

Short-Term Assessment of Reliability: 2020 Q4 Key Study Assumptions

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STAR Process Information

- **The NYISO is assessing the reliability of the Bulk Power Transmission Facilities (BPTF)**
- **The NYISO plans to post the 2020 Q4 STAR by January 13, 2021. The 2021 Q1 STAR will commence on January 15, 2021**

Study Assumptions

- **The most recent base cases from the Reliability Planning Process are those used for the 2020 Reliability Needs Assessment (RNA) (discussed at the June 19th ESPWG/TPAS) 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 19th ESPWG/TPAS are provided at the end of this presentation for reference
 - The 2020 Q3 key assumptions were presented at the July 23rd ESPWG
- **Study Period**
 - October 15, 2021 (Year 1) through October 15, 2025 (Year 5)

Updated Study Assumptions for 2020 Q4 STAR

Updated Generation Assumptions

- **The changes to generation assumptions compared to the prior STAR include the following:**
 - Generator deactivations:
 - No additional deactivations beyond those included in the prior STAR
 - Generator return-to-service:
 - Hudson Ave 3 (Zone J, 16.3 MW (nameplate))
 - Returned to service July 10, 2020
 - This generator status changes May 2023 to comply with the DEC Peaker Rule
 - Additions:
 - Reflect the Q758 Sithe Independence 56.6 MW CRIS: the 2020-01 Expedited Deliverability Assessment is completed
 - Other:
 - Update the base cases with other resource changes (e.g., SCR, UDR)

Load Assumptions

- **No changes to load assumptions as compared to the 2020 RNA or the prior STAR are included in this assessment**

Transmission Assumptions

- **Existing transmission facilities modeled out-of-service include:**
 - No changes in planned outages with the exception of a change in date for the Moses-St. Lawrence L33P
 - Moses-St. Lawrence L33P is modeled out-of-service through fall 2022
- **The changes to transmission assumptions as compared to the 2020 RNA and the prior STAR include the following:**
 - Q#543 (AC Transmission Segment B) non-material project changes including:
 - Shoemaker – Sugarloaf 138 kV
 - Van Wagner 345 kV

Questions?

Changes to Study Assumptions for Q4 2020 STAR: Compared to RNA Assumptions Included in Prior STAR

Changes to Study Assumptions for Q4 2020 STAR: Compared to RNA Assumptions Included in Prior STAR

■ Generator Deactivations

Generator Name	Zone	MW (Nameplate)	Retire/Mothball/IIFO	Proposed Deactivation Date	STAR Assessment
Albany LFGE	F	5.6	IIFO	7/1/2020	2020 Q3
Glenwood GT 01	K	16	Retire	2/28/2021	2020 Q3

■ Existing transmission facilities modeled out-of-service include:

From	To	kV	ID	Out-of-Service Through	STAR	Notes
Moses	St. Lawrence	230	L33P	W2021	2020 Q3	
Plattsburg	Plattsburg	230/115	AT1	W2021	2021 Q3	(1)
Moses	Moses	230/115	AT2	W2022	2022 Q3	

Notes

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

2020 RNA Major Assumptions

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

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

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

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

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 Energy 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

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 Status 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				

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

DEC Peaker Rule Impacts on the 2020 RNA Base Case

DEC Peaker Rule Background

- New York State Department of Environmental Conservation (DEC) adopted a regulation to limit nitrogen oxides (NO_x) 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)

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
<i>Unavailable MW = Impacted MW (Summer Capability)</i>		43	40	52	38						

- 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)

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)



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)

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