

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-NE's PAC CEII information, please complete the CEII Request Process found at:

<https://www.iso-ne.com/participate/support/request-ceii-access>

- Download and complete the CEII Access Request Form and then submit the completed Form into Ask ISO at: <https://askiso.force.com/s/>
- **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 Participant Support and Solutions by email: AskISO@iso-ne.com or by phone: (413) 540-4220 or (833) 248-4220
- The ISO-NE planning process was previously discussed with the IPSAC and a summary appears in Appendix A for stakeholder reference
- The information provided in this presentation is as of April 16, 2021

Three New Transmission Planning Efforts Have Been Initiated

- Order 1000/Boston 2028 RFP Lessoned Learned Process
 - On [July 17, 2020, the ISO issued a memo](#) describing an upcoming “lessons learned” process regarding Order 1000/Boston 2028 RFP
 - At the [October 21, 2020 PAC meeting](#), the ISO discussed the process and the submittal template
 - On November 6, 2020, the ISO released the [submittal template](#), which was due November 25, 2020
 - At the [December 16, 2020 PAC meeting](#), the ISO reviewed the lessons learned comments received
 - At the [February 17, 2021 PAC meeting](#), the ISO shared initial observations to the lessons learned received
 - At the [April 14, 2021 PAC meeting](#), the ISO provided its position on the lessons learned that remained open. Stakeholder feedback will determine whether further discussion is needed at the May 19, 2021 PAC meeting

Three New Transmission Planning Efforts Have Been Initiated, cont.

- Looking Forward: Dynamic Reactive Device (DRD) Technologies
 - At the [February 17, 2021 PAC meeting](#), the ISO discussed the different DRD technologies and expressed a desire to move to using synchronous condensers as the preferred dynamic reactive device to address system concerns identified in Needs Assessments, unless specific system limitations cause the need for a different type of device
 - Written comments were submitted by stakeholders and posted on [April 1, 2021](#)
 - Comments at the meeting and written comments were mixed but generally favor ISO's position
 - The ISO will continue to consider power electronics based devices along with synchronous condensers

Three New Transmission Planning Efforts Have Been Initiated, cont.

- Transmission Planning for the Clean Energy Transition (TPCET)*
 - The ISO began discussions at the [September 24, 2020 PAC](#) regarding the need to improve assumptions used in Needs Assessments and solution development. The presentation included proposals for:
 - Load levels
 - Solar output
 - On-shore and off-shore wind output
 - The need for improved locational information for Distributed Energy Resources
 - At the [November 19, 2020 PAC meeting](#), the ISO proposed a pilot study using the new assumptions to quantify tradeoffs between the assumptions and high level costs of addressing system concerns
 - At the [December 16, 2020 PAC meeting](#), the ISO reviewed the pilot study conditions and key assumptions
 - At the [January 21, 2021 PAC meeting](#), the ISO reviewed the likelihood of study conditions and pilot study base case details
 - At the [March 17, 2021 PAC meeting](#), the ISO discussed assumptions for battery storage**

*This effort was renamed from Transmission Planning for the Future Grid.

**While not part of TPCET, this presentation has been noted here as it will impact study assumptions going forward.

Overlay Network Expansion Transmission

- At the [April 14, 2021 PAC meeting](#), the New England States Committee on Electricity (NESCOE) presented their Overlay Network Expansion (ONE) Transmission concept
 - Combines the current reliability process with the Public Policy Process
 - Seeks to address concerns with the current Public Policy Process, such as providing “off-ramps” to allow the development of solutions to stop



Updating Area Study Plans*

- Maine
 - The Maine study area has been split into two areas: Upper and Lower Maine
 - Allows for the handling of the proposed HVDC facility, the New England Clean Energy Connect (NECEC), which will have an impact on Lower Maine
 - Upper Maine
 - The Needs Assessment was completed on March 23, 2020
 - The draft Upper Maine 2029 Solutions Study was posted for stakeholder feedback on February 12, 2021
 - Based on stakeholder support, the proposed STATCOMs are under review to consider synchronous condensers instead
 - Lower Maine
 - The results of the Needs Assessment were discussed with the PAC in March 2021. No needs were observed
 - A draft Needs Assessment report was released to the PAC on March 31, 2021
- New Hampshire
 - The Needs Assessment was completed on December 4, 2019
 - The Western and Central New Hampshire (NH) 2029 Preliminary Preferred Solution was discussed with the PAC on February 17, 2021
 - The Southern NH 2029 Preliminary Preferred Solution was discussed with the PAC on April 14, 2021

*Area study plans that have not changed since the December 2020 IPSAC meeting can be found in [Appendix B](#).

Updating Area Study Plans, cont.*

- Western and Central MA
 - The final Needs Assessment was posted on May 5, 2020
 - Very few issues were identified
 - Solution development had been placed on hold
 - Significant asset condition issues in the area need to be addressed
 - Significant proposed resource development in the area of identified needs may yield system upgrades and reconfigurations
 - Solutions Study scope of work was discussed with the PAC on March 17, 2021
- Southeastern MA/RI
 - The scope of work for a minimum load needs assessment was discussed at the April 14, 2021 PAC meeting

*Area study plans that have not changed since the December 2020 IPSAC meeting can be found in [Appendix B](#).

Recent Information for Ongoing Reliability Based Studies

- [Boston](#)

- [Boston 2028 Solutions Study – Mystic Retirement](#), report posted September 24, 2020
- [Boston 2028 Solutions Study – Mystic Retirement – Preliminary Preferred Solution](#), presentation posted August 21, 2020
- [Posting of the Final Boston 2028 RFP Review of Phase One Proposals Report and Notice of Initiation of the Boston 2028 Solutions Study – Mystic Retirement](#), memo posted July 17, 2020
- [Response to Stakeholder Comments on the Boston 2028 RFP – Review of Phase One Proposals](#), memo posted July 17, 2020
- [Boston 2028 Request for Proposal \(RFP\) - Review of Phase One Proposals](#), report posted July 17, 2020
- [Boston 2028 RFP – Review of Phase One Proposals](#), presentation posted June 12, 2020
- [Boston 2028 RFP Posting of Phase One Proposals Memo](#), memo posted March 19, 2020
- [Boston 2028 RFP Regarding the Change in Mystic Generating Station Retirement Date](#), memo posted January 13, 2020
- [Boston 2028 RFP Announcement](#), posted December 20, 2019
- [Boston 2028 RFP Documents](#), posted December 20, 2019
- [Boston 2028 Needs Assessment Addendum](#), report posted October 17, 2019
- [Boston 2028 Needs Assessment Update](#), report posted October 17, 2019

Recent Information for Ongoing Reliability Based Studies, cont.

- Maine

- [Draft Lower Maine \(LME\) 2030 Needs Assessment](#), report posted March 31, 2021
- [Lower Maine \(LME\) 2030 Needs Assessment](#), presentation posted March 12, 2021
- [Upper Maine \(UME\) 2029 Solutions Study – Draft](#), report posted February 12, 2021
- [Lower Maine \(ME\) 2030 Needs Assessment Scope of Work](#), presentation posted September 18, 2020
- [Draft Lower Maine \(ME\) 2030 Needs Assessment – Scope of Work](#), posted September 18, 2020
- [Final Upper Maine \(ME\) Needs Assessment](#), report posted March 23, 2020

- New Hampshire

- [New Hampshire \(NH\) 2029 Solutions Study – Draft](#), report posted April 14, 2021
- [Southern New Hampshire \(NH\) 2029 Preliminary Preferred Solution](#), presentation posted April 9, 2021
- [Western and Central New Hampshire \(NH\) 2029 Preliminary Preferred Solution](#), presentation posted February 12, 2021
- [Responses to Stakeholder Comments on the New Hampshire \(NH\) 2029 Solutions Study Update Presentation](#), posted July 17, 2020
- [New Hampshire \(NH\) 2029 Solutions Study Update – Revision 1](#), presentation posted June 18, 2020
- [Final New Hampshire \(NH\) 2029 Needs Assessment](#), report posted December 4, 2019

- Western and Central Massachusetts

- [Western and Central Massachusetts \(WCMA\) – 2029 Solutions Study Scope of Work Update](#), presentation posted March 12, 2021
- [Final Western and Central Massachusetts Area 2029 Needs Assessment](#), report posted May 5, 2020

Recent Information for Ongoing Reliability Based Studies, cont.

- [Eastern Connecticut](#)

- [Eastern Connecticut \(ECT\) 2029 Solutions Study – Final](#), report posted June 19, 2020
- [Eastern Connecticut \(ECT\) 2029 Preliminary Preferred Solution](#), presentation posted May 15, 2020
- [Final Eastern Connecticut \(ECT\) 2029 Needs Assessment](#), report posted November 25, 2019

- [Southeastern MA/RI](#)

- [Southeastern Massachusetts and Rhode Island \(SEMA/RI\) 2030 Minimum Load Needs Assessment Scope of Work](#), presentation posted April 14, 2021
- [Revised SEMA/RI 2029 Needs Assessment Update – Revision 1](#), report posted November 13, 2020
- [Revised SEMA/RI 2029 Needs Assessment Update – Revision 1](#), presentation posted November 13, 2020
- [Revised SEMA/RI 2029 Needs Assessment Update – Project Status Determination – Revision 1](#), presentation posted September 2, 2020

Market Efficiency Transmission Upgrades

- There have been no changes since the December 2020 IPSAC meeting



Public Policy Based Transmission

- Public Policy Transmission Upgrades (PPTUs) are upgrades designed primarily to meet local (e.g., municipal and county), state, and federal Public Policy Requirements identified as driving transmission needs relating to the New England Transmission System
- The Public Policy process was [initiated on January 14, 2020](#)
- The ISO discussed the process with the [PAC on January 23, 2020](#)
- Two submittals were made
 - [Combined document containing both submittals](#)
 - [Combined templates for both submittals](#)
- New England States Committee on Electricity (NESCOE) has the option to provide a communication regarding those submittals by May 1, 2020
 - On May 1, NESCOE provided their [Submission Regarding Transmission Needs Driven by State and Federal Public Policy Requirements](#)
 - No Public Policy Requirements were identified
- The ISO completed the process with a determination that a Public Policy Transmission Study will not be performed at the [June 17, 2020 PAC meeting](#)

Regional System Plan Project List and Asset Condition List Update

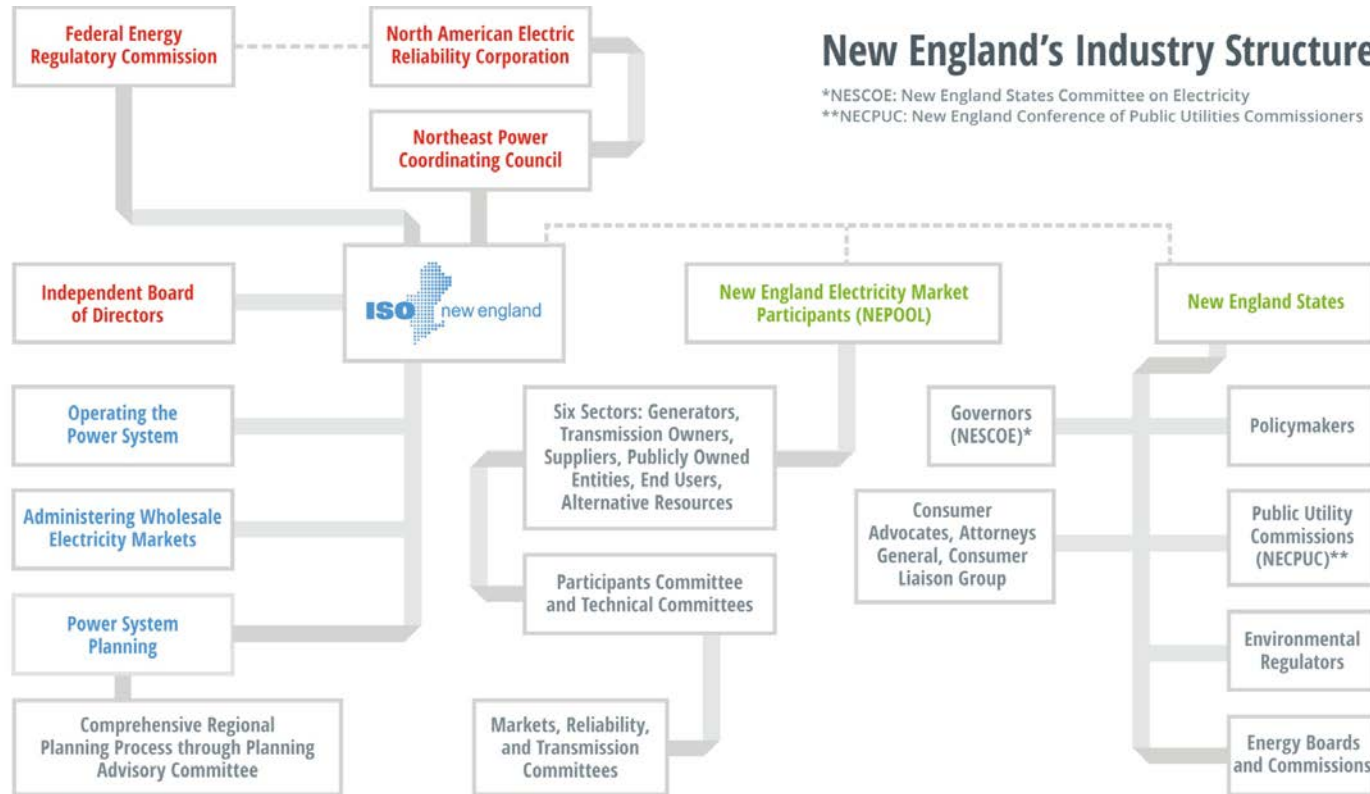
- March 2021
 - Updates to the Regional System Plan (RSP) Project List
 - Increase in cost estimate for Southeastern MA/RI of \$10.6M
 - Three new projects added
 - Fifteen projects were placed in service
 - Updates to the Asset Condition List
 - Forty-one new projects added
 - Twenty-nine projects placed in service
 - Final RSP Project List and Asset Condition List update
 - [Final PAC presentation](#)
 - [Final Project List](#)
 - [Final Asset Condition List](#)
- Next update is scheduled to be provided to PAC in June 2021

Questions



APPENDIX A

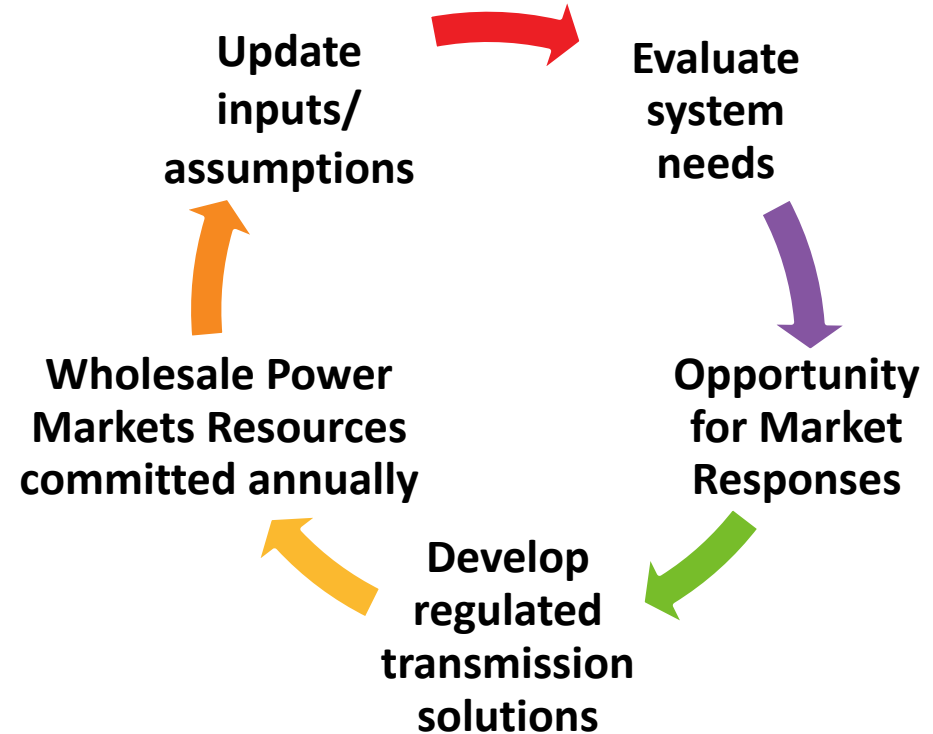
Numerous Entities Including an Independent Board Provide Oversight of and Input on ISO's Responsibilities



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

Public Policy Process

- At least every 3 years, the ISO issues a Public Notice indicating input on state and federal Public Policy Requirements (PPR) can be submitted to the New England States Committee on Electricity (NESCOE) and local (e.g. municipal and county) PPRs can be submitted to the ISO
- NESCOE may provide a communication to the ISO regarding Public Policy Requirements
- Specification of the federal, state and local PPRs, if any, that will be addressed in a Public Policy Transmission Study (PPTS). Federal and state PPRs will be specified by NESCOE and, if required, by ISO. Local PPRs will be specified by ISO
- ISO performance of an initial phase of the PPTS and, if determined by ISO, a follow-on phase of the PPTS with opportunity for PAC to comment
- If a Public Policy Transmission Upgrade will be pursued, the solution will be developed through the Open Competitive Process

Helpful References

- The Transmission Planning Process Guide outlines the steps in the regional transmission planning process (<https://www.iso-ne.com/system-planning/transmission-planning/transmission-planning-guides/>)
- The Transmission Planning Technical Guide documents several of the assumptions used in transmission planning studies ([https://www.iso-ne.com/system-planning/transmission-planning-guides/](https://www.iso-ne.com/system-planning/transmission-planning/transmission-planning-guides/))
- Attachment K to the ISO New England Open Access Transmission Tariff (OATT) describes the Regional System Planning Process (www.iso-ne.com/oatt)

APPENDIX B

*Area Study Plans that are Unchanged from the
December 2020 IPSAC Meeting*

Area Study Plans Unchanged since last IPSAC

- Boston
 - Driven by the upcoming retirement of the Mystic generators, a number of transmission planning studies have been completed
 - The ISO has completed a Needs Assessment Addendum to specify the design requirements for addressing the system restoration concerns
 - The ISO has completed a Needs Assessment Update which has incorporated the solution to the time-sensitive needs and updated resource assumptions to the latest available data
 - Non-time-sensitive needs remain: overload of three 345 kV cables and one 115 kV overhead line
 - The ISO issued an Request for Proposal (RFP) to address the identified, non-time sensitive needs on December 20, 2019
 - Phase One Proposals were due on March 4, 2020
 - 36 Phase One Proposals were submitted by eight Qualified Transmission Project Sponsors (QTPSs) and reviewed by the ISO and its consultants
 - At the [June 17, 2020 PAC meeting](#), the ISO discussed narrowing the proposals down to one
 - On [July 17, 2020, the ISO concluded the competitive transmission process](#) and began the Solutions Study process
 - On September 24, 2020, the ISO issued the final [Boston 2028 Solutions Study - Mystic Retirement](#)
 - Final solution:
 - Two 345 kV series reactors
 - One STATCOM
 - Direct transfer trip scheme

Area Study Plans Unchanged since last IPSAC, cont.

- Eastern CT
 - The Needs Assessment was completed on November 25, 2019
 - The Solutions Study was completed on June 19, 2020
 - Most of the study area will be converted from 69 kV to 115 kV
- Southwest CT
 - The asset condition project to replace the existing Glenbrook STATCOMs resolves all identified needs. As a result, the Solutions Study was concluded.