



Regional Planning Needs and Solutions

IPSAC WebEx

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Purpose:

This presentation provides an update on ISO New England's (ISO-NE) transmission planning evaluations of the New England system

- Access to Planning Advisory Committee (PAC) materials containing Critical Energy Infrastructure Information (CEII) is required to access some of the ISO's materials on transmission planning. Those stakeholders with CEII access do not require any further action. If you do not have access to ISO's PAC CEII information, please complete the PAC Access Request Form found at:

https://www.iso-ne.com/static-assets/documents/2015/08/external_pac_ceii_request.pdf

- Completed forms should be mailed to ISO New England Inc., Attention: Customer Support, One Sullivan Road, Holyoke, MA 01040-2841 or emailed (PDF) to: custserv@iso-ne.com
- ***Note: If you have Reliability Committee (RC) CEII access, you still need to apply for PAC CEII access***
- Should you have further questions, kindly contact the ISO Customer Service Department at (413) 540-4220
- The ISO-NE planning process was previously discussed with the IPSAC and a summary appears in the Appendix for stakeholder reference

Summary of Changes Since May 2019

- Significant changes to criteria and assumptions used in long-term reliability assessments have occurred
 - Additional changes to Planning Procedure 3 (PP3), Reliability Standards for the New England Area Pool Transmission Facilities have been made – minor cleanup
 - Probabilistic planning for selecting generator dispatch scenarios is now being incorporated into determining system needs and any necessary solutions
 - Including updated information on
 - Load forecast
 - Energy Efficiency forecast
 - Photovoltaics forecast
 - Changes in resources through the Forward Capacity Market (FCM) – upcoming retirement of Bridgeport Harbor 3 and other small resources
- Southeastern Massachusetts/Rhode Island – the Needs Assessment report evaluating the Minimum Load Level was completed. See slide 4.
- The draft initial 2027 Needs Assessment cases and files and the draft Summary Document for 2017 Transmission Planning Base Case Library Review were posted in June. for stakeholder review and comment. Final Needs Assessment cases and study files were posted in August. (https://smd.iso-ne.com/operations-services/ceii/pac/2017/08/ceii_final_2027_needs_assessment_cases.zip)
- Needs Assessment scope presentations have been presented to the Planning Advisory Committee (PAC) for the following areas
 - Maine
 - New Hampshire
 - Eastern Connecticut
 - Southwest Connecticut

Ongoing Reliability Based Studies

- Southeastern Massachusetts/Rhode Island (<https://www.iso-ne.com/system-planning/key-study-areas/sema-ri>)
 - Minimum Load Needs Assessment report published in August 2017 (https://smd.iso-ne.com/operations-services/ceii/pac/2017/08/ceii_final_sema_ri_min_load_needs_assessment_report.pdf)
 - Localized high voltage concerns in the Cape Cod and South Boston areas
 - Solution development process has been initiated
 - 2027 Needs Assessment Scope of Work presentation discussion with PAC tentatively scheduled for December 2017

Ongoing Reliability Based Studies

- Maine (<https://www.iso-ne.com/system-planning/key-study-areas/maine>)
 - 2027 Needs Assessment Scope of Work presentation provided to PAC in November 2017 (https://www.iso-ne.com/static-assets/documents/2017/11/a9_maine_2027_needs_assessment_scope_of_work.pdf)
- New Hampshire (<https://www.iso-ne.com/system-planning/key-study-areas/vt-nh>)
 - 2027 Needs Assessment Scope of Work presentation initially provided in September 2017
 - Updated in November 2017 (https://www.iso-ne.com/static-assets/documents/2017/11/a7_nh_2027_needs_assessment_scope_of_work_rev1_clean.pdf)



Ongoing Reliability Based Studies

- Eastern Connecticut (<https://www.iso-ne.com/system-planning/key-study-areas/eastern-connecticut>)
 - 2027 Needs Assessment Scope of Work presentation initially provided in September 2017
 - Updated in November 2017 (https://www.iso-ne.com/static-assets/documents/2017/11/a7_2027_ect_needs_assessment_scope_of_work_rev2_clean.pdf)
- Southwest Connecticut (<https://www.iso-ne.com/system-planning/key-study-areas/swct>)
 - 2027 Needs Assessment Scope of Work presentation initially provided in September 2017
 - Updated in November 2017 (https://www.iso-ne.com/static-assets/documents/2017/11/a7_final_2027_swct_na_sow_presentation_rev1.pdf)



Market Efficiency and Public Policy Based Transmission

- No changes since May 2017



Regional System Plan Project List Update

- Updates were provided in June and October of 2017
- Updates were minimal
 - Descriptions of changes in cost
 - Very few new projects added – splitting up an existing project and the addition of one new substation
 - Most updates driven by ongoing projects that were placed in service
- June 2017 Final Regional System Plan (RSP) Project List update
 - Final PAC presentation: (https://www.iso-ne.com/static-assets/documents/2017/06/final_rsp17_project_list_presentation_june_2017.pdf)
 - Final Project List: (https://www.iso-ne.com/static-assets/documents/2017/06/final_rsp17_project_list_june_2017.xls)
 - Final Asset Condition List: (https://www.iso-ne.com/static-assets/documents/2017/06/final_rsp17_asset_condition_list_jun_2017.xls)
- October 2017 Final Regional System Plan (RSP) Project List update
 - Final PAC presentation: (https://www.iso-ne.com/static-assets/documents/2017/10/final_rsp17_project_list_presentation_october_2017.pptx.pdf)
 - Final Project List: (https://www.iso-ne.com/static-assets/documents/2017/10/final_rsp17_project_list_october_2017.xls)
 - Final Asset Condition List: (https://www.iso-ne.com/static-assets/documents/2017/10/final_rsp17_asset_condition_list_october_2017.xls)

Regional System Plan 2017 (RSP17)

- As a reference, please see the Regional System Plan (RSP17), the biennial report that provides the foundation for long-term power-system planning in New England
 - <https://www.iso-ne.com/system-planning/system-plans-studies/rsp>
- RSP17 details power system needs for the next 10 years, through 2026, and how these needs can be addressed
 - Forecasts of annual energy use and peak demand from 2017 to 2026
 - Strategic issues facing the region, including the integration of variable energy resources, such as wind generation and solar photovoltaic (PV) installations, resource retirements and additions, and fuel security risks
 - The need for resources, including generators and demand-side resources, to meet consumer demand for power and replace retiring power plants
 - How the region's power system can continue to address reliability concerns by identifying areas of the grid where resource additions or transmission upgrades are needed
 - Coordination of New England's planning process with those of neighboring regions



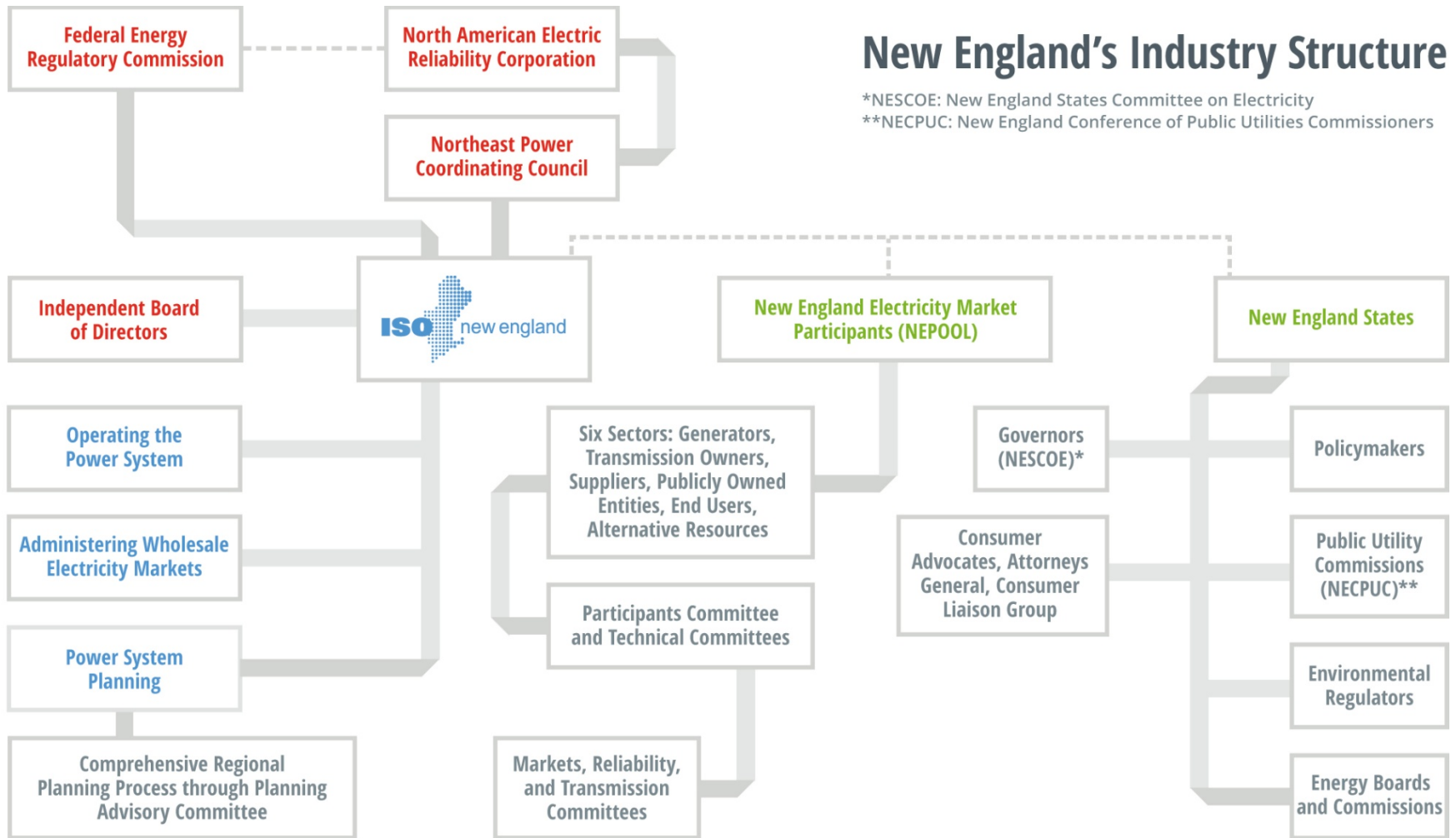
Questions



APPENDIX



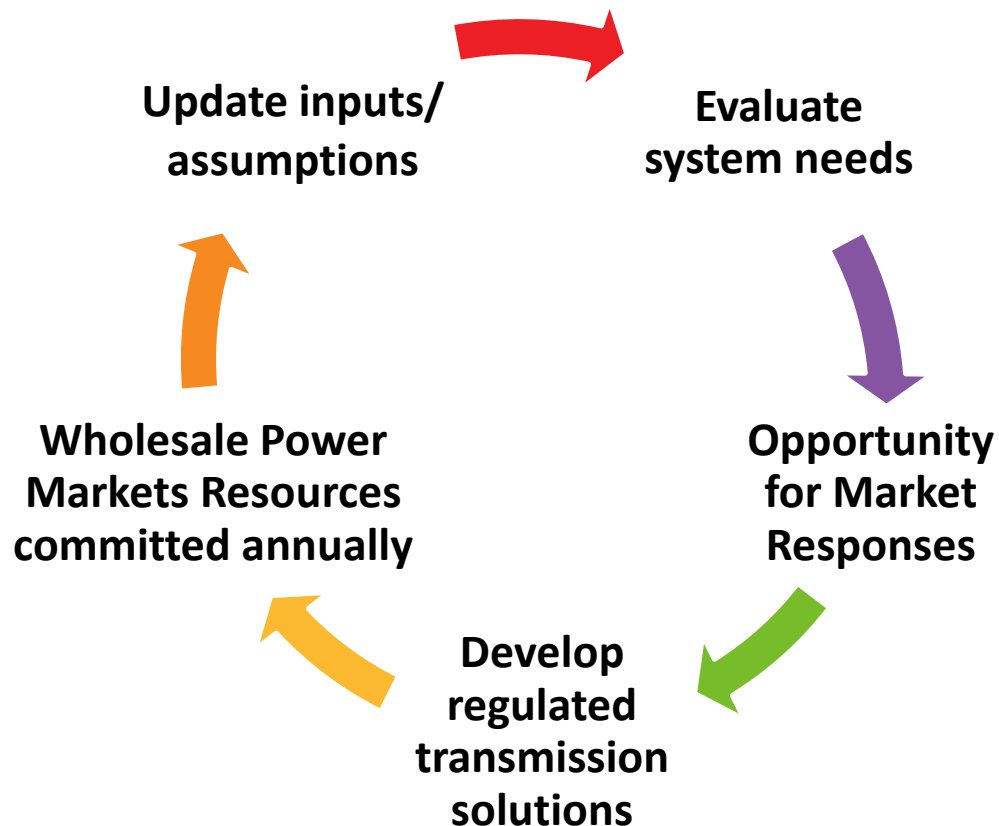
Numerous Entities Including an Independent Board Provide Oversight of and Input on ISO's Responsibilities



New England's System Planning Process

Continuous, Adaptive and Successful

- Open and transparent 10-year planning horizon reflects:
 - Update inputs/assumptions
 - Evaluate system needs
 - Market responses
 - Timing of future resource needs
- Provide information to marketplace and stakeholders
- Coordinate with neighboring areas



Reliability Planning Process

- Needs Assessments evaluate the adequacy of the transmission system over a 10-year planning horizon
 - Incorporate resources (generation and demand response) that have a firm commitment to perform, typically receiving an obligation through the Forward Capacity Market
 - Incorporate energy efficiency and photovoltaic forecasts
- ISO New England utilizes a continuous planning process
 - No fixed schedule
 - Allows for the incorporation of assumption changes “on-the-fly” rather than waiting for the next cycle
 - Ensures that solutions are not under or over-built
- Solutions Development
 - Identification of needs to be addressed through the Solutions Study process or the Open Competitive Process (as per Attachment K)
 - If the requirements of Attachment K Section 4.1(j), including a year of need 3 years or less from the completion of the needs assessment, have been met then the Solutions Study process is used for solution development
 - If the year of need is greater than 3 years from the completion of the Needs Assessment, the competitive process is used for solution development

Planning Procedure 3

- The changes that reduced the types of contingencies required for second contingency testing (N-1-1) have the greatest potential to impact the identification of system needs
 - For example, the following are no longer required to be tested as the second contingency:
 - Loss of two adjacent circuits on a multiple circuit tower
 - Permanent phase to ground fault with breaker failure
 - These second contingencies eliminated in PP-3 must still be tested as part of NPCC requirements, but solutions are only necessary when they impact NPCC-defined BPS facilities



Probabilistic Dispatch

- The ISO has been working with stakeholders at the PAC on a method to incorporate probabilistic dispatch methods into Needs Assessments
- More work will be done over time to review other aspects of incorporating probabilistic methods into Needs Assessments, but there is no reason to delay its use in setting up local dispatches

Process to Expedite Model Creation

- The ISO will create a set of generic cases and associated study files for use in the studies to support identification of needs, including the Maine, New Hampshire, ECT, and SEMA/RI studies
 - ISO initially worked with Transmission Owners (TOs) and other facility owners to update the system topology and other modeling data
 - No resulting competitive advantage, since dispatches and transfers used in specific studies would not be discussed, developed or available at this point in the process
 - Allows multiple areas of the system to be updated in parallel rather than waiting for the ISO to complete the entire model and then provide it to others for review
 - Once system topology was addressed, the generic cases and associated study files were updated by ISO with the latest load, energy efficiency, photovoltaic and resource data and post them for stakeholder review
 - The ISO would then create the models and associated files specific to each study, including dispatch and transfers
- If successful, there may be opportunities for a set of generic cases and associated study files to be produced each year that would be utilized for any needs assessments over the subsequent year long period