MINUTES OF THE
PLANNING ADVISORY COMMITTEE (PAC)
MEETING HELD ON NOVEMBER 20, 2024

Name	Affiliation
S. Abhyankar	ISO New England (Chair)
J. Macura	ISO New England (Secretary)
P. Abucewicz	National Grid
S. Ali	NextEra Energy
S. Allen	Eversource Energy
J. Anderson	S&P Global Commodity Insights
B. Andrew	Eversource Energy
E. Annes	Connecticut Department of Energy & Environmental Protection (CT DEEP)
P. Asarese	ISO New England
D. Basler	CHA Consulting, Inc.
P. Bernard	ISO New England
C. Bilcheck	Breakthrough Innovations, LLC
T. Blanco	National Grid
P. Boughan	ISO New England
C. Bothwell	Department of Energy (DOE)
D. Bradt	Oxford Power, consulting for NESCOE
J. Breard	ISO New England
S. Bresolin	ENGIE
J. Brodbeck	EDP Renewables
D. Burnham	Eversource Energy
K. Caiazzo	Massachusetts Attorney General's Office (MA AGO)
M. Caley	ISO New England
D. Cavanaugh	Energy New England (ENE)
J. Cebrik	Avangrid (CMP/UI)
L. Cioffi	Rhode Island Energy
M. Coleman	JERA Americas
R. Collins	ISO New England
D. Conroy	RLC Engineering
R. Coxe	Mosaic Energy Insights
B. D'Antonio	Eversource Energy
P. Das	ISO New England
K. Dawe	National Grid
R. Dolan	NextEra Energy
J. Donovan	Massachusetts Attorney General's Office (MA AGO)
L. Durkin	ISO New England
M. Drzewianowski	ISO New England
F. Ettori	VELCO

J. Fabiano	Rhode Island Energy
M. Farhan Siddiqui	National Grid
J. Fenn	FENNCO, LLC
B. Forshaw	Energy Market Advisors
N. Forster	NESOCE
M. Fossum	New Hampshire Office of Consumer Advocate (NH OCA)
J. Fundling	Eversource Energy
A. Gagnon	Massachusetts Executive Office of Energy and Environmental Affairs (MA EOEEA)
R. Garwood	Power Grid Strategies
A. Gillespie	Calpine
S. Goynor	National Grid
K. Grant	Elevate Renewable Energy
R. Guay	Maine Public Utilities Commission
L. Guilbault	H.Q. US
J. Halpin	Eversource Energy
A. Hanenkratt	National Grid
R. Harvey	IEEE
M. Haskell	Maine Public Utility Commission
E. Hofmann	National Grid
H. Hunt	NESCOE
J. Iafrati	Customized Energy Solutions (CES)
F. Ingalls	Member of the Public
E. Jacobi	FERC
S. Judd	ISO New England, Inc.
J. Kasow	ISO New England
S. Keane	NESCOE
R. Kornitsky	ISO New England
N. Krakoff	Conservation Law Foundation
A. Krich	Boreas Renewables
M. Krolewski	Vermont Public Utilities Commission (VT PUC)
F. Kugell	Avangrid (Central Maine Power/United Illuminating)
R. Lafayette	Rhode Island Energy
C. Lambrinos	National Grid
S. Lamotte	ISO New England
J. LaRusso	Acadia Center
A. Lawton	Advanced Energy United (AEU)
P. Levi	Form Energy
P. Lopes	Massachusetts Department of Energy Resources (MA DOER)
T. Lott	National Grid
K. Loy	NBC Connecticut WVIT
J. Lucas	Eversource Energy

T. Lundin	LS Power
X. Luo	ISO New England
K. Mankouski	ISO New England
T. Martin	National Grid
J. Martin	National Grid
C. Mattioda	Synapse Energy
R. McCarthy	Vista Corp.
B. McKinnon	South Hadley Electric Light Department
T. Mirman	National Grid
A. Mitchell	National Grid
S. Mitchell	NYSEG
R. Mozumder	ISO New England
D. Murphy	MMWEC
D. Norman	Versant Power
B. Oberlin	ISO New England
R. Panos	National Grid
H. Pathan	Eversource Energy
D. Patnaude	ISO New England
M. Perben	ISO New England
E. Perez Cervera	ISO New England
J. Porter	Rhode Island Energy
K. Quach	ISO New England
H. Quirrion	Avangrid (Central Maine Power/United Illuminating)
J. Rauch	Avangrid (Central Maine Power/United Illuminating)
C. Richards Jr.	Rhode Island Energy
B. Robertson	Eversource Energy
E. Ross	ISO New England
J. Rotger	Customized Energy Solutions (CES)
M. Rowe	Eversource Energy
E. Runge	Day Pitney
M. Safi	Rhode Island Energy
K. Schlichting	ISO New England
D. Schwarting	ISO New England
M. Scott	National Grid
K. Shaarbafi	Eversource Energy
M. Siddiqui	National Grid
G. Shen	ENTRUST Solutions Group
J. Singh	ISO New England
K. Sirowich	ISO New England
M. Stoker	Avangrid (Central Maine Power/United Illuminating)
V. Strauss	National Grid
B. Swalwell	Tangent Energy
F. Swigonski	Jupiter Power

C. Szmodis	Rhode Island Energy
J. Talbert-Slagle	Connecticut Office of Consumer Counsel (CT OCC)
B. Thomson	Rhode Island Energy
N. Toleman	Viridon
A. Trotta	Avangrid (Central Maine Power/United Illuminating)
G. Twigg	NECPUC
M. Valencia Perez	ISO New England
P. Vijayan	ISO New England
S. Walcott	Eversource Energy
J. Walters	Connecticut Department of Energy & Environmental Protection (CT DEEP)
B. Wilson	ISO New England
C. Zhu	National Grid
S. Xu	ISO New England

Item 1.0 – Chairs Remarks

Mr. Shounak Abhyankar (ISO-NE) welcomed PAC and reviewed the day's agenda.

Item 2.0 – Line 1356 Structure Replacements

Mr. Stephen Marien (Eversource) presented the Line 1356 structure replacements project. The Eversource portion of the line stretches 0.54 miles from Fairmont Substation in Chicopee, MA to the Eversource border with Holyoke Gas and Electric (HG&E) in Chicopee, MA. The line includes a 0.2 miles long river crossing of the Connecticut River. Eversource's 2023 inspections identified structural concerns on the line, including wood decay, pole top rot, and cracking.

Eversource's preferred base alternative replaces three priority Category C structures and one Category B structure. The estimated project cost is $5.3M (-25%/+50%). The project is projected to begin construction in Q1 2025 and enter service in Q2 2025.

In response to questions, Eversource issued the following statements:

- Eversource, unsure of the thermal rating of HG&E's portion of the line, confirmed it was not an identified need.
- For transmission lines, Eversource's standard practice for pole replacements is tubular steel.
- The terms "primary need" and secondary need" are not formally defined in the Asset Condition Process Guide (ACPG). The Transmission Owners will consider providing a formal definition in later revisions of the ACPG.
- Eversource found installing OPGW was not cost effective due to the river crossing and the necessary permitting.
- Eversource did not identify conductor or shieldwire replacements as a need.

The following comments were issued:

- A stakeholder felt this project was a missed right-sizing opportunity.
- A stakeholder felt this project was a missed opportunity for communication upgrades.

Item 3.0 – Line 387 Asset Condition Structure Replacements Project

Mr. Stephen Marien (Eversource) presented the Line 387 asset condition structure replacements project. Eversource's portion of the line stretches 26.8 miles from Scovill Rock Substation in Middletown, CT to the United Illuminating border in North Branford, CT. Eversource's 2023 inspections identified 11 wood structures with woodpecker damage, pole top rot, cracked crossarms, splitting poles, and other forms of decay.

Eversource's preferred alternative replaces 13 total structures (12 Category C and 1 Category B) with an estimated cost of $9.8 M (-25%/+50%). The project is projected to start construction in Q2 2025 and have an estimated service date of Q4 2025.

In response to questions, Eversource issued the following statements:

- The scope of Alternative 2 would include accessing the entire line, as well as four additional structures. This contributes to the significant cost differential.
- A 48-fiber cable is standard use for Eversource. However, in some areas Eversource will use a 96-fiber cable or more.
- All replacement wood structures are around 57-year-old.

The following comments were issued:

- A stakeholder raised concern due to the frequency of work being done on line 387 and the potential for future outages on the line.

Item 4.0 – 338 345 kV Line Asset Condition Refurbishment

Mr. Rafael Panos (National Grid) presented Line 338's asset condition refurbishment project. National Grid's portion of the line stretches 6.69 miles from Tewksbury 22A to the Billerica/Burlington, MA town line. National Grid's 2019 and 2020 inspections identified woodpecker damage, excessive checking, insect damage, and deteriorating crossarms. The groundline calculations indicate 36 structures show signs of strength loss.

National Grid's preferred solution replaces 49 wood structures with steel, replaces 14 steel structures, installs insulation for all 63 structures, removes roughly 6.7 miles of existing conductor and shieldwire, and installs a bundled 1590 kcmil 54/19 ACSS "Falcon" conductor. The project's estimated cost is $53.520M (-25%, +50%). The project's projected start of construction is Q3 2028, with an in-service date of Q4 2030.

In response to stakeholder questions, National Grid issued the following statements:

- The Line 338 refurbishment project is driven by asset condition.
- National Grid is not aware of any cost sharing regarding Queue Position (QP) 1252.

- The needs identified in the Boston 2033 Needs Assessment were non-time sensitive.
- National Grid's preferred solution would not require future costs to address the Boston 2033 needs, the 2050 needs, or the needs of QP1252.
- The 338 line carries a 144-strand fiber managed by Crown Castle. National Grid uses 12 of these strands through a pre-existing contract. National Grid plans to utilize these strands moving forward.
- The term "fiber sharing" refers to splitting up the fibers. No data is shared between those companies that use each strand of the fiber.
- National Grid's base alternative just replaces the wood structures and shield wire and does not solve the Boston 2033 Study needs, the 2050 needs, or the needs of QP1252. A subsequent project would have to take place to address those future needs.
- The Line 338 refurbishment project has been categorized as an asset condition project rather than a reliability need due to the lack of time sensitivity. If the structural issues were not present the project would fall solely into the reliability category.
- Installing a bundled 1590 kcmil 54/19 ACSS "Falcon" conductor is in line with standard practice for 345 kV lines.
- National Grid has a coating program that addresses corrosion. It was unsure when it was last completed.
- Age factors into the scope of an asset condition project, but is not the sole deciding factor.
- National Grid will assess its application of the term "primary driver" to ensure it is being applied correctly in future presentations.
- Shield wire replacement is one driver of the asset condition project. The cost difference in replacing shield wire with OPGW is minimal.
- National Grid would have to follow up with the specific cost break down for the improved telecommunications.

A stakeholder issued the following comment:

- A stakeholder requested that National Grid provide the required loadings from the 2050 study and the QP1252 study. The stakeholder felt this would help solidify how this solution meets the project's needs.
- A stakeholder felt National Grid's presentation was implicitly including right sizing and encouraged for clarity for future presentations.
- A stakeholder voiced concern that project's base alternative did not address all the identified Boston 2033, 2050, and QP1252 needs.

Item 5.0 – 2024 Economic Study: Policy Reference Results

Ms. Elinor Ross and Mr. Richard Kornitsky (ISO-NE) presented the Preliminary Policy Scenario Results and Stakeholder-Requested Scenario Assumptions. The presentation provided an overview of the 2024 Economic Study, delivered an update on the Policy Scenario assumptions, provided the Policy Scenario's preliminary results, and discussed the Stakeholder Requested Scenario assumptions.

In response to stakeholder questions, the ISO issued the following statements:

- The ISO conducted internal sensitivities for small modular reactors (SMRs) and could share that analysis in future presentations.
- The ISO will consider the installation of SMRs in regions outside of Boston.
- The ISO feels its PV assumptions were realistic given the differences in EPCET's land-based wind assumptions.
- The100-hour iron-air batteries and the 4-Hour Li-ion batteries have fixed costs that factor into their capital costs. The VO&M are variable costs baked into production.
- The ISO will review its modeling and clarify any discrepancies between its Capacity Supply Obligations (CSO) showing 2000 MW of battery storage by 2028 and the 2024 Economic Study, which depicts 1,056 MW by 2033.
- The ISO will update the graphical error depicting dispatchable resources' sample generation profiles.
- The ISO's Load Forecasting group developed this study's data specifically for the 2024 Economic Study.
- The Policy Scenario aims to model New England's energy goals through applicable state energy policies.
- The 2024 Economic Study applies the same metrics as the Future Grid Reliability Studies and the Pathways Study.
- The EPCET made greater land-based wind assumptions, while the 2024 Economic Study limited its build out.
- It is difficult for the ISO to place limits on capacity for a single year. Here, the ISO increased capital cost 10% for the next 1,000 MW. Economic constraint put into effect.
- The 2024 Economic Study presented at the August 2024 PAC meeting cover cost escalation assumptions.
- Internally, the ISO compared carbon constraints to supply versus demand. Here, the results indicated the 2033 buildout would be sufficient to reach 2040.
- The cost of constructing land-based wind is significantly cheaper than building offshore wind, which is indicated through the negative numbers.
- The number depicting land-based wind go down and rise back up due to the timing of load growth versus the wind's capital cost. Essentially, the timing of the capital cost coincides with the load growth. As such, the capacity factor can play into effect.
- The 2024 Economic Study does model contracts within the Policy Scenario if it has not yet been passed by state legislature. The ISO feels this helps ensure consistent results since resource assumptions can change over time.
- Stakeholders may request a sensitivity on H.Q.'s imports and bi-directionality after the final 2024 Economic Study results are published.
- The ISO is open to assistance modeling iron-air batteries using the capacity expansion tool. The ISO sampled six days per quarter and tested three different chronologies when modeling iron-air batteries using the capacity expansion tool. The felt longer periods would prevent optimization.
- During curtailments, batteries area assumed to charge as much as they can. The daily curtailment schedules are limited.
- The August 2024 PAC covered the 2024 Economic Study's import assumptions in greater detail. At a high-level, import assumptions follow a 3-year historic average plus NECEC.

- Stakeholders are encouraged to provide comments on the 2024 Economic Study's preliminary results.

A stakeholder issued the following comment:

- A stakeholder raised concern over modeling assumptions for the SMRs and solar in the carbon constrained buildout.
- A stakeholder offered to assist the ISO modeling iron-air batteries using the capacity expansion tool. She noted that the ISO might not being see certain results due to the applied incentives and dispatch settings in the capacity expansion model.

Item 6.0 – Planning Process Guide for Longer-Term Transmission Planning (LTTP)

Mr. Michael Drzewianowski (ISO-NE) discussed the Transmission Planning Process Guide (TPPG) updates following the addition of LTTP Phase 2. The additional changes primarily affect Sections 2.1 (Process for Enrollment), 2.2.2 (Requesting QTPS Status), 2.2.5 (Maintain QTPS Status) of the TPPG.

In response to stakeholder questions, the ISO issued the following statements:

- A lower return on investment (ROI) would impact a proposal's benefit-to-cost (BCR) ratio.
- The LTTP's single stage process differs from the existing two-phase competitive transmission solicitations found in Attachment K. In practice, Qualified Transmission Project Sponsors (QTPSs) will submit proposals to the ISO (along with $100k deposit) that meets all needs identified in the RFP. From here, the ISO will consider the evaluation factors and select a preliminary preferred solution, discussing its selection with PAC.
- The ISO will only consider proposals where solutions meet all needs. Modifications to projects after submittal are not allowed. As such, only non-material clarifications would be permitted.
- The LTTP RFP falls outside of Order No. 1000 process.
- The Tariff permits the ISO to conduct multiple RFPs simultaneously. Each RFP would require proposals meet specific needs in order to be considered a preferred solution.
- The ISO could face resource and staffing limitations if tasked with facilitating multiple RFPs simultaneously.
- LTTP's RFP structure allows for the consideration of baseline needs and goals.
- NESCOE's October 16 letter signals the first step in the LTTP RFP process. The ISO will continue RFP discussions with NESCOE while waiting for the final request to be issued.
- The tiered evaluation factors will be released as part of the RFP documentation.
- NESCOE can terminate LTTP's RFP process at any point.

Item 7.0 – Closing Remarks/Adjourn for the Day

Mr. Abhyankar announced the next PAC meeting is on Wednesday, December 18, 2024.

The meeting adjourned at 12:00 P.M.

Respectfully submitted,

_____/s/_____

Jillian Macura

Secretary, Planning Advisory Committee