

**MINUTES OF THE
PLANNING ADVISORY COMMITTEE (PAC)
MEETING HELD ON DECEMBER 20, 2023**

Attendee	Organization
J. Truswell – Chair	ISO New England
J. Macura – Secretary	ISO New England
S. Adams	ISO New England
M. Ainspan	NRG Business Solutions, LLC
S. Ali	NextEra Energy Resources
S Allen	Eversource Energy
J. Anderson	S&P Global Platts
B. Andrew	Eversource Energy
P. Asarese	ISO New England
N. Baldenko	Eversource Energy
K. Bane	ISO New England
J. Bentz	NESCOE
D. Bergeron	ME Public Utilities Commission
P. Bernard	ISO New England
J. Breard	ISO New England
D. Burnham	Eversource Energy
D. Cavanaugh	Energy New England
E. Chapin	Onward Energy
P. Chardavoine	ISO New England
M. Coleman	JERA Americas
R. Collins	ISO New England
D. Conroy	RLC Engineering
W. Coste	ISO New England
F. Dallorto	ISO New England
B. Deonarine	Con Edison Transmission
J. Donovan	MA Attorney General's Office
M. Drzewianowski	ISO New England
L. Durkin	ISO New England
J. Fenn	Fennco, LLC
A. Feygin	ISO New England
M. Fossum	NH Office of Consumer Advocates
J. Fundling	Eversource Energy
A. Gillespie	Calpine
M. Goldberg	ISO New England
R. Guay	ME PUC
R. Harlan	Onward Energy
R. Harvey	Institute of Electrical and Electronics Engineers

A. Hastings	Eversource Energy
R. Hermann	Moody's Analytics
M. Hong	ISO New England
N. Hutchings	NextEra Energy Resources
J. Iafrati	Customized Energy Solutions
M. Ide	MMWEC
A. Kamins	Moody's Analytics
T Kaslow	First Light Power
S. Keane	NESCOE
R. Kornitsky	ISO New England
A. Krich	Boreas Renewables
R. Lafayette	Eversource Energy
E. Laine	ISO New England
S. Lamotte	ISO New England
J. Lamson	RTO Insider
A. Landry	ME Office of Public Advocate
A. Lawton	Advanced Energy United
P. Lopes	MA Department of Energy Resources
J. Lowe	ISO New England
T. Lundin	LS Power
T. Martin	National Grid
J. Martin	National Grid
C. Mattioda	Synapse
S. Molodetz	NextEra Energy Resources
P. McDonald	ISO New England
A. Nichols	ISO New England
S. Nikolov	ISO New England
B. Oberlin	ISO New England
R. Panos	National Grid
D. Patnaude	Eversource Energy
E. Perez-Cervera	ISO New England
M. Pescatore	ISO New England
D. Phelan	NH Public Utilities Commission
J. Porter	National Grid
K. Quach	ISO New England
N. Raike	ISO New England
J. Rauch	Avangrid
C. Richards Jr.	Rhode Island Energy
P. Roberti	RI Department of Public Utilities
B. Robertson	Eversource Energy
D. Robicheaux	MISO
V. Rojo	ISO New England
J. Rotger	Customized Energy Solutions

J. Rouland	Daymark Energy Associates
E. Runge	Day Pitney
M. Safi	Rhode Island Energy
D. Schwarting	ISO New England
M. Scott	National Grid
P. Shattuck	Anabarc
J. Slocum	MA Department of Public Utilities
P. Sousa	South Coast Wind
B. Stein	H.Q. Energy Services
B. Swalwell	Tangent Energy
T. Sweeney	NH Department of Energy
J. Talbert-Slagle	CT Office of Consumer Counsel
Z. Teti	Avangrid
B. Thomson	Rhode Island Energy
A. Trotta	Avangrid
P. Turner	Conservation Law Foundation
M. Valencia-Perez	ISO New England
K. Wei	NextEra Energy Resources
B. Woebbe	ISO New England
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, the 2022 ISO-NE Electric Generator Air Emissions Report has been posted to the Environmental Advisory Group (EAG) webpage. Second, Eversource Energy posted a revised copy of its CT 115kV Lattice Tower asset condition project to the PAC website. While these changes did not affect the project’s cost estimates, Eversource Energy felt these corrections warranted PAC notification.

Item 2.0 – Vermont 2033 Needs Assessment **CEII**

Mr. Marvin Valencia-Perez and Ms. Sarah Lamotte (ISO-NE) provided an overview of Vermont’s 2033 Needs Assessment (NA), which evaluates Pool Transmission Facilities’ (PTF) reliability performance and identifies reliability-based transmission needs. The competitive solutions process typically triggers after ISO-NE identifies a non-time sensitive need, but in this instance, ISO-NE has proposed a pause to assess its interactions with Longer-Term Transmission Planning Phase II, Order No. 881 implementation, Storage as a Transmission-Only Asset (SATO), and K32’s thermal violation need-by date.

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

- ISO-NE will assess whether it can post a redacted presentation to allow non-CEII members the opportunity to review the proposed competitive solutions pause.
- ISO-NE has thoroughly reviewed the Tariff and confirmed the proposed pause falls within its bounds. The Tariff requires ISO-NE to initiate the competitive solutions process, but does not expressly convey a timeline. As such, a pause will not hinder the

competitive solutions process, and a pause will not cause a change from the competitive solutions process to the Solutions Study process.

Item 3.0 – Economic Planning for the Clean Energy Transition (EPCET)

Mr. Ben Wilson (ISO-NE) presented the Market Efficiency Needs Scenario (MENS) analysis on the Relieved Interface Limits Sensitivity results, as well as the Policy Scenario Methodology for Sensitives on Expansion Reliability and Resource Compensation. The Policy Scenario looked at results from Power Purchase Agreements (PPA), PPA with a reliability adder (RA), total cost, and weather's impact on a reliability adder.

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

- Since August, ISO-NE has adjusted the North-South interface and the production cost model settings (run time vs. cost) to derive slightly different results in the base constrained and unconstrained models. The previous limit North-South limit during off peak hours were thermal and should not have been applied.
- ISO-NE will review data for the hours of congestion for binding elements to try to separate the coincidental hours binding the interfaces.
- ISO-NE is not taking actionable steps with EPCET results because it is an R&D pilot study not yet specified in the Tariff. ISO-NE is still perfecting EPCET's modeling for future application in the 2024 Economic Study process, which ISO-NE plans to discuss at a high level during the January 18 PAC meeting.
- Economic Study base cases will be defined by the Tariff and stakeholder input.
- RENEW Northeast's January 2023 sensitivity request for capacity costs associated with a new wind farm in New Brunswick are still underway. ISO-NE is evaluating the amount of deliverable qualified capacity on the Maine-New Hampshire interface and what impact that has on New England's capacity market to provide a capacity outlook with zonal limits and requirements. The capacity expansion model may allow ISO-NE to mimic the capacity market, but it would be difficult.
- ISO-NE will evaluate whether Markets Committee impact analysis can assist modeling regional market efficiencies when interface limits are increased.
- The PPA-only adequacy buildout covers dispatchable resources over multiple weather years to determine how intermittent resources influence load.
- The reserve margin provides no capacity value for non-dispatchable resources.
- The production cost model within the adequacy framework models batteries at 2, 4, and 8 hours.
- The PPA-only model dictates how PPAs today would arrive at the least cost solution. This model did not build in enough storage to alleviate negative LMPs. The significant periods where new and existing zero carbon resources did not run are the result of economic forces.
- The PPA-only model captures LMPs over time across the same weather year.
- The different dispatchable resources will be competition for the capacity market.
- The annual net profit is the average for each type of dispatchable resource.
- Dispatchable resources will be competition for the capacity market.
- Fixed costs are factored into a dispatchable resource's profit.

- A new unit would be reflected in build costs.
- The PPA and RA model forecasts that dispatchable resources will run less over time so they will require capacity payments outside of the energy market to make them whole.
- The reliability adder does not have to be large to make an impact. The less a resource emits, the more it benefits.
- In 2045, average fossil fuel generation drops and the system reduces carbon emissions roughly 6 million tons. Dispatchable generation (including batteries) will still be required during periods of peak load.
- Peak load ranges are expected to increase over time as load becomes increasingly sensitive to weather and temperature. From 2025 to 2045, the estimated gap between maximum and minimum peak load increases 10 GW. Modeling forecasts peak net load at 41 GWs and the minimum reserve margin (110% peak) at 45 GWs. As a result, about 90% of expected peak load will require dispatchable resources, such as nuclear, batteries, peaker units, despite the significant addition of intermittent resources.
- ISO-NE identified significant excess zero carbon energy across these simulations. The overall heating and electricity dynamic changes as the result of electrification. This economic model highlights that moments of peak demand do not align with wind and solar. As such, building more storage does not present an economically viable solution.
- The declining cost of new resources were incorporated into the modeling. The reliability adder increases as additional resource are added over time. As such, wind resources will be curtailed more often, as it is not needed.
- Demand response development for certain resources can play a role to alleviate some uncertainty in multiple weather years. Periods of extreme weather limit demand response because curtailing load, such as heating, cooling, or transportation will be less feasible.
- The analysis concluded at 2045 because carbon prices are comparable to 2050.
- The 2019 weather year was used in the PPA simulation.
- The Probabilistic Energy Adequacy Tool (PEAT) captures extreme weather dating back to 1950 to provide a comprehensive model for future climate.

The following comments were issued:

- A presentation focused on explaining the reserve margin would be useful.
- Revenue sufficiency is an important factor to consider when modeling the least cost solutions.

Item 4.0 – NH Line A152 & M127 Structure Replacement Projects

Mr. Robin Lafayette (Eversource Energy) presented the proposed structural replacements for New Hampshire's A152 and M127 lines after recent inspections indicated moderate degradation of several wood structures along the lines. Eversource plans to replace 22 wood structures across the A152, which connects Keene and Chestnut Hill substations. Similarly, Eversource proposes to replace 25 wood structure across M127, which connects Webster Substation to North Road Substation. A152's estimated PTF cost is \$5.909M (-25/ +50%) and is expected in-service by Q2, 2024. M127's estimated PTF cost is \$9.834M (-25/ +50%) and is expected in-service by Q3, 2024.

In response to stakeholder questions, Eversource Energy issued the following statements:

- Some additional B grade structures identified and prioritized for replacement due to supply chain efficiency. This also mitigates the risk of uplift concerns on neighboring structures.

Item 5.0 – NETO Update on Asset Condition Project Process Enhancements

Mr. Alan Trotta (Avangrid), on behalf of the NETOs, provided an update on its PTF asset condition database and guidance document. The NETO database provides PTF information that could indicate potential asset condition issues requiring refurbishment and/or replacement. Since September, TOs have incorporated refinements based on feedback and aim to post Version 1 sometime in January and provide subsequent annual updates. The NETOs continue to evaluate the possibility of including asset health scores and PTF metrics. The NETO guidance document will include a description of the steps in an asset condition project, the information and factors considered, industry standard references, and information on the internal review process. The NETOs plan to present the draft guidance document at the March PAC meeting.

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

- TOs will annually update their own metrics in the asset condition database. Due to staffing limitations, updates cannot be provided on a rolling basis.
- The NETOs have not determined when the asset condition database will be published. Likely, a memo will be circulated to notify PAC members and request comments.
- The Asset Condition Guidelines reference all relevant, industry specific standards.
- The NETOs were asked to prioritize asset condition project process improvements ahead of right-sizing considerations. TOs are eager to share their thoughts about right-sizing with the region.

The following comments were issued:

- There should be an official comment period after the asset condition database goes live.
- Multiple stakeholders requested asset health metrics are included into the database.
- NESCOE thanked the NETOs for their work creating the database and guidance document. NESCOE looks forward to these items, which will set the stage for future right-sizing discussions.

Item 6.0 – Moody’s Update

Adam Kamins (Moody’s Analytics) provided an economic overview of the United States and New England.

In response to stakeholder questions, Moody’s Analytics provided the following statement:

- Connecticut has not experienced the same amount of job growth as other areas. Connecticut’s housing market did not pick up like the rest of the country. This has worked to its advantage, providing a more stable market.

Item 7.0 – Closing Remarks/Adjourn for the Day

The next PAC meeting is scheduled for January 18, 2024.

The meeting adjourned at 1:16 P.M.

Respectfully submitted,

_____/s/____

Jillian Macura

Secretary, Planning Advisory Committee