New York ISO
Independent System Operator

2024 RNA: Preliminary Inclusion Rules and Scenarios

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ESPWG/TPAS

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Agenda

- Reliability Planning Process
- Preliminary Base Case Inclusion Rules Application
- Assumptions Matrices
- Potential Scenarios
- Schedule

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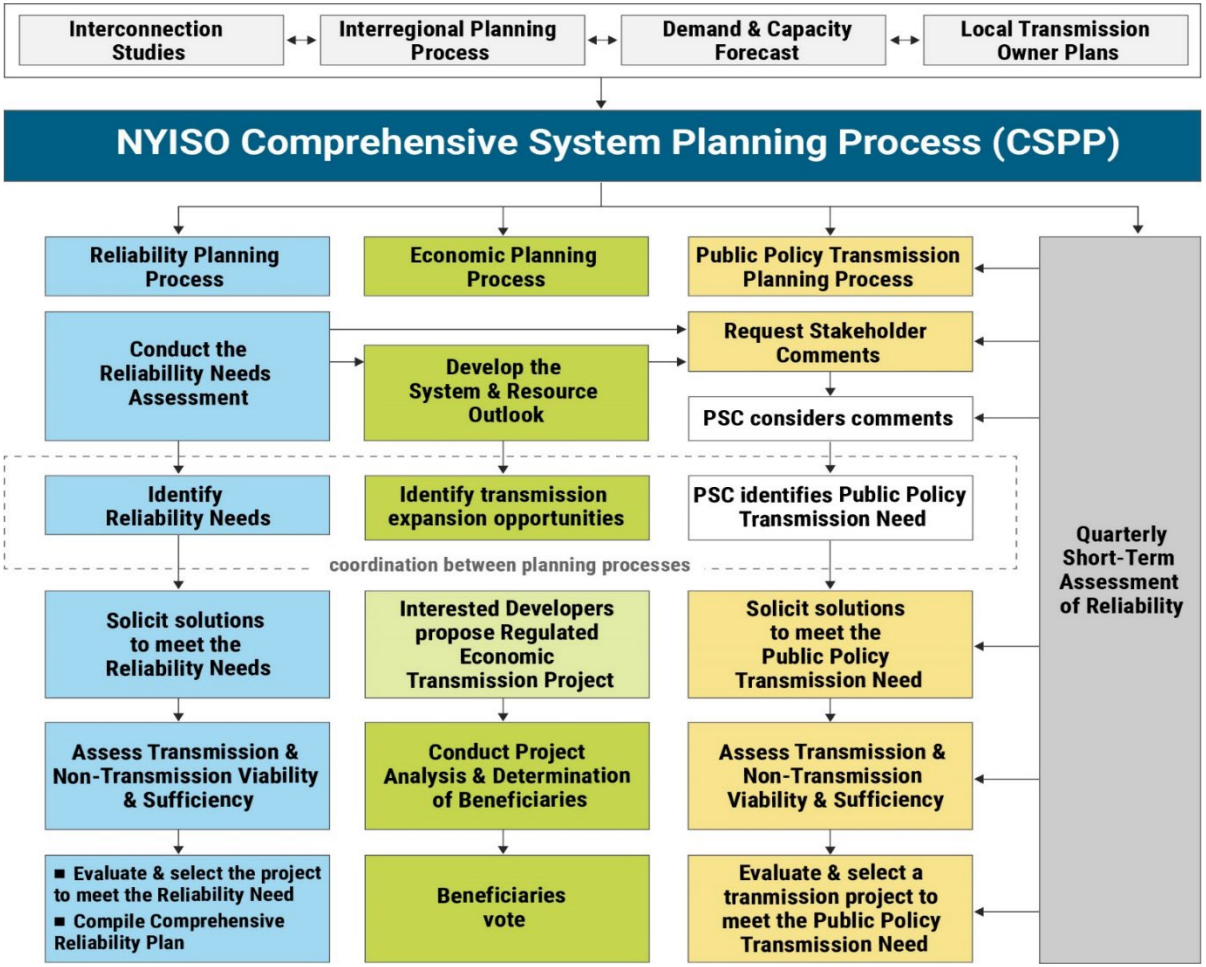
Reliability Planning Process



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Reliability Planning Objectives

- Identify Reliability Needs on the Bulk Power Transmission Facilities pursuant to Reliability Criteria (*i.e.*, 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 on 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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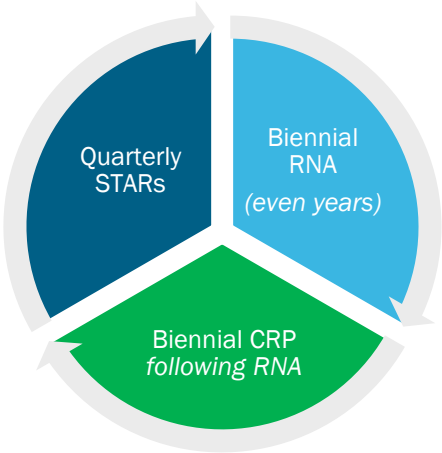
Reliability Planning Studies

- **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 Bulk Power Transmission System (BPTF) reliability needs in years 4-10 on Base Case
  - Considers Transmission Owner LTPs, proposed generation, and proposed transmission that meet inclusion rules, demand forecasts, and updates to the system
  - If Reliability Needs are identified, the NYISO issues a competitive solicitation for market-based and alternative regulated solutions, and the Responsible Transmission Owner(s) is required to propose a regulated backstop solution
- **Comprehensive Reliability Plan (CRP)**
  - Biennial report that documents the plans for a reliable grid over the 10-year planning horizon
  - If applicable, includes an assessment of viability and sufficiency and an evaluation and selection of the more efficient or cost-effective transmission solution to a Reliability Needs in years 4-10



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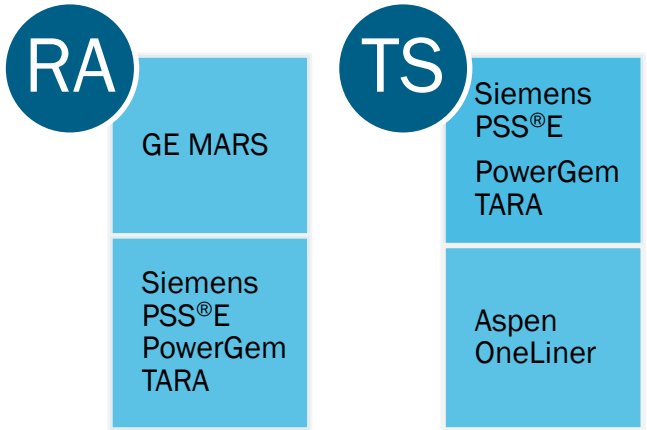
Assessing Reliability Criteria

- **Reliability Criteria includes applicable NERC, NPCC, NYSRC Reliability Rules**
- **NYISO assesses Reliability Criteria on the BPTF as follows:**
  - 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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2024-2025 RPP Cycle Background

- **The 2024-2025 Reliability Planning Process (RPP) starts with the 2024 Reliability Needs Assessment (2024 RNA) and is followed by the 2025-2034 Comprehensive System Plan (CRP)**
  - 2024 RNA Study Period: year 4 = 2028 through year 10 = 2034
  - Note: year 1 through year 5 are assessed quarterly in the Short-Term Reliability Process (STRP), with focus on year 1 through 3
- **2024 RNA will be based on the information from the 2024 Gold Book, the 2024 FERC 715 filing, historical data, and Market Participant data**

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Preliminary Base Case Inclusion Rules Application

RNA Base Case Background

- **Based on the RNA Base Case, the NYISO identifies Reliability Needs (*i.e.,* "actionable evaluations") of the New York State BPTF in accordance with applicable Reliability Criteria**
- **2024 RNA Base Case:**
  - For the transmission security evaluations, the NYISO uses the 2024 FERC Form 715 filing and the information from the 2024 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 2024 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 RNA Base Case inclusion rules set forth in the Reliability Planning Process Manual [link] are used to determine projects and plans for inclusion or exclusion from the RNA Base Case**

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Inclusion Rules Application

- **Proposed generation and transmission to be included:**
  - Slides 16 through 20 contain a list of major transmission projects, large generation projects, and small generation projects
  - Proposed Local Transmission Owner Plans (LTPs) to be included:
    - All BPTF LTPs listed in the 2024 GB Section VII as “firm” with consideration for the in-service date
    - All non-BPTF LTPs listed by the Transmission Owner as “firm”
  - Included projects are subject to change based on project updates consistent with the OATT and NYISO procedure

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Inclusion Rules Application, cont.

- **Generation deactivations:**
  - All plant deactivations listed in the 2024 Gold Book Sections IV-1, -2, -3, -4, -5 will be modeled as out-of-service
  - The peakers listed in the 2024 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)
  - NYPA small gas plants listed in the 2024 Gold Book Table IV-6 (517 MW in Zones J & K) will be modeled as out-of-service starting in 2031

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Inclusion Rules Application, cont.

- **Existing transmission facilities modeled as out-of-service include:**
  - Con Edison's B3402 and C3403 345 kV cables for the entire study period
- **Proposed large loads in Gold Book (~2,300 MW) will be modeled**

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Key Winter Assumptions

- In anticipation of the approval of NYSRC proposed reliability Rule (PRR) 154a [link], the NYISO plans to reflect the unavailability of generating units due to gas shortage
  - PRR 154a was established to reflect non-firm (contractually interruptible) gas generation unavailability during forecasted winter peak as a credible combination of system conditions applicable to system design
    - This rule allows for planning the winter system in a way that better aligns with expected gas plant availability
  - Generation fueled by non-firm gas will be modeled as out-of-service during winter peak conditions and also includes reductions in generation capability in certain dual-fuel units when running on their alternative fuel source
    - The total reduction of generation resources in applying this rule is about 6,400 MW (link to CRP)

- Hydro Quebec imports from the Chateauguay and CHPE HVDC lines will be modeled at 0 MW during winter peak conditions

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Other New Criteria

- In anticipation of the approval of NYSRC proposed reliability Rule (PRR) 153a [link], the NYISO plans to study the loss of a plant due to a sudden loss of gas fuel delivery system
  - Proposed contingency for the loss of fossil fuel to a plant for a common-mode failure of the fuel delivery system better aligns to risks to operations present on the system today

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Proposed Project Inclusion: Major Transmission

Queue	Project Name	MW	POI	Zone	Proposed Date	Interconnection Status	RPP Inclusion Start
631/887	TDI Champlain Hudson Power Express (CHPE)	1250	Astoria Annex 345kV	J	May-26	IA complete	2022 RNA
1125	Northern New York Priority Transmission Project (NNYPTP)	N/A	Moses/Adirondack/Porter path	D&E	Dec-24	Accepted cost allocation	2022 RNA
1289	Propel NY Energy - Alternate Sol 5	N/A	Sprain Brook, Tremont, East Garden City, Shore Road, additional Long Island Substations	I,J,K	May-30	SIS complete	2024 RNA

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Proposed Project Inclusion: Large Generation

Queue	Project Name	MW	Type	POI	Zone	Proposed Date	Interconnection Status	RPP Inclusion Start
396*	Baron Winds phase II	117	Land-Based Wind	Hillside - Meyer 230kV	C	Dec-24	Partial I/S (Incremental)	2020-2021 RPP
495*	Mohawk Solar	90.5	Solar	St. Johnsville - Marshville 115kV	F	Nov-24	IA complete	2022 RNA
519*	Canisteo Wind	289.8	Land-Based Wind	Bennett 115kV	C	Feb-25	Accepted cost allocation	2024 RNA
596*	Alle Catt II Wind	339.1	Land-Based Wind	Stolle Rd - Five Mile Rd 345kV	A	Feb-25	IA complete	2024 RNA
617*	Watkins Glen Solar	50	Solar	Bath - Montour Falls 115kV	C	Nov-24	IA complete	2022 RNA
618	High River Solar	90	Solar	Inghams - Rotterdam 115kV	F	Jun-24	IA complete	2022 RNA
619	East Point Solar	50	Solar	Cobleskill - Marshville 69kV	F	Mar-24	IA complete	2022 RNA
637	Flint Mine Solar	100	Solar	LaFarge - Pleasant Valley 115kV, Feura Bush - North Catskill 115kV	G	Oct-24	IA complete	2022 RNA
644*	Columbia County 1	60	Solar	Craryville 115kV	F	Dec-24	IA complete	2024 RNA
706*	High Bridge Wind	100.8	Land-Based Wind	E. Norwich - Jennison 115kV	E	Dec-24	IA complete	2023 Q3 STAR

Notes:

*Project listed as cancelled in latest NYSERDA contract database. NYISO will monitor the outcome upcoming solicitations before making the final determination on project inclusion status for the 2024 RNA.

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Proposed Project Inclusion: Large Generation, cont.

Queue	Project Name	MW	Type	POI	Zone	Proposed Date	Interconnection Status	RPP Inclusion Start
710*	Horseshoe Solar	180	Solar	Golah 115kV	B	Oct-25	Accepted cost allocation	2024 RNA
717	Morris Ridge Solar Energy Center	177	Solar	South Perry - Meyer 230kV	C	Sep-24	IA complete	2024 RNA
720*	Trelina Solar Energy Center	80	Solar	Border City - Station 168 115 KV	C	Dec-24	IA complete	2022 RNA
721*	Excelsior Energy Center	280	Solar	Dysinger - N. Rochester 345kV	B	Feb-25	IA complete	2022 RNA
737	Empire Wind 1	816	Offshore Wind	Gowanus 345kV	J	Dec-26	IA complete	2024 RNA
766/987	Sunrise Wind II	880+44	Offshore Wind	Holbrook 138kV	K	Mar-26	IA complete	2024 RNA
811*	Cider Solar	500	Solar	Dysinger - New Rochester 345kV	B	Nov-24	IA complete	2024 RNA
864*	NY38 Solar	120	Solar	Coffeen - West Adams 115kV	E	Dec-24	IA complete	2024 RNA
883*	Garnet Energy Center	200	Solar	Pannell - Clay 345kV	B	Nov-25	Accepted cost allocation	2024 RNA

Notes:

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Proposed Project Inclusion: Small Generation

Queue	Project Name	MW	Type	POI	Zone	Proposed Date	Interconnection Status	RPP Inclusion Start
545*	Sky High Solar	20	Solar	Tilden -Tully Center 115kV	C	Jun-23	IA complete	2021 Q3 STAR
564*	Rock District Solar	20	Solar	Sharon - Cobleskill 69kV	F	Jun-24	IA complete	2023 Q3 STAR
565*	Tayandenega Solar	20	Solar	St. Johnsville - Inghams 115kV	F	Jun-24	IA complete	2021 Q3 STAR
572	Greene County 1	20	Solar	Coxsackie - North Catskill 69kV	G	Mar-23	IA complete	2021 Q3 STAR
573	Greene County 2	10	Solar	Greene County 2	G	Feb-23	IA complete	2021 Q3 STAR
575*	Little Pond Solar	20	Solar	Mongaup - Shoemaker 69kV	G	Jan-25	IA complete	2024 RNA
581*	Hills Solar	20	Solar	Fairfield - Inghams 115kV	E	Jan-24	IA complete	2022 RNA
584*	Dog Corners Solar	20	Solar	Aurora 34.5kV	C	Mar-24	IA complete	2021 Q3 STAR
586*	Watkins Rd Solar	20	Solar	Watkins Rd - Ilion 115kV	E	Feb-24	IA complete	2021 Q3 STAR
590*	Scipio Solar	18	Solar	Scipio Solar	C	Sep-24	IA complete	2021 Q3 STAR
591*	Highview Solar	20	Solar	South Perry 34.5kV	C	Sep-24	IA complete	2023 Q3 STAR
592	Niagara Solar	20	Solar	Bennington 34.5kV	B	Mar-25	IA complete	2021 Q3 STAR
666*	Martin Rd Solar	20	Solar	Arcade - Five Mile 115kV	A	Sep-23	IA complete	2021 Q3 STAR
667*	Bakerstand Solar	20	Solar	Machias - Maplehurst 34.5kV	A	Oct-23	IA complete	2021 Q3 STAR

Notes:

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Proposed Project Inclusion: Small Generation, cont.

Queue	Project Name	MW	Type	POI	Zone	Proposed Date	Interconnection Status	RPP Inclusion Start
670*	SunEast Skyline Solar LLC	20	Solar	Campus Rd - Clinton 46kV	E	Aug-24	IA complete	2021 Q3 STAR
734	Ticonderoga Solar	20	Solar	Ticonderoga 115kV - Republic Line 2	F	Aug-24	IA complete	2022 RNA
744*	Magruder BESS	20	Energy Storage	East Walden - Modena 115kV	G	Sep-23	IA complete	2024 RNA
804†	KCE NY 10	20	Energy Storage	Erie Substation 34.5kV	A	Nov-24	IA complete	2024 RNA
807*	Hilltop Solar	20	Solar	Eastover - Schaghticoke 115kV	F	Jul-24	IA complete	2022 RNA
828*	Valley Solar	20	Solar	Owego 34.5kV Substation	C	Aug-24	IA complete	2023 Q3 STAR
832*	CS Hawthorn Solar	20	Solar	North Troy - Hoosick 115kV	F	Aug-24	IA complete	2023 Q3 STAR
833*	Dolan Solar	20	Solar	Battenkill - Mohican 115kV	F	Mar-24	IA complete	2023 Q3 STAR
848*	Fairway Solar	20	Solar	McIntyre - Corning 115kV (Line#6)	E	Feb-25	IA complete	2022 RNA
855*	NY13 Solar	20	Solar	Mohican - Schaghticoke 115kV	F	Jun-25	IA complete	2022 RNA
865*	Flat Hill Solar	20	Solar	Inghams-Valley 46kV Line 27	E	Nov-25	IA complete	2024 RNA
885*	Grassy Knoll Solar	20	Solar	Watkins Rd - Inghams 115kV	E	Nov-25	IA complete	2024 RNA
1003*	Clear View Solar	20	Solar	Eelpot Road 34.5 kV	C	May-24	IA complete	2024 RNA

Notes:

*Project listed as cancelled in latest NYSERDA contract database. NYISO will monitor the outcome upcoming solicitations before making the final determination on project inclusion status for the 2024 RNA.

†Project does not have CRIS.

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Assumption Matrices

Assumptions Matrices

- In addition to today's presentation, assumptions matrices for Resource Adequacy and Transmission Security have been posted with the meeting materials

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Potential Scenarios

Scenarios Background

- One of the objectives of the Reliability Planning Process is to identify, through the development of appropriate scenarios, factors and issues that might adversely impact the reliability of the BPTF
  - Scenarios results are for information only
  - Scenarios will be built off the preliminary RNA Base Case, unless specifically identified
- Scenarios may be limited depending on Base Case evaluation and resource availability (e.g., focus would be on further analyzing any identified Reliability Need)

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Proposed Scenarios

- Additional projects that do not meet the Base Case inclusion rules
- Load variations
  - High and low range of forecast
  - Extreme weather
  - Increase or decrease in large loads
- Fuel constraints beyond non-firm gas
- Tipping Points
  - Transmission Security: Identification of the impact of plausible changes in conditions or assumptions that might adversely impact the reliability of the BPTF to serve demand during different system conditions
  - Resource Adequacy: Zonal Resource Adequacy Margin (ZRAM) calculates the maximum MW level of "perfect capacity" that can be removed from a zone without either causing NYCA LOLE violations or exceeding the zonal capacity

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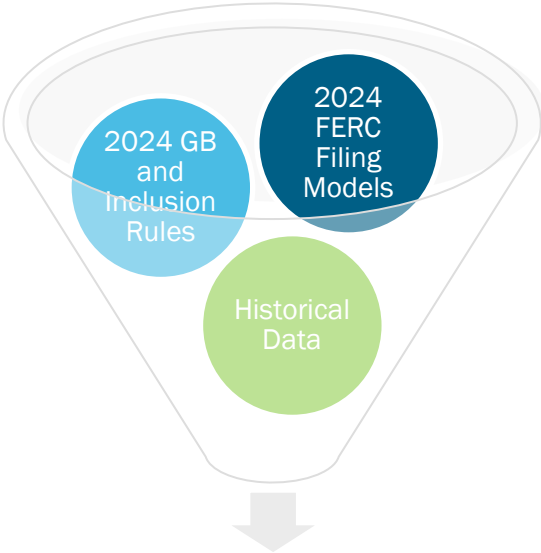
2024 RNA Preliminary Schedule

2024 RNA Preliminary Schedule

- **January - April 2024: Development of RNA Inputs**
  - Most of the input is developed in this period, such as: 2024 Gold Book, FERC 715 filing (e.g., power flow models and auxiliary files), short circuit models, Developers' status updates, etc.
  - Presentations to stakeholders on preliminary schedule, preliminary scenarios list, demand-side forecasts, assumption matrices, and application of inclusion rules in the RPP Manual
- **May – July: Preliminary Results**
  - RNA transmission security and resource adequacy base cases finalized and evaluation started
  - Present preliminary RNA results
  - Start scenario development



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2024 RNA Preliminary Schedule, cont.

- **July - September: Final Results**
  - Two-week window for assumptions updates
  - Finalize base cases and update results, as necessary
  - Finalize scenario results
  - Prepare and present draft RNA report
- **October - November: Review and Approval**
  - OC vote
  - MC vote and Market Monitoring Unit review
  - NYISO Board of Directors review and action
  - Publish the final RNA Report following approval by Board of Directors

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Questions?

Roles of the NYISO

- **Reliable operation of the bulk electricity grid**
  - Managing the flow of power on 11,000 circuit-miles of transmission lines from hundreds of generating units
- **Administration of open and competitive wholesale electricity markets**
  - Bringing together buyers and sellers of energy and related products and services
- **Planning for New York's energy future**
  - Assessing needs over a 10-year horizon and evaluating projects proposed to meet those needs
- **Advancing the technological infrastructure of the electric system**
  - Developing and deploying information technology and tools to make the grid smarter

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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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