

**MINUTES OF THE
PLANNING ADVISORY COMMITTEE (PAC)
MEETING HELD ON NOVEMBER 15, 2023**

Attendee	Organization
J. Truswell – Chair	ISO New England
J. Macura – Secretary	ISO New England
J. Adadjo	Eversource
S. Adams	ISO New England
Z. Ahmed	ISO New England
R. Albrect	Consulting Energy
S. Allen	Eversource
B. Anderson	NEPGA
B. Andrew	Eversource
E. Annes	CT DEEP
P. Asarese	ISO New England
J. Babu	Eversource
K. Bane	ISO New England
D. Basler	Chaco Companies
S. Beale	NESCOE
P. Bernard	ISO New England
L. Borsoi	Avangrid
C. Bothwell	DOE
D. Bradt	Oxford Power
H. Bruan	London Economics
J. Breard	ISO New England
J. Burlew	ISO New England
D. Burnham	Eversource Energy
D. Cavanaugh	ENE
L. Cecere	VELCO
E. Chapin	Onward Energy
A. Chaplin	New Leaf Energy
P. Chardavoyne	ISO New England
S. Chen	RLC Engineering
R. Collins	ISO New England
B. Conroy	RLC Engineering
W. Coste	ISO New England
K. Csizmesia	National Grid
B. D’Antonio	Eversource
T. Dalakos	RWE
F. Dallorto	ISO New England
J. Dannels	Shell

V. DelVillano	Eversource
F. Dieng	Eversource
J. Dong	Eversource
B. Donmez	Long Road Energy
J. Donovan	MA AG
M. Doolin	Eversource
M. Drzewianowski	ISO New England
L. Durkin	ISO New England
F. Ettori	VELCO
J. Fenn	FENNCO LLC
B. Forshaw	Energy Market Advisors
N. Forster	NESCOE
K. Fougere	Avangrid
B. Fowler	Wheelabrator North Andover Inc.; Exelon Generating Company LLC; Nautilus Power; Dynege Power Marketing, LLC; Entergy Nuclear Power Marketing LLC; Great River Hydro, LLC
K. Frank	Treadwood
J. Frost	Synapse
J. Fu	DOE
J. Fundling	Eversource
A. Gagnon	MA AG
R. Gahagan	Treadwood
S. Garwood	NHT
E. Golyshevskiy	Anbaric
M. Grover	Eversource
J. Halpin	Eversource
R. Harvey	IEEE
M. Haskell	Maine PUC
P. Holloway	MA DOER
N. Hutchings	NextEra Energy
J. Iafrati	Customized Energy Solutions
M. Ide	MMWEC
C. Jylkka	Daymark Energy Advisors
S. Keane	NESCOE
A. Krich	Boreas Renewables
F. Kugell	Central Maine Power Company
R. Lafayette	Eversource Energy
K. Lagunilla	Rhode Island Energy
S. Lamotte	ISO New England
A. Landry	ME Office of Public Advocate
A. Lawton	Advanced Energy United

Z. Logan	Central Maine Power Company
L. Looman	VELCO
P. Lopes	MA DOER
J. Lowe	ISO New England
X. Luo	ISO New England
E. Mailhot	ISO New England
S. Marien	Eversource Energy
J. Marinstein	Invenenergy LLC
J. Martin	New England Power Company
C. Mattioda	Synapse
B. McKinnon	South Hadley Electric Light & Norwood Municipal
A. Mitchell	National Grid
A. Nichols	ISO New England
S. Nikolov	ISO New England
B. Oberlin	ISO New England
A. O'Connell	MA AG
F. Omokaro	Eversource Energy
A. Patel	Eversource Energy
D. Patnaude	Eversource Energy
M. Perben	ISO New England
D. Phelan	NH Energy Gov
J. Porter	National Grid
H. Presume	VELCO
K. Quach	ISO New England
M. Ribeiro-Dahan	ISO New England
C. Richards	PPL
H. Rimkunas	Avangrid
B. Robertson	Eversource Energy
E. Ross	ISO New England
J. Rotger	Customized Energy Solutions
M. Safi	PPL
Z. Samuels	Eversource Energy
B. Sanderson	Anbaric
M. Saravanan	ISO New England
K. Schlichting	ISO New England
D. Schwarting	ISO New England
M. Scott	National Grid
P. Shattuck	Anbaric
J. Slocum	MA Dept. Transportation
B. Snook	CT AG
P. Sousa	South Coast Wind
A. Spinu	PPL

R. Stein	H.Q. Energy Services
E. Steltzer	Mott MacDonald
B. Swalwell	Tangent Energy
T. Sweeney	NH Dept. of Energy
C. Szmodis	PPL
L. Szmot	Strata Clean Energy
Z. Teti	Avangrid
B. Thomson	PPL
A. Trotta	United Illuminating
P. Turner	Conservation Law Foundation
G. Twigg	NECPUC
J. Vaile	Eversource Energy
M. Valencia-Perez	ISO New England
P. Vijayan	ISO New England
S. Walcott	Eversource Energy
A. Yahiaoui	United Illuminating
J. Zhang	ISO New England

Item 1.0 – Chairs Remarks

Ms. Jody Truswell welcomed PAC, reviewed the day’s agenda, and provided a few announcements. First, February’s PAC meeting is rescheduled for February 28, 2024. Second, the IPSAC meeting is on December 8 from 1-4 P.M. Third, the EAG meeting is December 15 from 9:30-11:00 AM. Last, Rhode Island Energy (RIE) revised its M13 presentation (October 2023) to correct PTF/ non-PTF cost allocation errors.

Item 2.0 – Western Central MA (WCMA) 2028 Short Circuit Solutions Study **CEII**

Ms. Sarah Lamotte (ISO-NE) presented the 2028 New England Short Circuit Needs Assessment which identified one over-dutied pool transmission facility (“PTF”) breaker was over 100% of its interrupting rating, triggering a time-sensitive need (June 1, 2026). This breaker replacement will be in addition to a current asset condition project in Western Central MA that was presented at the PAC in May 2021.

The preferred solution replaces the breaker rated for 63 kA of interrupting duty as part of the ongoing asset condition project. The estimated cost is \$750,000 (+50% / 25%) with an in-service date is Q1 2026. Due to the preferred solution’s cost effectiveness, no other alternatives were considered.

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

- The breaker replacement identified as part of the 2028 Short Circuit Solutions Study exceeds the original scope of the May 2021 asset condition project. ISO-NE’s identification of this time sensitive breaker replacement requires an additional \$750,000 on top of the substation’s initial asset condition costs.

Item 3.0 – Rhode Island 2028 Short Circuit Solutions Study **CEII**

Ms. Sarah Lamotte (ISO-NE) presented the 2028 New England Short Circuit Needs Assessment which identified three over-dutied PTF breakers were 100% over its interrupting line rating, triggering a time-sensitive need (June 1, 2026) in Rhode Island.

The preferred solution replaces the three affected breakers with ones that have an interrupting duty rated for 63 kA. The estimated cost is \$1,524,700 (+50% / 25%). The estimated in service date is May 31, 2026. Due to the preferred solution's cost effectiveness, no other alternatives were considered.

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

- ISO-NE did not consider using higher rated breakers because 63 kA is the standard size proposed by Rhode Island Energy (RIE).
- Assessing breaker size falls outside the 2028 New England Short Circuit Needs Assessment's scope.
- New England has not established a formal right-sizing protocol.
- Exceeding breaker ratings beyond 63 kA lends to a bigger discussion on safety and practicality. Transmission Owners (TOs) have expressed safety concerns for substation breakers with ratings beyond 63 kA. Additionally, higher rated breakers are larger and may not conform to existing substations.
- Older steam driven units are not retiring fast enough to address the region's short circuit concerns. As New England's transmission system expands, the region will need to build out AC transmission. ISO-NE is not sure how this will affect future short circuit results.
- ISO-NE assumes all generators are on when completing its short circuit studies.
- Fault current contribution from a traditional generator is independent of its output.

Item 4.0 – Guidelines for Asset Condition PAC Presentations

Mr. Robin Lafayette (Eversource Energy) presented revised Guidelines for Asset Condition Project Presentations on behalf of the New England Transmission Owners (NETOs). After stakeholder feedback, the NETOs expanded project information and added a summary table. The guidelines are effective January 1, 2024 and will be updated periodically or as needed.

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

- The NETOs did not incorporate a written stakeholder comment period for projects at least three months from construction with costs over \$50 million. The NETOs rationale was to strike an appropriate balance between the added benefit of a second comment period and the associated administrative work. Encouraging stakeholder feedback on project specifics earlier in project development will garner more impact because later stages require large TOs investment and minimal flexibility closer to construction. In most cases, TOs have a preliminary idea of a project's preferred solution when it is at least six months out from construction.
- TOs will prioritize drafting non-CEII presentations. The Asset Condition Guide directs TOs to post an additional redacted presentation in circumstances where CEII material is unavoidable.

- The accuracy of cost estimates for solutions in the Asset Condition Guide serve as recommendations for TOs. Depending on the circumstance, TOs can provide greater accuracy (if warranted) on a case-by-case basis.
- The NETOs will assess whether its proposed best practices for cost estimates require adjustment.

The following stakeholder comments were issued:

- The updated changes to the asset condition presentation guidelines seem to be moving in the right direction.
- Developing non-selected alternatives at a magnitude of +200 could prevent TOs from identifying other low cost solutions.
- NESCOE expressed gratitude for the NETO's timely work assessing and incorporating stakeholder feedback.

Item 5.0 – 5-Year Forecast of Upcoming Asset Condition Projects

Mr. David Burnham (Eversource Energy) presented an asset condition forecast proposal on behalf of the NETOs. This discussion stemmed from NESCOE's memo issued on February 8, 2023, which requested TOs annually submit and present one, two, and five-year asset condition project's capital spending plans at PAC. The presentation provides context and clarifies certain fields listed in the NETO project forecast spreadsheet. The TOs anticipate providing forecasts annually, likely in Q2 or Q3, to align with other forecasting efforts. Stakeholders can submit their feedback on the matter through December 15, 2023.

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

- The NETOs find it sensible to align asset condition forecasts updates with the annual updates to RNS rates.
- The NETOs will consider incorporating inspection statuses in the "Current Asset Condition" column.
- The cost magnitude column for "Under Developed" projects will be included when available.
- Some asset condition projects are incorporated into the 5-year forecast, while others are categorized as general investment. It is a case-by-case designation.
- In clarifying a question about project stages, the NETOs explained projects transition from "Under Evaluation" to "Under Development" and then to "Developed." From there, projects then move forward as "Proposed" then "Planned" and finally listed as "In-Service."
- Concept classification is available, but rarely used.
- Eversource clarified certain project stages have different cost estimate magnitudes.

Item 6.0 – Legacy Distributed Energy Resources (DER) in Needs Assessments

Mr. Pradip Vijayan (ISO-NE) reviewed Legacy Distributed Energy Resources (DER) assumptions and discussed preliminary observations from the Boston 2033 Needs Assessment. In addition, ISO-NE proposes to initiate the New England 2034 Daytime Minimum Load Needs Assessment in Q1 of 2024 to assess needs triggered from Legacy DERs tripping.

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

- ISO-NE has modeled standard legacy DERs to reflect protection settings.
- Needs will move forward to solution development if ISO-NE identifies a need independent from the loss of source due to DER tripping when it conducts the Boston and Vermont 2033 Needs Assessments.
- Hypothetically, SEMA faults could trip DER in Vermont. However, with this type of relationship, ISO-NE would not want to jump to local solutions in Vermont.
- ISO-NE will revisit the loss of source criteria after its collaborative study with PJM and NYISO concludes.
- Replacing legacy DER inverters before their end of life falls beyond the scope of this presentation.
- DERs interconnected on or after January 1, 2019 are subject to the ISO-NE's 2018 Source Requirement Document (SRD) or National Grid's SRD, as well as fault ride-through requirements.
- Recent DER studies have evaluated what happens with balanced and unbalanced faults. ISO-NE is not aware of studies that demonstrate that legacy DER is minimally impacted by these faults.
- ISO-NE will assess the feasibility and benefit of conducting subarea studies in PSCAD to verify faults in small subsets will not cause issues.
- In the example provided, Aspen does not show phase voltages that would lead to DER tripping for a single line to ground fault. ISO-NE is hesitant to draw conclusions based solely on one example of Delta-Wye transformers with SLG fault. ISO-NE will explore further how the prevalence of Delta-Y transformers should be incorporated into DER modeling. .
- PP3 does not require revisions for the 1200 MW loss of source limit. The 20 MW limit applies to the aggregate of units < 5 MW that trip individually, but does not apply to legacy DER. If Legacy DER are to trip for a fault, the total loss of source including legacy DER and other sources should be less than 1200 MW.

The following comments were issued:

- ISO-NE should coordinate the 2033 Boston and Vermont Needs Assessments.
- A stakeholder suggested forming a planning working group in collaboration with ISO-NE's Operations team to address these issues.

Item 7.0 – Closing Remarks/Adjourn for the Day

Ms. Truswell announced the next PAC meeting is on Wednesday, December 20, 2023. As a reminder for CEII presentations, please dial-in early to allow for adequate time to screen calls. When dialing in, clearly state and spell your full name, as well as note your affiliation to ensure the screening process moves swiftly.

The meeting adjourned at 11:48 P.M.

Respectfully submitted,

_____/s/_____

Jillian Macura

Secretary, Planning Advisory Committee