

Regional Planning Needs and Solutions



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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

Background from the May 2018 Update

- At the March and April 2018 PAC meetings, the ISO presented information on the updated load, energy efficiency (EE), and photovoltaic (PV) forecasts
 - These forecasts show a significant reduction in the net load to be served
- At the March PAC meeting, the ISO stated due to the magnitude of the severity of the needs in the Eastern Connecticut (ECT) study area, that study would proceed without adopting the new forecast
- A preliminary review of the impact of the new forecasts and updates to Active Demand Capacity Resources (ADCR) showed potential elimination of some system needs in the areas with ongoing studies (ME, NH, SWCT, SEMA/RI, and WCMA)

Annual Model Updates

- The draft initial 2028 Needs Assessment cases and files and the draft Summary Document for 2018 Transmission Planning Base Case Library Review were posted on June 21, 2018 for stakeholder review and comment
- After the stakeholder comment period, the ISO posted:
 - The final initial 2028 Needs Assessment cases and study files, that will be used for upcoming Needs Assessments
 - https://smd.iso-ne.com/operations-services/ceii/pac/2017/08/ceii_final_2027_needs_assessment_cases.zip
 - The final Summary Document for 2018 Transmission Planning Base Case Library Review, and
 - https://smd.iso-ne.com/operations-services/ceii/pac/2018/07/ceii_summary_document_for_2018_transmission_planning_base_case_library.zip
 - The document responding to stakeholder comments
 - https://www.iso-ne.com/static-assets/documents/2018/07/iso_ne_response_to_stakeholder_comments_on_the_2018_transmission_planning_base_case_library_review.pdf

Summary of Changes Since May 2018 Update

- Studies are in various stages of being updated with the new assumptions
- Southwest Connecticut (SWCT) Needs Assessment has been completed
 - No thermal needs have been identified
 - High voltage violations were identified at/near Norwalk Harbor
 - Solutions must be coordinated with asset condition issues identified with the Glenbrook STATCOM
- New Hampshire (NH) Needs Assessment has been completed
 - Both high and low voltage needs have been identified

Summary of Changes Since May 2018 Update

- Eastern Connecticut (ECT)
 - Needs Assessment has been completed
 - Numerous thermal and voltage needs have been identified
 - Two competing solutions have been identified for the area and are under review
- Maine
 - No changes since May
- Boston
 - Scope of Needs Assessment has been presented to the PAC
 - Retirement De-list bids have been submitted for Mystic 7, 8, 9 and the Jet (approximate capacity of 2,000 MW)
- Western and Central Massachusetts (WCMA)
 - Scope of Needs Assessment has been presented to the PAC
- Southeastern Massachusetts and Rhode Island (SEMA/RI)
 - Scope of Needs Assessment has been presented to the PAC

Ongoing Reliability Based Studies

- Maine
 - <https://www.iso-ne.com/system-planning/key-study-areas/maine>
 - Anticipate presenting Needs Assessment results to the PAC in Q1 2019
- New Hampshire
 - <https://www.iso-ne.com/system-planning/key-study-areas/vt-nh>
 - Needs Assessment Presentation Revision 1 posted in November 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/11/final_ceii_new_hampshire_2027_needs_assessment.pdf)
 - Final 2027 Needs Assessment posed in November 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/11/final_ceii_new_hampshire_2027_needs_assessment.pdf)
 - Final 2027 Needs Assessment Scope of Work Revision 1 report posted in May 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/05/final_ceii_2027_nh_na_sow_rev1_clean.pdf)

Ongoing Reliability Based Studies

- Eastern Connecticut
 - <https://www.iso-ne.com/system-planning/key-study-areas/eastern-connecticut>
 - 2027 Solutions study update presentation discussed with the PAC in September 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/09/a7_ect_2027_solutions_study_update.pdf)
 - Final 2027 Needs Assessment posted in May 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/05/final_ect_2027_na.pdf)
- Southwest Connecticut
 - <https://www.iso-ne.com/system-planning/key-study-areas/swct>
 - Final 2027 Needs Assessment posted in July 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/07/final_ceii_swct_2027_na.pdf)
 - 2027 Needs Assessment results discussed with the PAC in June 2018 (https://smd.iso-ne.com/operations-services/ceii/pac/2018/06/a2_swct_2027_na_presentation.pdf)

Ongoing Reliability Based Studies

- Boston
 - <https://www.iso-ne.com/system-planning/key-study-areas/greater-boston/>
 - 2028 Needs Assessment Scope of Work presentation discussion at the September 2018 PAC meeting (https://www.iso-ne.com/static-assets/documents/2018/09/a10_boston_2028_needs_assessment_scope_of_work_rev1.pdf)
- Southeastern Massachusetts/Rhode Island
 - <https://www.iso-ne.com/system-planning/key-study-areas/sema-ri>
 - 2028 Needs Assessment Scope of Work presentation discussion at the November 2018 PAC meeting (https://www.iso-ne.com/static-assets/documents/2018/11/a3_sema_ri_2028_needs_assessment_scope_of_work.pdf)
- Western and Central Massachusetts
 - <https://www.iso-ne.com/system-planning/key-study-areas/western-and-central-massachusetts/>
 - 2028 Needs Assessment Scope of Work presentation discussion at September 2018 PAC meeting (https://www.iso-ne.com/static-assets/documents/2018/09/a11_wcma_2028_needs_assessment_scope_of_work_rev1.pdf)

Market Efficiency and Public Policy Based Transmission

- No changes since May 2018
- Expect to begin the Public Policy process in January 2020



Regional System Plan Project List and Asset Condition List Update

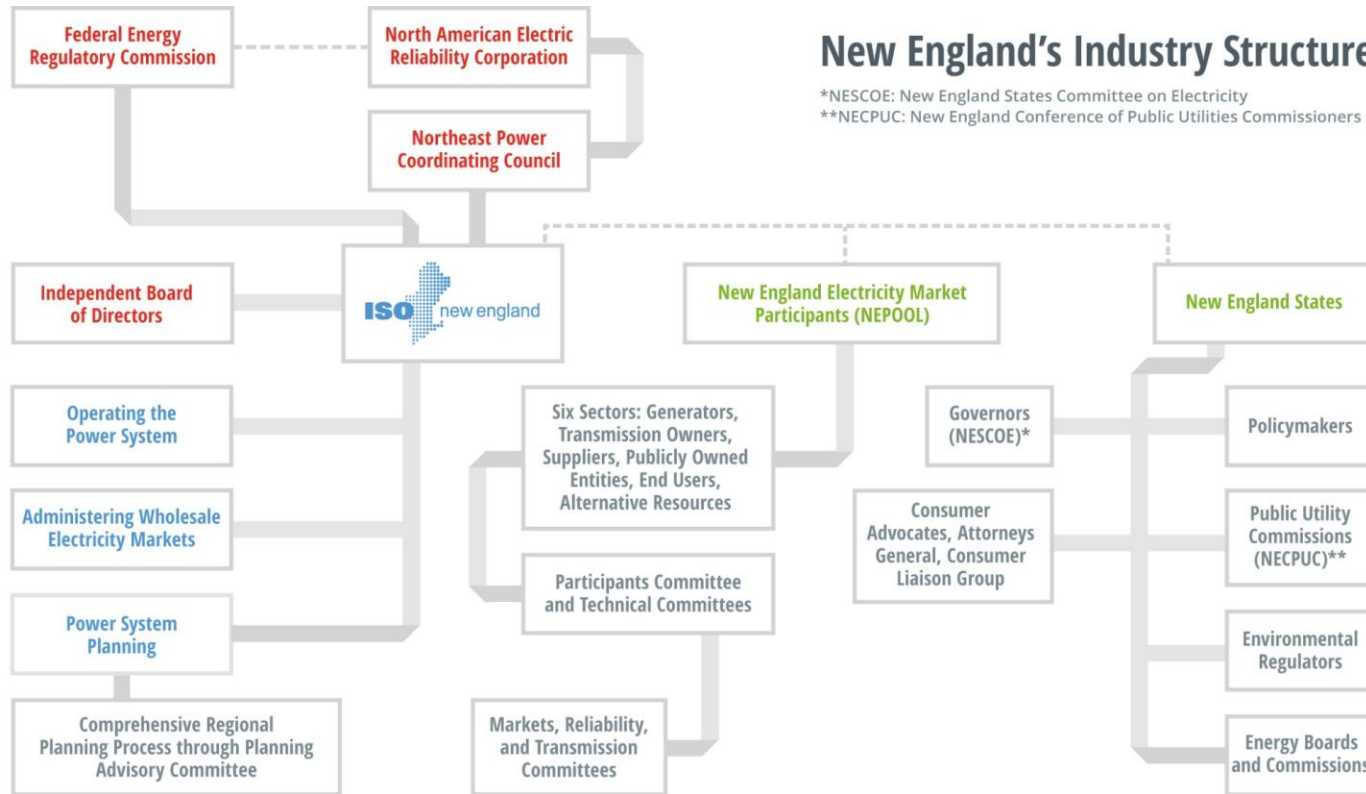
- Updates were provided in June and October 2018
- June 2018
 - Updates to the Regional System Plan (RSP) Project List were minimal
 - Descriptions of changes in cost
 - No new projects added
 - Updates driven by ongoing projects that were placed in service
 - Updates to the Asset Condition List were minimal
 - One new project added to the list, transformer replacement
 - Total cost of additions is approximately \$6M
 - Final RSP Project List and Asset Condition List update
 - Final PAC presentation: (https://www.iso-ne.com/static-assets/documents/2018/06/final_rsp18_project_list_presentation_june_2018.pdf)
 - Final Project List: (https://www.iso-ne.com/static-assets/documents/2018/09/final_rsp18_project_list_june_2018.xls)
 - Final Asset Condition List: (https://www.iso-ne.com/static-assets/documents/2018/06/final_rsp18_asset_condition_list_june_2018.xls)
- October 2018
 - Updates to the Regional System Plan (RSP) Project List were minimal
 - Descriptions of changes in cost, \$29.8M reduction in one project by changing part of the line to overhead from underground
 - Two new projects added, corrections to inadvertent omissions in the SEMA/RI Reliability Upgrades
 - Updates driven by ongoing projects that were placed in service
 - Updates to the Asset Condition List were substantial
 - Three new projects added to the list, station and transmission line upgrades
 - Total cost of additions is approximately \$403M, largely driven by a transmission line upgrade project
 - Final RSP Project List and Asset Condition List update
 - Final PAC presentation: (https://www.iso-ne.com/static-assets/documents/2018/10/final_rsp18_project_list_presentation_october_2018.pptx)
 - Final Project List: (https://www.iso-ne.com/static-assets/documents/2018/10/final_rsp18_projectlist_october_2018.xls)
 - Final Asset Condition List: (https://www.iso-ne.com/static-assets/documents/2018/10/final_assetcondition18_list_october_2018.xls)
- Next update is scheduled to be provided to PAC in March 2019

Regional System Plan 2017 (RSP17)

- As a reference, please see the Regional System Plan 2017 (RSP17), the biennial report that provides the foundation for long-term power-system planning in New England (RSP19 is scheduled for publication fall 2019)
 - <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

APPENDIX

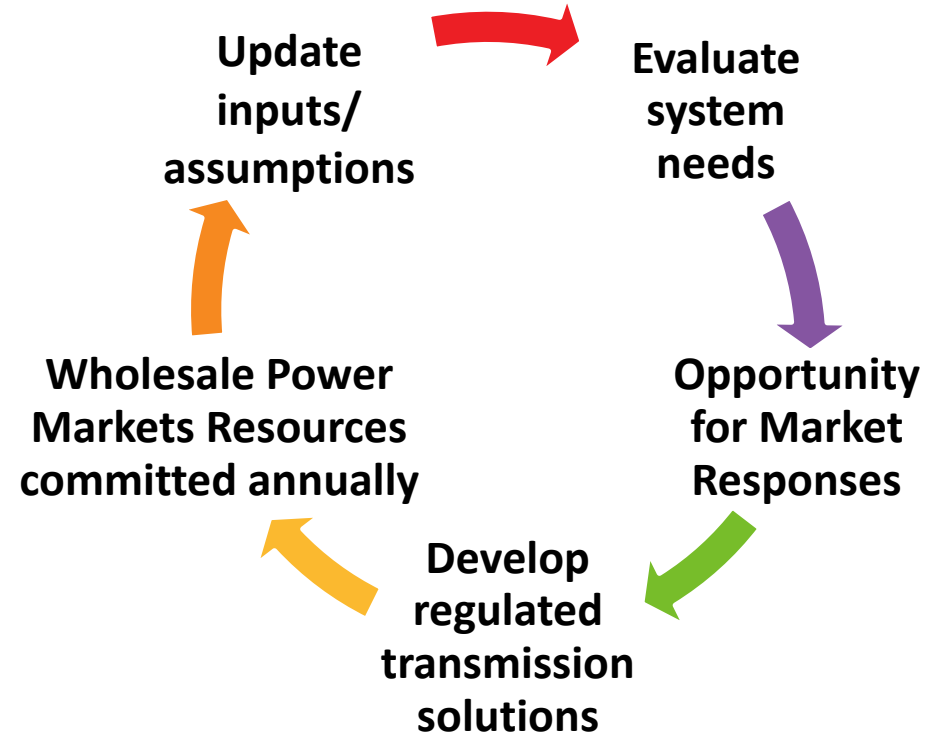
Numerous Entities Including an Independent Board Provide Oversight of and Input on ISO's Responsibilities



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