional Peaker Rule details are in the following slides

New York ISO

DEC Peaker Rule Impacts on the 2020 RNA Base Case

New York ISO

DEC Peaker Rule Background

- New York State Department of Environmental Conservation (DEC) adopted a regulation to limit nitrogen oxides (NOx) emissions from simple-cycle combustion turbines ("Peaking Units") (referred to as the "Peaker Rule")
- The Peaker Rule required all impacted plant owners to file compliance plans by March 2, 2020
- NYISO considered generators' compliance plans in the development of the 2020 Reliability Needs Assessment Base Case
- The following slides show zonal breakdown of the same related information from slide 16 (*i.e.* 2020 GB Table iV-6)

New York ISO

Status Change due to DEC Peaker Rule, Zone G

Zone G — O/S-Out-of-service I/S- In-service

Units	Nameplate MW	CRIS (MW)		Capability (MW)		2023 Ozone Season	2023 non-Ozone Season	2024 Ozone Season	2024 non-Ozone Season	2025 Ozone Season	2025 non-Ozone Season
		Summer	Winter	Summer	Winter	*May 2023 - September 2023*	*October 2023 - April 2024*	*May 2024 - September 2024*	*October 2024 - April 2025*	*May 2025 - September 2025*	*October 2025 - April 2026*
Coxsackie GT	22	20	26	20	24	O/S	O/S	O/S	O/S	O/S	O/S
South Cairo	22	20	26	18	23	O/S	O/S	O/S	O/S	O/S	O/S
Unavailable MW = Impacted MW (Summer Capability)	43	40	52	38	46						

Notes:

1. The service pattern in the last two columns repeats in subsequent years of the RNA Study Period
2. Other compliance plans were submitted in addition to what is shown on this table. The table lists the plants with compliance plans that resulted in a change of status (*i.e.*, as also listed in the 2020 Gold Book Table iV-6)

New York ISO

Status Change due to DEC Peaker Rule, Zone J

Zone J	O/S - Out-of-service I/S - In-service										
Units	**Nameplate MW**	**CRIS (MW)**		**Capability (MW)**		**2023 Ozone Season**	**2023 non-Ozone Season**	**2024 Ozone Season**	**2024 non-Ozone Season**	**2025 Ozone Season**	**2025 non-Ozone Season**
		Summer	Winter	Summer	Winter	*May 2023 - September 2023*	*October 2023 - April 2024*	*May 2024 - September 2024*	*October 2024 - April 2025*	*May 2025 - September 2025*	*October 2025 - April 2026*
Astoria GT1	16	16	21	**14**	19	I/S	I/S	I/S	I/S	O/S	I/S
Gowanus 1&4 (1-1 through 1-8, and 4-1 through 4-4)	320	279	364	**274**	365	O/S	I/S	O/S	I/S	O/S	I/S
Gowanus 2&3 (2-1 through 2-8 and 3-1 through 3-8)	320	300	391	**278**	373	I/S	I/S	I/S	I/S	O/S	I/S
Narrows 1&2 (1-1 through 1-8, and 2-1 through 2-8)	352	309	404	**287**	380	I/S	I/S	I/S	I/S	O/S	I/S
Ravenswood GTs (01, 10, 11)	69	50	64	**41**	57	O/S	O/S	O/S	O/S	O/S	O/S
Arthur Kill GT1	20	17	22	**12**	15	I/S	I/S	I/S	I/S	O/S	O/S
Astoria GTs (2-1 through 2-4, 3-1 through 3-4, 4-1 through 4-4)	558	504	621	**415**	543	O/S	O/S	O/S	O/S	O/S	O/S
Con Ed 59th St	17	15	20	**16**	20	I/S	I/S	I/S	I/S	O/S	O/S
Con Ed 74th St	37	39	49	**35**	41	O/S	O/S	O/S	O/S	O/S	O/S
Con Ed Hudson Ave 5	16	15	20	**14**	20	O/S	O/S	O/S	O/S	O/S	O/S
Unavailable MW ***(Summer Capability)***						**779**	**506**	**779**	**506**	**1,385**	**533**
Available MW (Summer Capability)						**606**	**880**	**606**	**880**	**0**	**852**
Impacted MW	**1,725**	**1,544**	**1,975**	**1,385**	**1,834**						

Notes:

1. The service pattern in the last two columns repeats in subsequent years of the RNA Study Period
2. Other compliance plans were submitted in addition to what is shown on this table. The table lists the plants with compliance plans that resulted in a change of status (*i.e.*, as also listed in the 2020 Gold Book Table iV-6)

New York ISO

Status Change due to DEC Peaker Rule, Zone K

Zone K — O/S - Out-of-service — I/S - In-service

Units	Nameplate MW	CRIS (MW)		Capability (MW)		2023 Ozone Season	2023 non-Ozone Season	2024 Ozone Season	2024 non-Ozone Season	2025 Ozone Season	2025 non-Ozone Season
		Summer	Winter	Summer	Winter	*May 2023 - September 2023*	*October 2023 - April 2024*	*May 2024 - September 2024*	*October 2024 - April 2025*	*May 2025 - September 2025*	*October 2025 - April 2026*
Glenwood GT1	16	14.6	19.1	11.4	14.5	O/S	O/S	O/S	O/S	O/S	O/S
Northport GT	16	13.8	18.0	11.7	15.1	O/S	O/S	O/S	O/S	O/S	O/S
Port Jefferson GT1	16	14.1	18.4	12.9	16.6	O/S	O/S	O/S	O/S	O/S	O/S
Unavailable MW = Impacted MW	48	**42.5**	**55.5**	**36.0**	**46.2**						

Notes:
1. The service pattern in the last two columns repeats in subsequent years of the RNA Study Period
2. Other compliance plans were submitted in addition to what is shown on this table. The table lists the plants with compliance plans that resulted in a change of status (*i.e.*, as also listed in the 2020 Gold Book Table iV-6)

New York ISO

Our Mission & Vision

Mission

Ensure power system reliability and competitive markets for New York in a clean energy future

Vision

Working together with stakeholders to build the cleanest, most reliable electric system in the nation

New York ISO