New York ISO
Independent System Operator

Reliability Planning Process: Proposed Reforms

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TPAS/ESPWG

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Agenda

- Objective
- Background
- Structure for Scenario Planning
- Examples
- Next Steps

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Previous Presentations

- October 29, 2025 MC (Presentation)
  - 2025 CRP and Recommendations
- November 20, 2025 ESPWG (Presentation)
  - Follow-up Discussion to 2025 CRP
- January 20, 2025 ESPWG (Presentation)
  - Reliability Planning Process: Challenges and Considerations
- February 03, 2025 ESPWG (Presentation)
  - Reliability Planning Process: Proposed Reforms

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Objective

Objective

- The purpose of this discussion is to further discuss the detailed proposal to revise the Reliability Planning Process (RPP) and an illustrative example
- Gather stakeholder feedback prior to presenting proposed tariff sections

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Background

Existing RPP

- **Under the RPP, NYISO assesses the RNA Base Case to determine whether the Bulk Power Transmission Facilities meet all Reliability Criteria for the identification of Reliability Needs**
  - In accordance with ISO Procedures, the base case assumptions are identified in May timeframe, with an opportunity for base case updates in the middle of the study
- **NYISO also assesses scenarios, but those results are only informational for which NYISO cannot identify additional Reliability Needs**
  - Scenarios are intended to consider variables from the base case to test the robustness of the assessment and risks to the plan

Action/Discussion:
Base Case assumptions

Timeline: May

Action/Discussion:
1. Preliminary Base Case Results
2. Define informational Scenarios

Timeline: July

Action/Discussion:
1. Incorporate Relevant Updates
2. Scenario results

Timeline: Sept-Oct

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Limitations of Existing RPP

- To account for growing uncertainty through use of a single base case, NYISO could use the most conservative assumptions but, in doing so, could overstate reliability risks and overbuild the system
- The use of a single base case with small changes in the system conditions between studies can result in study-by-study fluctuations in the identification of Reliability Needs when reliability margins are tight

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Key Considerations for Process Reform

- Reliability Needs must continue to be based on Reliability Criteria
- Multiple credible combinations of system conditions can more accurately to account for observable changes affecting the transmission system over the Study Period
- Avoid study-by-study fluctuations in the identification of reliability needs due to small changes in system conditions
- Avoid assumptions that might be too conservative and lead to an overbuilt system or too optimistic and do not adequately address the tightening reliability margins
- Open and transparent process with meaningful stakeholder involvement at key stages in the process
- Continue efforts to further improve alignment between capacity requirements in the markets and planning studies

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Proposed RPP Reforms

Revised RPP Overview

- Maintain existing biennial framework with the RNA identifying Reliability Needs and the CRP setting forth the 10-year plan, including solutions to identified Reliability Needs
- Continue to assess the RNA Base Case but also assess scenarios developed to represent plausible futures that vary from the Base Case that account for observable changes affecting the future of the transmission system and allow NYISO to address the compounding risks over time
- Identify Reliability Needs if NYISO finds a violation or potential violation of one or more Reliability Criteria in the RNA Base Case or that is “significant and persistent” across more than one of the eligible scenarios
- Stakeholder feedback at key stages of determining assumptions, scenarios, and Reliability Needs

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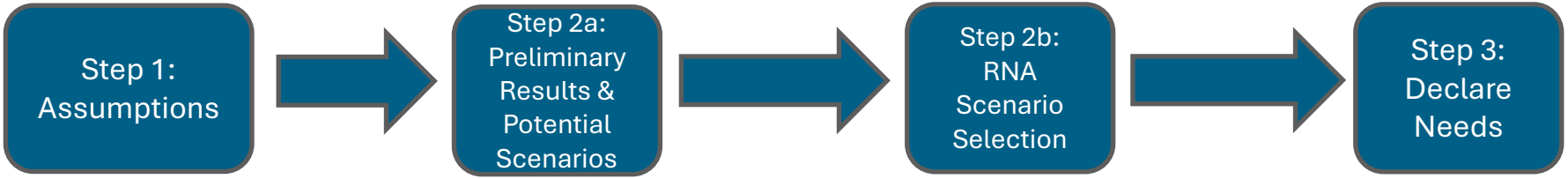
Proposed RNA Process



Action/Discussion:
1. RNA Base Case assumptions
2. Define range for key system assumptions (e.g., high/medium/low)

Timeline: April

Action/Discussion:
1. Preliminary RNA Base Case results
2. Present range of scenarios and screening analysis
3. Identify key reliability concerns
4. List of potential scenarios

Timeline: Early July

Action/Discussion:
1. Based on preliminary results, select set of RNA Scenarios
2. Targeted analysis for RNA Scenarios

Timeline: Late July

Action/Discussion:
Reliability Needs determined on Base Case violations or "significant and persistent" violations across RNA Scenarios

Timeline: Sept-Oct

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Step 1: Assumptions

Proposed Revised Process

- **Continue to derive RNA Base Case assumptions from the Gold Book, FERC 715, application of the RNA Inclusion Rules, planning participant input, and emerging trends**
- **Discuss additional information on the potential range for key assumptions relevant to Study Period**
  - The range of assumptions will be created by varying the RNA Base Case assumptions
  - The range of assumptions derived from Step 1 will be used as an input in Step 2

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Step 1: Assumption Description and Range

NYISO evaluates key assumptions:

- NYISO proposes reasonable range for each assumption
- NYISO presents at TPAS/ESPWG and collects stakeholder feedback

Example Assumption	Sample Lower Range	Sample Base Case	Sample Higher Range
Demand Uncertainty	Components of Lower Demand	Baseline Demand	Components of Higher Demand
New Resources	Project Delays	Baseline Inclusion Rules	Additional Resources that meet some, but not all inclusion rule milestones
Resource Retirements	No Retirements	Baseline Retirement Model	Aggressive Retirement Model
Network Topology	N/A	Baseline System	Transmission Projects Delayed
Policy Implications	No Policy Goals	Present Trajectory	Advanced Policy Implementation

Step 2: Process for Identifying RNA Scenarios

Proposed Revised Process

- **Step 2 serves as the process for NYISO's identification of "RNA Scenarios"**
  - RNA Scenario would be "the model(s) representing a combination of system conditions of the New York State Power System over the Study Period"
  - RNA Scenarios are intended to represent plausible futures that vary one or more assumptions from the RNA Base Case to account for observable changes affecting the transmission system over the Study Period
  - RNA Scenarios can be used to identify a Reliability Need when there is a violation or potential violation of one or more Reliability Criteria that is significant and persistent across more than one RNA Scenario (further discussed in Step 3)

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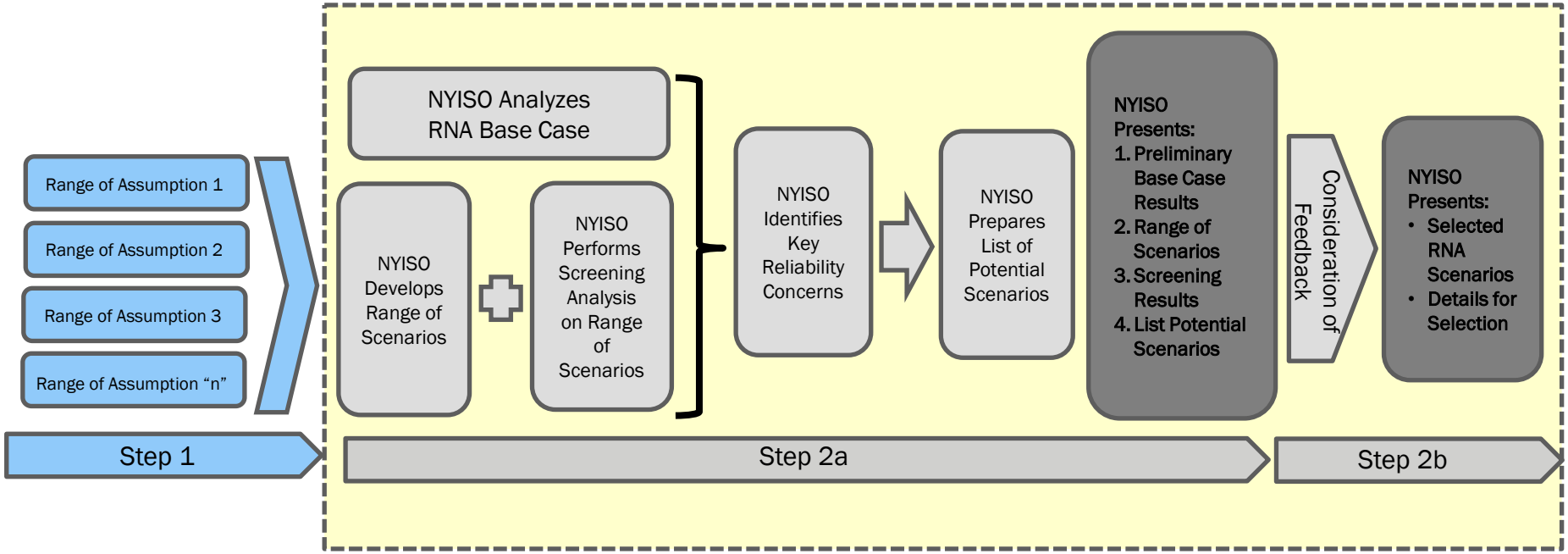
Step 2: Conceptual Process Flow



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Step 2a: Preliminary Results and Initial Screen

Proposed Revised Process

- **In Step 2a, the NYISO would:**
  - Develop a range of scenarios, which is based on the range of assumptions defined in Step 1, and perform screening analysis of those scenarios
  - Identify reliability concerns for the Study Period based on the information from both the preliminary RNA Base Case results and the range of scenario screening analysis results
  - Prepare a list of potential scenarios that can be selected as RNA Scenarios
  - Present at an ESPWG and TPAS meeting, together with supporting details:
    - Preliminary RNA Base Case analysis results
    - Range of scenarios and screening analysis results
    - List of potential scenarios for selection as RNA Scenarios
  - Afford interested parties an opportunity to comment within a time period prescribed in ISO Procedures, but no less than 15 calendar days, following NYISO's presentation to ESPWG and TPAS

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Step 2a: Developing List of Potential Scenarios

Proposed Revised Process

- **Based on the information from (1) preliminary RNA Base Case analysis results and (2) range of scenario screening analysis results, NYISO will develop a list of potential scenarios for selection as RNA Scenarios**
  - In preparing the list of potential scenarios from the range of scenarios, the NYISO may consider:
    - Likelihood and covariance in scenarios
    - Representative sampling when multiple scenarios have similar impacts
    - Insights from other planning studies and market and operations trends
    - Range that captures potential “helper” and “harmer” scenarios
  - Examples of RNA Scenarios could include:
    - Policy driven variations: increased electrification demand + additional renewable + storage buildout + increased fossil retirements
    - Large load variations: increased large loads + reduced imports + increased demand response

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Step 2a: Developing List of Potential Scenarios

Proposed Revised Process

- **In addition to preparing a list of scenarios to be considered as RNA Scenarios, NYISO can also identify other reliability scenarios for information**
  - Continues the current RNA process that uses informational scenarios to test the robustness of NYISO's analysis in the RNA
  - The use of other reliability scenarios are beneficial to allow the impact of extreme conditions that are less plausible and, therefore, not subject to the identification of Reliability Needs
  - Examples could include: copper sheet, loss of all gas, extreme weather

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Step 2b: RNA Scenario Selection

Proposed Revised Process

- **In Step 2b, NYISO will:**
  - Consider the feedback from stakeholders on the information presented in Step 2a
  - Present to the ESPWG and TPAS:
    - the RNA Scenarios and details supporting NYISO's selection of those RNA Scenarios
    - the other reliability scenarios that will be analyzed for information purposes only

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Step 3: Finalize RNA Analysis

Proposed Revised Process

- **Consistent with the current RPP, NYISO will finalize the assessment on the RNA Base Case and RNA Scenarios by performing necessary analysis to identify violations or potential violations of Reliability Criteria**
- **For different Reliability Criteria, NYISO will perform appropriate analysis to identify violations or potential violations across the RNA Scenarios using engineering judgment, similar to its practice in the existing process**
  - The location and nature of the potential violations will inform whether NYISO will perform transmission security margin, statewide resource adequacy, or transmission security for a particular RNA Scenario

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Step 3: Identification of Reliability Needs

Proposed Revised Process

- In identifying Reliability Needs, NYISO will continue to identify violations or potential violations of one or more Reliability Criteria in the RNA Base Case
  - NYISO will continue to apply the additional analysis contained in the tariff when determining that there is a Reliability Need in the Study Period that cannot be mitigated (e.g., alternative system configurations or operational modes)
- NYISO proposes to also identify Reliability Needs when it determines that a violation or potential violation of one or more Reliability Criteria is "significant and persistent" across more than one RNA Scenario based on the consideration of factors
- NYISO will continue to discuss with stakeholders the results of NYISO's analysis and identification of Reliability Needs but will also discuss NYISO's consideration of factors for significant and persistent violations across RNA Scenarios

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Step 3: Significant and Persistent Application

- **In identifying Reliability Needs using RNA Scenarios, the following must apply:**
  - A violation or potential violation of one or more Reliability Criteria must occur in year four to year ten and must be identified in more than one RNA Scenario, and
  - NYISO determines that the violation or potential violation is significant and persistent across RNA Scenarios based on the six factors (see next slide)
- **In considering the six factors, NYISO will account for each factor but can afford due consideration to the individual factors based on the specifics of the violation or potential violation of the Reliability Criteria and/or the relevant RNA Scenario(s)**

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Step 3: Significant and Persistent Application

Significant and Persistent Factors:

1) **"Magnitude"** – the magnitude of the impact to the New York State Power System resulting from the violation or potential violation of the Reliability Criteria (*e.g.*, as measured in compensatory MW or MVAR), including, but not limited to, a comparison of the magnitude across the RNA Scenarios;

2) **"Urgency"** – the risk that the violation or potential violation of the Reliability Criteria occurs at a point in the Study Period that requires or does not require immediate attention, including, but not limited to, consideration of the amount of time required to address the violation or potential violation of Reliability Criteria or whether time could result in changes to the system that mitigate or aggravate the violation or potential violation of the Reliability Criteria;

3) **"Severity of Impact/Outcome"** – the impact of the violation or potential violation of the Reliability Criteria in the RNA Scenario(s) that if not mitigated or planned for will result in a severe impact on the New York State Power System;

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Step 3: Significant and Persistent Application

Significant and Persistent Factors (cont.):

4) **"Number of Scenarios"** – the number of RNA Scenarios that identify or not identify the violation or potential violation of the Reliability Criteria;

5) **"Duration Over Planning Horizon"** – the duration that the violation or potential violation of the Reliability Criteria within the planning horizon; and

6) **"Persistency of Assumptions"** – whether or not there is a single assumption that results in a violation or potential of violation of the Reliability Criteria, including, but not limited to, consideration of whether that assumption, if change, or another assumption offsets such violation or potential violation of the Reliability Criteria

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Preparation of RNA

- **Proposed Process Revisions**
  - NYISO will continue to prepare the RNA and maintain the requirements under Section 31.2.3 for reviewing with Market Participants, stakeholders, NYDPS and interested parties through the governance process
  - In addition to the current information required in the RNA, NYISO proposes to include the following information:
    - the selected and evaluated RNA Scenarios, as well as the other reliability scenarios performed for information
    - results of the analyses for the RNA Base Case, as well as the RNA Scenarios and other reliability scenarios
    - description of the factors considered in identifying a Reliability Need based on a significant and persistent violation or potential violation of one or more Reliability Criteria across more than one RNA Scenario (as applicable)
  - In describing the Reliability Need, NYISO may establish a range informed by the nature of the significant and persistent violations
    - NYISO will continue to identify the specific Reliability Criteria that the Reliability Need is based on

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Post-RNA Process

- **Comprehensive Reliability Plan (CRP)**
  - NYISO will first re-evaluate the Reliability Needs accounting for any relevant updates to the system representation in accordance with ISO procedure
  - Under the proposed process, if the Reliability Need still exists, NYISO will solicit for and evaluate proposed solutions using the RNA Base Case and RNA Scenarios, as applicable, with relevant updates
    - Note: Under the existing process, the timing of solutions and the Reliability Needs will determine whether a solution will be triggered (see OATT § 31.2.8)
  - Consistent with existing process, NYISO may evaluate informational scenarios to test the robustness of the CRP

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Scenario Planning Example

Background

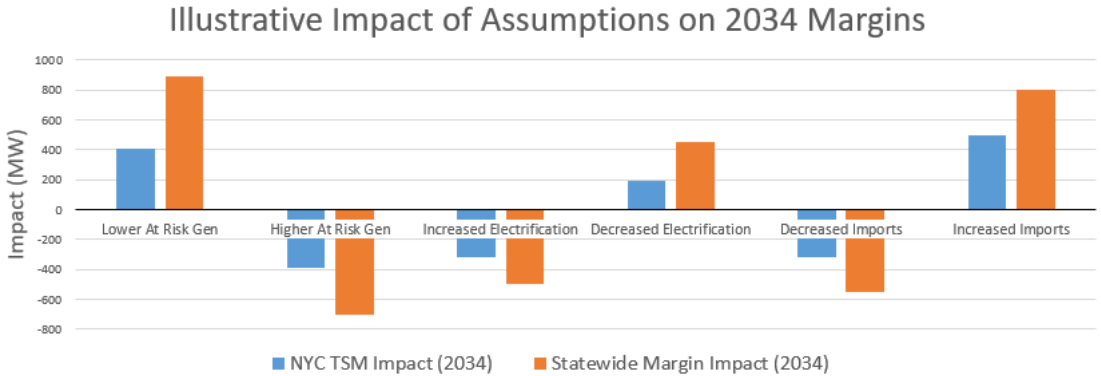
- **The following illustrative example is intended to help clarify the proposed RRP implementation and is not representative of future RNA Scenarios or results**
- **Background:**
  - Transmission Security Margin determines if there is sufficient generation and transmission available to serve a locality with under expected peak demand
- **Analysis Performed:**
  - NYC Transmission Security Margin
- **Reliability Criteria Implicated:**
  - NERC TPL-001
  - NPCC Directory 1
  - NYSRC Reliability Rules and Compliance Manual

Disclaimer: Any data or information related to the transmission system or identification of needs contained on this slide cannot be relied on for any purpose beyond serving as an illustrative example.

Example Step 1: Assumptions

- For illustration, this example only considered three assumptions
- In Step 1, NYISO would establish a range for each of the three assumptions by considering Gold Book, industry trends, and planning participant inputs

Example Assumption	Range		
	Lower	Base Case	Higher
At Risk Generation	Lower Model for At Risk Generation	Baseline Model for At Risk Generation	Higher Model for At Risk Generation
Building Electrification	Decreased Electrification	Baseline Levels	Increased Electrification
External Imports	Decreased Imports	Baseline Imports	Increased Imports



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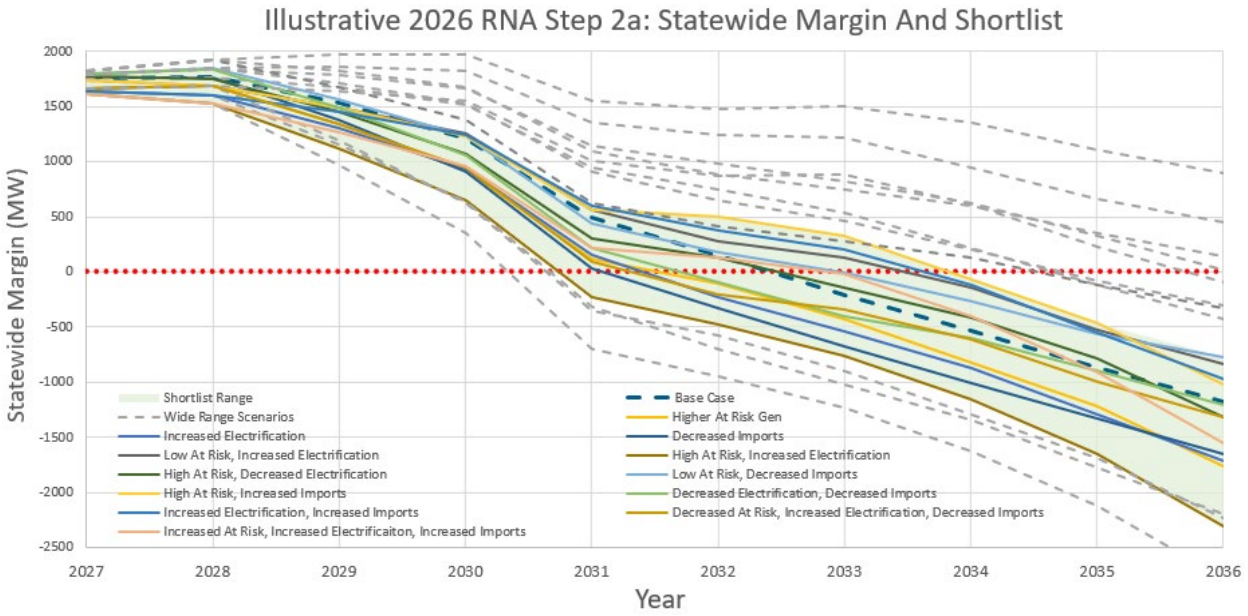
Example Step 2a: Preliminary Results and Initial Screen

- In Step 2, NYISO would present preliminary RNA Base Case results, which will indicate key reliability trends
- NYISO would also identify a range of scenarios that incorporates many of the combinations informed by the range of assumptions from Step 1
- NYISO would perform screening analysis using statewide margin to narrow the range of scenarios to establish a list of potential RNA Scenarios (see green range in figure)



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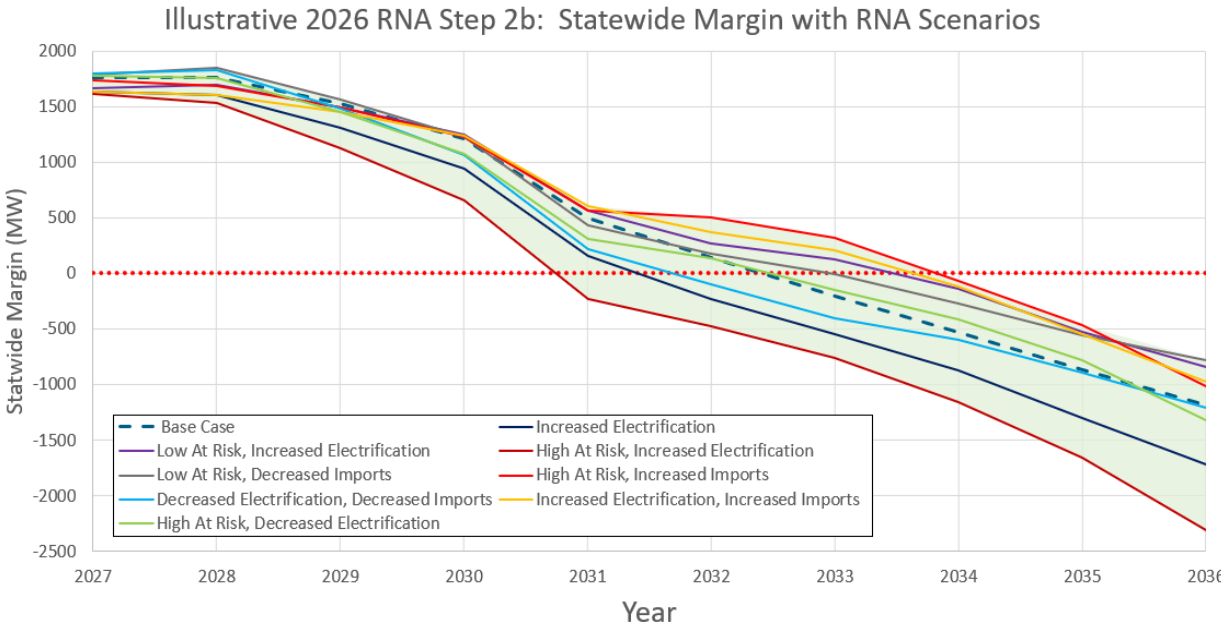
Example Step 2b: Selection of RNA Scenarios

- **After stakeholder feedback, NYISO would select RNA Scenarios considering:**
  - Likelihood
  - Representative Sampling
  - Balanced mix of plausible futures
  - Stakeholder feedback



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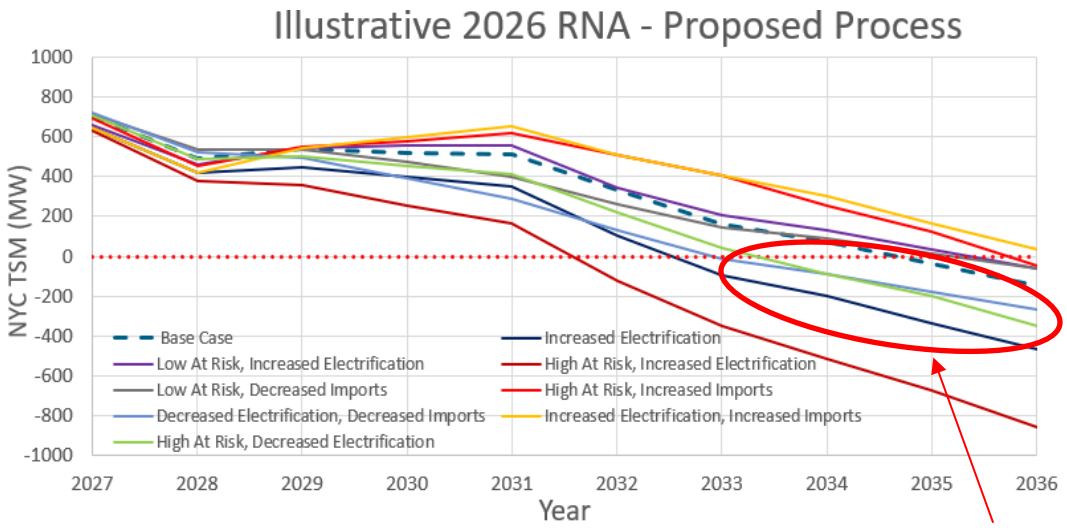
Example Step 3: Reliability Needs

- **Detailed NYC transmission security margin analysis shows a range of deficiencies by 2036**
  - Base Case: -150 MW
  - RNA Scenarios: +50 to -850 MW
- **Consideration of Significant and Persistent Factors:**
  - Violation is of significant magnitude
  - Violation is found in multiple scenarios that include different assumptions of imports, electrification, and aging gen
  - Violation is urgent because lead time for potential solutions (e.g., new generation or transmission) requires identification now to address needs in year 2033 (only 7 years)
- **Reliability Need Determination:**
  - Range of 0-50 MW in 2033 growing to 150-500 MW in 2036



Size and timing of Need

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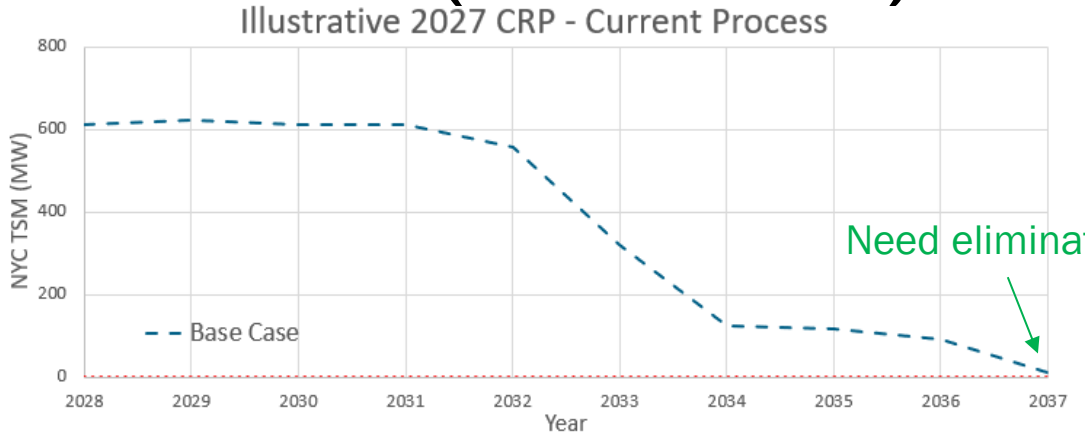
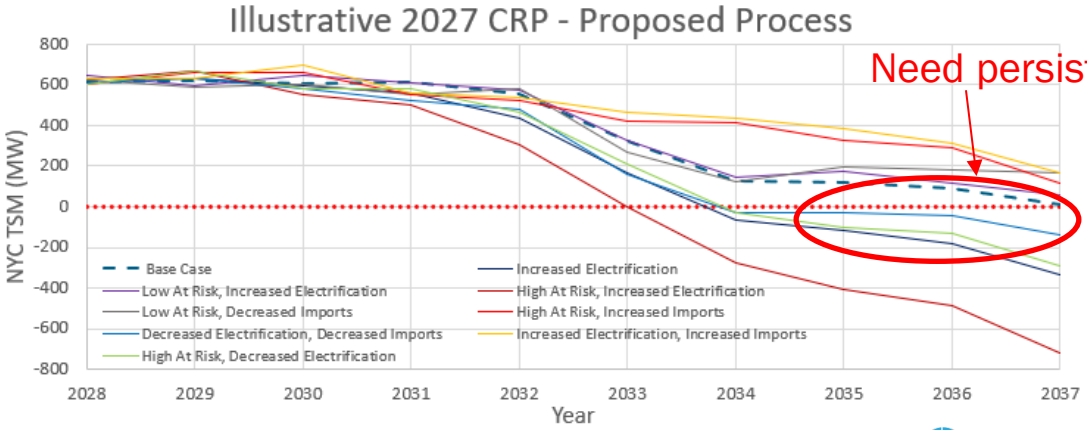
Example: Life Cycle of Need (2027 CRP)

- **System Changes in 2027 CRP**
  - Decreased load forecast (250 MW)
  - Decreased imports into NYC (100 MW)
- **Current Process**
  - With only consideration of the Base Case, the Reliability Need is eliminated with the update
- **Proposed Process**
  - Updated RNA Scenarios show a reduced Reliability Need of 100 – 350 MW
  - Solutions are identified (not reflected in results to the right)





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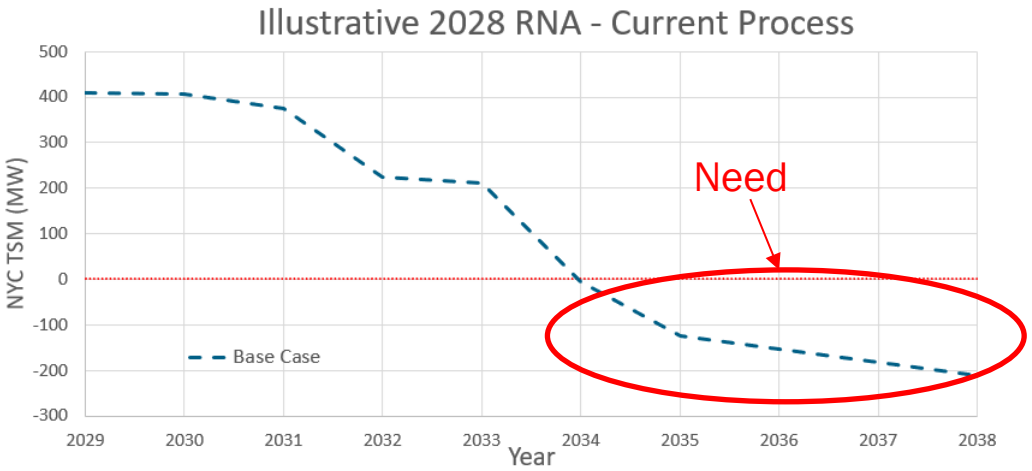
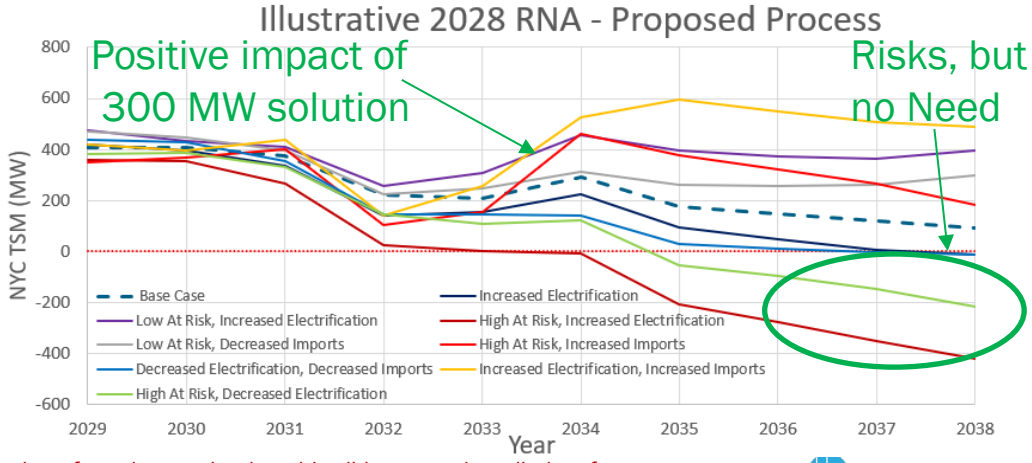
Example: Life Cycle of Need (2028 RNA)

- **System Changes in 2028 RNA**
  - Large generator retires (350 MW)
  - Decreased load forecast (100 MW)
- **Current Process**
  - 250 MW deficiency starting in year 6 (i.e., 2034)
- **Proposed Process**
  - Additional assumption for system change would be the identified solution (300 MW) coming in 2034
  - Examine RNA Base Case & RNA Scenarios
  - Analysis shows no violation in RNA Base Case or that is significant and persistent violations across scenarios:
    - Increased at-risk generation is main driver of 2 scenarios showing deficiency
- **Benefit of Proposed Process**
  - Reliability Need from 2026 RNA proactively addressed for system variability over prior two years





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Next Steps & Schedule

Implementation Considerations

- **NYISO intends targeted OATT changes that will be discussed in phases**
  - Initial focus will be on the process for identifying Reliability Needs that will be implemented in the 2026 RNA
  - Further process changes to the RPP, such as enhancements to the identification of solutions and CRP, will be discussed later in the year
- **Details on study procedures will be developed and implemented through RPP Manual revisions**

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Preliminary Schedule

February 19 TPAS/ESPWG	Proposed RPP revisions and example
February 26 TPAS/ESPWG/ICAPWG	Discuss RPP tariff revisions, implications to STRP
March 3 TPAS/ESPWG	Continue Discussing RPP tariff revisions
March 9 TPAS/ESPWG	Proposal for RPP manual revisions
March 19 OC & March 25 MC	Review and vote on RPP tariff revisions
April	Board of Directors approval and file RPP tariff revisions
July	Tariff effective to implement Step 2

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Next Steps

- NYISO will consider stakeholder feedback in further detailing process reforms and tariff revisions
- Proactive feedback will help advance stakeholder process leading up to 2026 RNA
- Please send suggestions to Kirk Dixon, kdixon@nyiso.com

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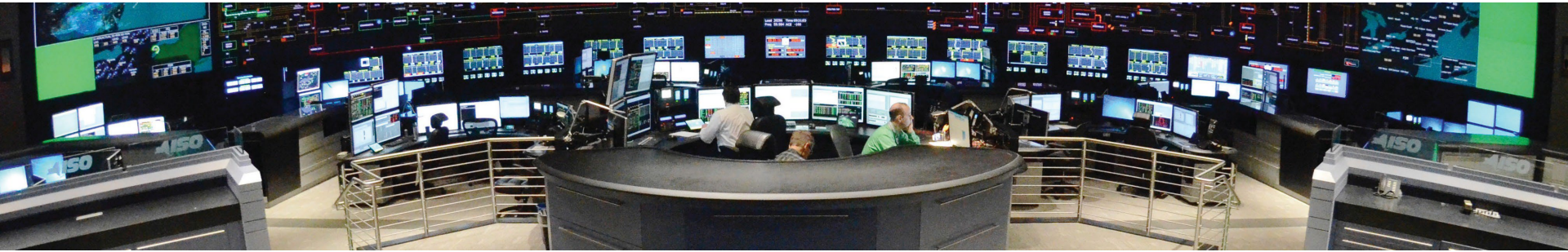
Our Mission and Vision

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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Questions?