New York ISO
Independent System Operator

2022 RNA Base Case Inclusion Rules Application

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TPAS/ESPWG

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Agenda

- Reliability Planning Process Background
- 2022 RNA 1st Pass Base Cases Inclusion Rules Application
  - Proposed projects
  - Deactivations
  - Generation status changes due to DEC Peaker Rule
- Projects without a 2022 Q2 Status Report
- Preliminary Schedule – for reference
  - As provided at the March 1, 2022 TPAS/ESPWG

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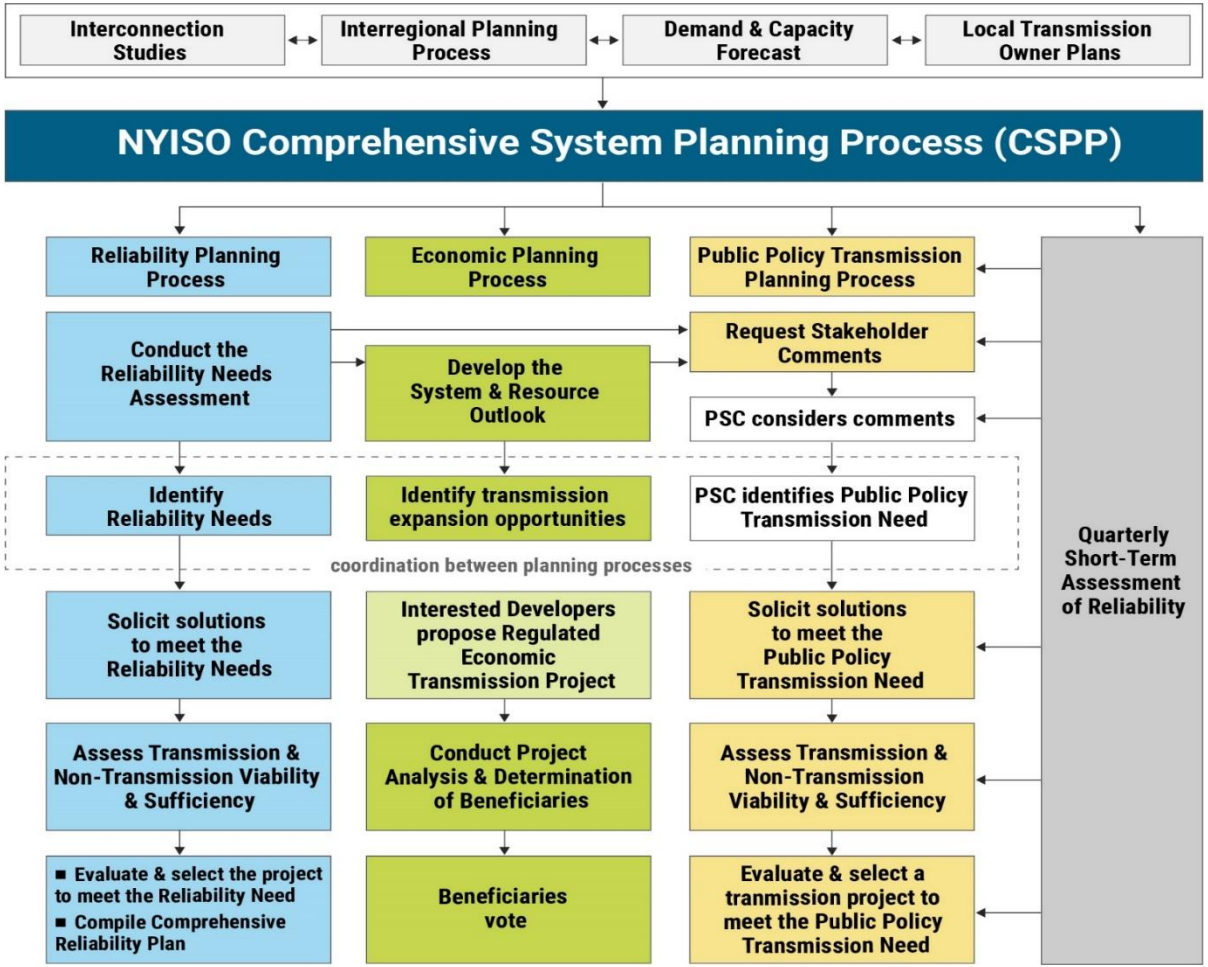
Reliability Planning Background



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Reliability Planning Objectives

- Identify Reliability Needs of the Bulk Power Transmission Facilities pursuant to applicable reliability criteria (NERC, NPCC, NYSRC);
- Identify, through the development of appropriate scenarios, factors and issues that might adversely impact the reliability of the bulk system;
- Provide an open and transparent process whereby solutions to identified needs are proposed, evaluated on a comparable basis, selected (as applicable), and implemented in a timely manner to ensure the reliability of the system;
- Provide an opportunity first for the implementation of market-based solutions while providing for the reliability of the bulk system;
- Coordinate the NYISO's reliability assessments with local utilities and neighboring control areas.

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Reliability Planning Studies

- **Short Term Assessments of Reliability (STARs)**
  - Conducted quarterly in direct collaboration with Transmission Owners
  - Five-year study, with a focus on addressing needs arising in the first three years
- **Reliability Needs Assessment (RNA)**
  - Conducted biennially to identify long term reliability needs in years 4-10
  - Considers all Transmission Owner LTPs and updates throughout the process
  - If reliability needs are identified, the NYISO issues a competitive solicitation for solutions, and TOs are required to propose Regulated Backstop Solutions
- **Comprehensive Reliability Plan (CRP)**
  - Biennial report that documents the plans for a reliable grid over the 10-year planning horizon
  - Includes evaluation and selection of transmission solutions to reliability needs in years 4-10

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Reliability Metrics

- **Resource Adequacy**
  - The ability of the electric systems to supply the aggregate electrical demand and energy requirements of their customers at all times, taking into account scheduled and reasonably expected unscheduled outages of system elements.
- **Transmission Security**
  - The ability of the electric system to withstand disturbances such as electric short circuits or unanticipated loss of system elements. The ability of the power system to withstand the loss of one or more elements without involuntarily disconnecting firm load.

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2022 RNA Base Cases and the Inclusion Rules Application

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2022-2023 RPP Background

- **The 2022 Reliability Planning Process (RPP) starts with the 2022 Reliability Needs Assessment (2022 RNA) followed by the 2023-2032 Comprehensive System Plan (CRP)**
  - 2022 RNA Study Period: year 4 = 2026 through year 10 = 2032
  - Note: year 1 through year 5 are assessed quarterly in the Short-Term Reliability Process (STRP)
- **The RPP is part of the Comprehensive System Planning Process and is performed pursuant to the Attachment Y of the NYISO OATT; see Section 31.2.**
  - Additional implementation details, including recently updated RNA Base Case inclusion rules, are captured in the RPP Manual
- **2022 RNA will be based on the information from the Gold Book 2022, the 2022 FERC 715 filing (power flow cases and auxiliary files), historical data, and market participant data**
- **Reliability evaluations on the 2022 RNA Base Case: transmission security and resource adequacy**
  - NERC, NPCC, NYSRC Reliability Rules application on the Bulk Power Transmission Facilities (BPTFs)

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2022 RNA Base Case Development Background

- **Based on the RNA Base Case, the NYISO identifies Reliability Needs of the New York State Bulk Power Transmission Facilities (BPTFs) in accordance with applicable Reliability Criteria (*i.e.*, NERC, NPCC, and NYSRC)**
- **2022 RNA Base Case:**
  - For the transmission security evaluations, the NYISO uses the 2022 FERC Form 715 filing and the information from the 2022 Gold Book as a starting point for developing the base case system models with the application of the inclusion rules.
  - For the resource adequacy evaluation, the models are developed starting with prior resource adequacy models, and are updated with information from the 2022 Gold Book and historical data, with the application of the inclusion rules. Information on modeling of neighboring systems is based on the input received from the NPCC CP-8 working group.
- **The inclusion rules reside in the Reliability Planning Process Manual [link], and are used as guidelines to determine what proposed projects will be included in the RNA Base Case, and also how to treat generator deactivations**

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2022 RNA: Inclusion Rules Application

- **Proposed generation and transmission to be included:**
  - next slide contains a list of projects
- **Generation deactivations: all plant deactivations listed in the 2022 Gold Book Section IV-1, -2, -3, -4, -5 will be out of service**
- **The peakers listed in the 2022 Gold Book Table IV-6 will be modeled with a status reflecting their latest compliance plans the owners filed with DEC under the Peaker Rule (as described in the Table IV-6 as well)**
- **Proposed Local Transmission Owner Plans (LTP) to be included:**
  - All BPTF LTPs listed in the 2022 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

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Proposed Projects Inclusion: Regulated Transmission

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	POI	Zone	Type	Queue I/S or COD	Interconnection Status / Class Year	Reliability Base Case Inclusion Status
0545A	Empire State Line (NextEra)	*n/a*	Dysinger - Stolle 345kV	A	Transmission	06/2022	TIP Facility Study and Interconnection Agreement completed (Western NY PPTPP)	2018-2019 RPP
0543	Segment B Knickerbocker-Pleasant Valley 345 kV (National Grid, NY Transco, O&R, ConEdison)	*n/a*	Greenbush - Pleasant Valley 345kV	F,G	Transmission	12/2023	TIP Facility Study and Interconnection Agreement completed (AC PPTPP)	2020-2021 RPP
0556	Segment A Double Circuit (LS Power, National Grid, NYPA)	*n/a*	Edic - New Scotland 345kV	E, F	Transmission	12/2023	TIP Facility Study and Interconnection Agreement completed (AC PPTPP)	
0430	Cedar Rapids Transmission Upgrade (HQ Energy Services US)	+80	Dennison - Alcoa 115kV	D	Transmission	I/S	CY2017	
1125	Northern New York Priority Transmission Project (NNYPTP) (NYPA, National Grid)	n/a	Moses/Adirondack/Porter Path	D, E	Transmission	12/2025	TIP Facility Study in progress	2022 RNA

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Proposed Projects Inclusion: Large Generation

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	POI	Zone	Type	Queue I/S or COD	Interconnection Status / Class Year	Reliability Base Case Inclusion *Starting With*
396	Baron Winds (Baron Winds, LLC)	238.4	Hillside - Meyer 230kV	C	W	Dec-23	CY2017	2020-2021 RPP
422	Eight Point Wind Enery Center (NextEra Energy Resources, LLC)	101.8	Bennett 115kV	B	W	Sep-22	CY2017	2020-2021 RPP
495	Mohawk Solar (Mohawk Solar LLC)	90.5	St. Johnsville - Marshville 115kV	F	W	Nov-24	CY2019	2022 RNA
505	Ball Hill Wind (Ball Hill Wind Energy, LLC)	100.0	Dunkirk - Gardenville 230kV	A	W	Nov-22	CY2017	2020-2021 RPP
531	Number 3 Wind Energy (Invenergy Wind Development LLC)	103.9	Taylorville - Boonville 115kV	E	W	Oct-22	CY2019	2021 Q3 STAR
579	Bluestone Wind (Bluestone Wind, LLC)	111.8	Afton - Stilesville 115kV	E	W	Oct-22	CY2019	2022 RNA
612	South Fork Wind Farm (South Fork Wind, LLC)	96.0	East Hampton 69kV	K	W	Aug-23	CY2019	2022 RNA
678	Calverton Solar Energy Center (LI Solar Generation, LLC)	22.9	Edwards Substation 138kV	K	S	Jun-22	CY2019	2020-2021 RPP
695	South Fork Wind Farm II (South Fork Wind, LLC)	40.0	East Hampton 69kV	K	W	Aug-23	CY2019	2022 RNA
758	Independence GS1 to GS4 (Dynegy Marketing and Trade, LLC)	+9	Scriba 345 kV	C	Gas	I/S	CY21 in progress - ERIS only	2022 RNA

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Proposed Projects Inclusion: Small Generation

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	POI	Zone	Type	Queue I/S or COD	Interconnection Status/ Class Year	Reliability Base Case Inclusion Status
0545	Sky High Solar (Sky High Solar, LLC)	20	Tilden -Tully Center 115kV	C	S	06/2023	IA Executed 2022-01 EDS CRIS in progress	2021 Q3 STAR
0565	Tayandenega Solar (Tayandenega Solar, LLC)	20	St. Johnsville - Inghams 115kV	F	S	10/2022	IA Executed CY19 CRIS Completed	
0570	Albany County 1 (Hecate Energy Albany 1 LLC)	20	Long Lane - Lafarge 115kV	F	S	12/2022	IA Executed	
0572	Greene County 1 (Hecate Energy Greene 1 LLC)	20	Coxsackie - North Catskill 69kV	G	S	01/2023	IA Executed	
0573	Greene County 2 (Hecate Energy Greene 2 LLC)	10	Coxsackie Substation 13.8kV	G	S	03/2023	IA Executed	
0584	Dog Corners Solar (SED NY Holdings LLC)	20	Aurora Substation 34.5kV	C	S	05/2022	IA Executed EDS-2020-01 completed	
0586	Watkins Road Solar (SED NY Holdings LLC)	20	Watkins Rd - Ilion 115kV	E	S	06/2023	IA Executed EDS-2020-01 completed	
0589	North Country Solar (Duke Energy Renewables, LLC)	15	Boonville 46kV Substation	E	S	10/2023	IA Executed	
0590	Scipio Solar (Duke Energy Renewables Solar, LLC)	18	Scipio 34.5kV Substation	C	S	05/2023	IA Executed	
0592	Niagara Solar (Duke Energy Renewables Solar, LLC)	20	Bennington 34.5kV Substation	B	S	05/2023	IA Executed	
0598	Albany County 2 (Hecate Energy Albany 2 LLC)	20	Long Lane - Lafarge 115kV	F	S	12/2022	IA Executed	
0638	Pattersonville (Pattersonville Solar Facility, LLC)	20	Rotterdam - Meco 115kV	F	S	12/2022	IA Executed	
0666	Martin Solar (Martin Solar LLC)	20	Arcade - Five Mile 115kV	A	S	10/2022	IA Executed 2022-01 EDS CRIS in progress	

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Proposed Projects Inclusion: Small Generation (cont.)

NYISO Interconnection Queue #	Project Name/(Owner)	Summer Peak MW	POI	Zone	Type	Queue I/S or COD	Interconnection Status/ Class Year	Reliability Base Case Inclusion Status
0667	Bakerstand Solar (Bakerstand Solar LLC)	20	Machias - Maplehurst 34.5kV	A	S	10/2022	IA Executed 2022-01 EDS CRIS in progress	2021 Q3 STAR
0682	Grissom Solar (Grissom Solar, LLC)	20	Ephratah - Florida 115kV	F	S	06/2022	IA Executed	
0730	Darby Solar (Darby Solar, LLC)	20	Mohican - Schaghticoke 115kV	F	S	12/2022	IA Executed	
0731	Branscomb Solar (Branscomb Solar, LLC)	20	Battenkill - Eastover 115kV	F	S	I/S	IA Executed	
0735	ELP Stillwater Solar (ELP Stillwater Solar LLC)	20	Luther Forest - Mohican 115kV	F	S	09/2022	IA Executed	
0748	Regan Solar (Regan Solar, LLC)	20	Market Hill - Johnstown 69kV	F	S	06/2022	IA Executed	
0768	Janis Solar (Janis Solar, LLC)	20	Willet 34.5kV	C	S	04/2022	IA Executed CY19 CRIS completed	
0775	Puckett Solar (Puckett Solar, LLC)	20	Chenango Forks Substation 34.5kV	E	S	04/2022	IA Executed	
0564	Rock District Solar (Rock District Solar, LLC)	20	Sharon - Cobleskill 69kV	F	S	12/2022	IA Executed	
0670	Skyline Solar (SunEast Skyline Solar LLC)	20	Campus Rd - Clinton 46kV	E	S	04/2022	IA Executed EDS-2020-01 completed	
0581	Hills Solar (SunEast Hills Solar LLC)	20	Fairfield - Inghams 115kV	E	S	08/2023	IA Executed	2022 RNA
0759	KCE NY6	20	Gardenville - Bethlehem Steel Wind 115kV	A	ES	9/2022	IA Executed	
0769	North County Energy Storage (New York Power Authority)	20	Willis 115kV	D	ES	03/2023	IA Executed	
0807	Hilltop Solar (SunEast Hilltop Solar LLC)	20	Eastover - Schaghticoke 115kV	E	S	07/2023	IA Executed	
0848	Fairway Solar (SunEast Fairway Solar LLC.)	20	McIntyre - Colton 115kV	E	S	10/1/2023	IA Executed	
0855	NY13 Solar (Bald Mountain Solar LLC)	20	Mohican - Schaghticoke 115kV	F	S	11/1/2023	IA Executed	

DEC's Peaker Rule Impacts on the 2022 RNA Base Case

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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 has been considering generators' compliance plans in the development of the 2020 Reliability Needs Assessment Base Case, and will continue to consider and update the assumptions for the 2022 RNA Base Cases

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Peakers List

Owner/Operator	Station	Zone	Nameplate (MW)	CRIS (MW) (1)		Capability (MW) (1)		Status Change Date (2)
				Summer	Winter	Summer	Winter	
National Grid	West Babylon 4	K	52.4	49.0	64.0	41.2	63.0	12/12/2020 (R)
Astoria Generating Company, L.P.	Gowanus 1-8	J	20.0	16.1	21.0	16.0	21.0	2/1/2021 (IIFO)(6)
National Grid	Glenwood GT 01 (4)	K	16.0	14.6	19.1	13.0	15.3	2/28/2021 (R)
Helix Ravenswood, LLC	Ravenswood 11	J	25.0	20.2	25.7	16.1	22.4	12/1/2021 (IIFO)
Helix Ravenswood, LLC	Ravenswood 01	J	18.6	8.8	11.5	7.7	11.1	1/1/2022 (IIFO)
Astoria Generating Company, L.P.	Gowanus 1-1 through 1-7	J	140.0	122.6	160.1	117.1	161.2	11/1/2022 (R)(5)
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)(5)
Central Hudson Gas & Elec. Corp.	Coxsackie GT	G	21.6	21.6	26.0	19.2	24.0	5/1/2023
Central Hudson Gas & Elec. Corp.	South Cairo	G	21.6	19.8	25.9	18.9	23.0	5/1/2023
Consolidated Edison Co. of NY, Inc.	74 St. GT 1 & 2	J	37.0	39.1	49.2	39.3	45.2	5/1/2023
Astoria Generating Company, L.P.	Astoria GT 01	J	16.0	15.7	20.5	13.6	19.0	5/1/2023
NRG Power Marketing, LLC	Astoria GT 2-1, 2-2, 2-3, 2-4	J	186.0	165.8	204.1	141.6	183.7	5/1/2023 (R)(5)
NRG Power Marketing, LLC	Astoria GT 3-1, 3-2, 3-3, 3-4	J	186.0	170.7	210.0	140.5	182.8	5/1/2023 (R)(5)
NRG Power Marketing, LLC	Astoria GT 4-1, 4-2, 4-3, 4-4	J	186.0	167.9	206.7	138.3	180.3	5/1/2023 (R)(5)

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Peakers List, cont.

Owner/Operator	Station	Zone	Nameplate (MW)	CRIS (MW) (1)		Capability (MW) (1)		Status Change Date (2)
				Summer	Winter	Summer	Winter	
Consolidated Edison Co. of NY, Inc.	Hudson Ave 3	J	16.3	16.0	20.9	12.3	15.6	5/1/2023
Consolidated Edison Co. of NY, Inc.	Hudson Ave 5	J	16.3	15.1	19.7	15.3	18.6	5/1/2023
Helix Ravenswood, LLC	Ravenswood 10	J	25.0	21.2	27.0	16.0	22.3	5/1/2023
National Grid	Glenwood GT 03 (3)	K	55.0	54.7	71.5	44.7	66.5	5/1/2023
National Grid	Northport GT	K	16.0	13.8	18.0	12.0	15.7	5/1/2023
National Grid	Port Jefferson GT 01	K	16.0	14.1	18.4	12.6	17.3	5/1/2023
National Grid	Shoreham 1 (3)	K	52.9	48.9	63.9	44.7	64.6	5/1/2023
National Grid	Shoreham 2 (3)	K	18.6	18.5	23.5	15.7	20.0	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	12.1	15.1	5/1/2025
Astoria Generating Company, L.P.	Gowanus 2-1 through 2-8 (4)	J	160.0	152.8	199.6	145.5	186.9	5/1/2025
Astoria Generating Company, L.P.	Gowanus 3-1 through 3-8 (4)	J	160.0	146.8	191.7	137.4	183.5	5/1/2025
Astoria Generating Company, L.P.	Narrows 1-1 through 2-8 (4)	J	352.0	309.1	403.6	291.5	382.0	5/1/2025
	Prior to May 2023		432.0	371.4	484.3	349.9	477.4	
	2023 Tota		870.3	802.9	1,005.3	684.7	898.6	
	2025 Tota		709.1	640.6	41.7	599.6	33.9	
	Tota		2,011.4	1,814.9	1,531.3	1,634.2	1,409.9	

Notes

1. MW values are from the 2022 Load and Capacity Data Report

2. Unless otherwise noted, these dates are those 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 in their Generator Deactivation Notice) Retired (R) or Mothball Outage (MO) or the date on which the generator entered ICAP Ineligible Forced Outage (IIFO)

3. 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

4. These units have indicated they will be out-of-service during the ozone season (May through September) in their comliance plans in response to the DEC peaker rule.

5. This unit has posted a notice of intent to Retire by this date with the NYPSC. To date, the NYISO does not have a complete Generator Deactivation Notice for this unit.

6. This unit has posted a notice of intent to Retire by November 2022 with the NYPSC. To date, the NYISO does not have a complete Generator Deactivation Notice for this unit.

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Proposed Deactivations (does not include the peakers)

Other Proposed Deactivations

- Does not include peakers

Owner/ Operator	Plant Name	Zone	PTID	Nameplate	CRIS (MW)		Capability (MW)		Status	Deactivation date
				(MW)	Summer	Winter	Summer	Winter		
Seneca Power Partners. L.P.	Allegheny Cogen	B	23514	67	62.9	82.2	62.0	62.7	R	05/02/2022
Seneca Power Partners. L.P.	Sithe Batavia	B	24024	67.3	57.1	71.7	48.7	59.0	R	05/02/2022
Seneca Power Partners. L.P.	Sithe Sterling	B	23777	65.3	57.4	72.1	49.2	61.9	R	05/02/2022
ENGIE Energy Marketing NA, Inc.	Nassau Energy Corporation (1)	K	323695	55	51.6	60.1	38.5	51.0	R	03/31/2022
			Total	254.6	229	286.1	198.4	234.6		

Notes
(1) To date, there is a PSC deactivation notice, but the NYISO does not have a complete Generator Deactivation Notice for this Unit.

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Projects without a 2022 Q1 Status Report

Quarterly Project Status Reports

- On March 25, 2022, the NYISO sent reminders to all Developers that have not provided a 2022 Q1 quarterly status reports to provide such updates
- The NYISO relies on these reports to develop the planning models that are used to evaluate the system reliability for New York
- Per the NYISO procedures, it is important that we receive these reports in a timely manner each quarter
- The NYISO intends to post a list to the next ESPWG of Developers that have projects that are being studied in a Facilities Study or that are more advanced, and that have not responded with updates as required by Section 30.8.2 of the NYISO Open Access Transmission Tariff

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Preliminary Schedule

(for reference, and as provided at the March 1, 2022 ESPWG/TPAS

2022 RNA "1st Pass": Preliminary Schedule

- **Pre-RNA schedule: January-April 2022:**
  - Most of the input needed for the RNA and other planning studies is developed, such as: 2022 Gold Book, FERC 715 filing (e.g., power flow models and auxiliary files), short circuit models, inclusion rules application, etc.
- **March, April ESPWG/TPAS:**
  - Preliminary timeline
  - Preliminary scenarios list presentation
  - RPP Manual updates, as necessary
  - Demand-side forecasts presentation
  - RNA assumption matrix, major modeling changes presentations (if any), MARS topology, and/or updated scenarios list
  - Inclusion rules application presentation

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2022 RNA "1st Pass": Preliminary Schedule, cont.

- **May, June**
  - RNA transmission security and resource adequacy Base Cases finalization
  - RNA "1st pass" evaluations
  - Present preliminary ("1st pass") RNA results
  - Start scenarios development starting from the 1st pass Base Case, unless otherwise specified
- **2-weeks window for status updates -> target closest ESPWG/TPAS in July, as needed:**
  - Transmission Owners presentations of LTPs/projects updates that may reduce or eliminate the final Reliability Needs, if any
  - NYISO updates of inclusion rules focused on changes that may reduce or eliminate the 1st pass Reliability Needs, if any
  - Must meet the Base Case inclusion rules
- ***Lock down assumptions for final ("2nd pass") RNA: 2 weeks from the 1st pass results presentation***

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2022 RNA "2nd (Final) Pass": Preliminary Schedule

- **Mid July - end September:**
  - Finalize 2022 RNA Base Cases with the applicable status updates, and update results
  - Finalize scenarios models, tipping points, results
  - Prepare/present draft RNA reports
- **End September ESPWG/TPAS:** recommendation for approval of the RNA
- **October 13 OC:** OC vote
- **October 26 MC:** MC vote and Market Monitoring Unit review
- **November 2022:** NYISO Board of Directors approval and publishing of the Final RNA Report

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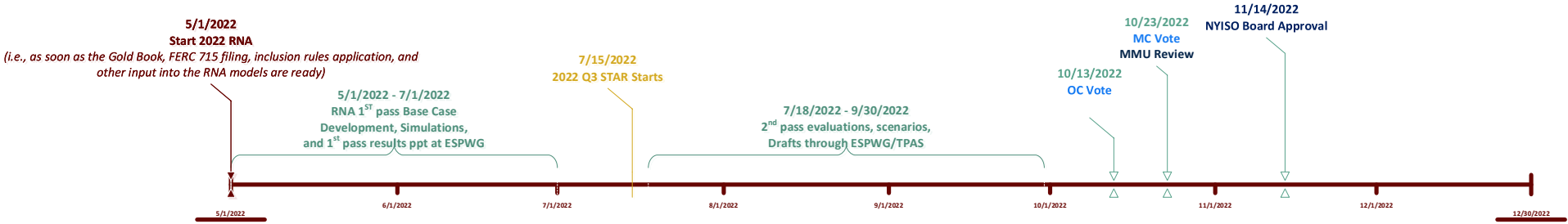
2022 RNA Draft Schedule Summary



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Questions?

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

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