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

Attendee	Affiliation
Jody Truswell (Chair)	ISO New England
J. Macura (Secretary)	ISO New England
B. Ahern	National Grid
Z. Ahmed	ISO New England
R. Albrecht	Ray Albrecht PE
S. Ali	NextEra Energy
S. Allen	Eversource Energy
K. Andoh	ISO New England
B. Annabathina	NextEra Energy
P. Asarese	ISO New England
J. Babu	Eversource Energy
J. Bagnoli	Eversource Energy
K. Bane	ISO New England
C. Benkler	Eversource Energy
D. Bergeron	Maine Public Utilities Commission
P. Bernard	ISO New England
J. Bihrle	MA Attorney General's Office
C. Bothwell	Department of Energy
K. Boucher	ISO New England
P. Boughan	ISO New England
J. Breard	ISO New England
J. Brodbeck	EDPR
R. Brody	CTC Global
D. Burnham	Eversource Energy
M. Caley	ISO New England
D. Cavanaugh	Energy New England
J. Cebrik	Avangrid (CMP/UI)
J. Cefaratti	Avangrid (CMP/UI)
E. Chapin	Onward Energy
A. Chaplin	New Leaf
S. Chaudbury	ISO New England
S. Chen	RLC Engineering
L. Cioffi	Rhode Island Energy
S. Cochran	Vital
M. Coleman	JERA Americas
W. Coste	ISO New England
R. Collins	ISO New England

F. Dallorto	ISO New England
J. Dong	Eversource Energy
B. Donmez	Long Road Energy
J. Donovan	MA Attorney General's Office
M. Drzewianowski	ISO New England
L. Durkin	ISO New England
F. Ettori	VELCO
J. Fenn	Fennco, LLC
A. Foley	Glenvale Solar
B. Forshaw	Energy Market Advisors
N. Forster	NESCOE
M. Fossum	NH Office of Consumer Advocate
B. Fowler	Sigma Power Consulting
J. Fu	Department of Energy
A. Gagnon	MA EOEEA
L. Gaudet	CMEEC
M. Gonzalez	ISO New England
K. Gonzalez Rodriguez	ISO New England
J. Grasse	National Grid
R. Guay	Maine Public Utilities Commission
J. Halpin	Eversource Energy
R. Harvey	IEEE
M. Haskell	Maine Public Utilities Commission
A. Hofmann	National Grid
N. Hutchings	NextEra Energy
J. Iafrati	CES
M. Ide	MMWEC
B. Jagolinzer	Avangrid (CMP/UI)
S. Judd	ISO New England
S. Keane	NESCOE
A. Kleeman	ISO New England
R. Kornitsky	ISO New England
N. Krakoff	Conservation Law Foundation
A. Krich	Boreas Renewables
F. Kugell	Avangrid (CMP/UI)
R. Lafayette	Rhode Island Energy
S. Lamotte	ISO New England
J. Lamson	RTO Insider
A. Landry	Maine Office of Public Advocate
Z. Logan	Avangrid (CMP/UI)
W. Lu	ISO New England
T. Lundin	LS Power
K. Mankouski	ISO New England

J. Marinstein	Invenergy
J. Martin	New England Power Company
T. Martin	New England Power Company
C. Mattioda	Synapse
C. McClelland	Long Road Energy
P. McDonald	ISO New England
A. Mitchell	National Grid
S. Molodetz	NextEra Energy
K. Mulloy	Avangrid (CMP/UI)
S. Nikolov	ISO New England
R. Panos	New England Power Company
K. Pastoriza	Member of the Public
E. Perez Cervera	ISO New England
D. Phelan	NH Department of Energy
J. Porter	Rhode Island Energy
H. Presume	VELCO
F. Pullaro	RENEW
K. Quach	ISO New England
N. Raike	ISO New England
J. Rauch	Avangrid (CMP/UI)
M. Ribeiro Dahan	ISO New England
C. Richards Jr.	Rhode Island Energy
J. Robinson	Proton
E. Rolfe	Avangrid (CMP/UI)
E. Ross	ISO New England
J. Rotger	CES
C. Ruell	ISO New England
E. Runge	Day Pitney
D. Ryan	ISO New England
M. Safi	Rhode Island Energy
A. Santana	ISO New England
K. Schlichting	ISO New England
D. Schwarting	ISO New England
M. Scott	National Grid
M. Siddiqui	National Gird
J. Slocum	MA Dept. Transportation
K. Slonski	Eversource Energy
B. Snook	Maine Governor's Office of Energy
C. Sooy	National Grid
P. Sousa	South Coast Wind
M. Stoker	Avangrid (CMP/UI)
B. Stein	H.Q. Enterprises
M. Stoker	Avangrid (CMP/UI)

T. Sweeney	NH Dept. of Energy
J. Talbert-Slagle	CT Office of Consumer Counsel
A. Trotta	Avangrid (CMP/UI)
B. Thomson	Rhode Island Energy
A. Trotta	Avangrid (CMP/UI)
G. Twigg	NECPUC
J. Vaile	Eversource Energy
M. Valencia Perez	ISO New England
P. Vijayan	ISO New England
K. Wei	NextEra Energy
L. Willick	LS Power
B. Wilson	ISO New England
M. Winne	ISO New England
J. Zhang	ISO New England

Item 1.0 – Chairs Remarks

Ms. Jody Truswell welcomed PAC and reviewed the day's agenda.

Item 2.0 – Third Maine Resource Integration Study (MRIS) ***CEII***

Mr. Al McBride (ISO-NE) discussed the Third Maine Resource Integration Study (MRIS). This Cluster Enabling Transmission Upgrade (CETU) Regional Planning Study (RPS) intends to interconnect up to 1,200 MW of wind and solar resources in northern Maine into the New England system. The presentation focused on the MRIS's results, cluster-eligible Interconnection Requests (IR), and Order No. 2023 implications.

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

- The ISO plans to post a non-CEII presentation to the PAC website.
- Several queue positions (QPs) through QP1100 located north of Surowiec contributed to the study's delay. While those QPs may not have required an upgrade they had the potential to be affected by one. It is important to have those QPs properly represented in the base case to confirm no adverse impact is present.
- The ISO used 1000-1200 MW increments for increased generation. The ISO tries to identify a reasonably achievable amount of system expansion. The ISO will conduct an additional study for another 1200 MW of system expansion if the queue contains additional projects.
- The ISO performed the study at the Network Resource Interconnection Service (NRIS) level.
- The ISO plans to provide additional detail on available capacity.
- The ISO conducted single circuit testing given the network's topography.
- The ISO did not test a single circuit contingency for the double circuit configuration in this study.
- The ISO documented its concerns with a series capacitor in previous rounds of the study.
- The ISO's draft report will include the Capacity Capability Interconnection Standard.

- Impedance is a critical factor for CETU eligibility. An ETU would be ineligible to take the place of the CETU if impedance became too high.
- The ISO plans to assess whether a modified ETU request would constitute as a material modification if submitted before the final report was published.
- Under Order No. 2023, Interconnection Customers (ICs) during the transition cluster will not have an opportunity to submit a new Interconnection request (IR) to tweak their proposals.
- Separate generation leads are required to maintain a low enough impedance when generation exceeds 500 MW in northern Maine.
- The ISO will confirm during the cluster study whether the STATCOM at Haynesville meets the generator power factor.
- During regular clusters, the Cluster-Enabling Transmission Upgrade Regional Planning Study (CRPS) will be used to inform entry, rather than proceeding to a System Impact Study (SIS). If projects do not move forward in one particular cluster, its CRPS results could inform entry for new IRs in the next cluster window.
- The ISO did not consider HVDC transmission solution in this study.
- The ISO will reach out and ask NYISO for their experience with series compensation.
- The ISO's analysis did not contemplate connections with the Northern Maine Independent System Administrator (NMISA) and New Brunswick System Operator (NBSO). A connection to the NMISA could add significant complications, making it difficult to connect to New Brunswick. At this time, the CRPS has not contemplated this as part of its design.
- The ISO will confirm New England's light load magnitude in the study report.
- The ISO's sensitivity increasing the Orrington-South transfer limit will be considered.
- Projects with I.3.9 approval and a completed SIS will not have to respect the new transfer limits.
- The withdrawal penalty constitutes a full forfeiture of an IC's 5% participation deposit to the remaining projects participating in the cluster.
- The CETU cost allocation will continue to follow the existing CETU rules. For generators, an IC's Commercial Readiness Deposit (CRD) will be in the form of a cash CETU Participation Deposit equal to 5% of the IC's cost allocation responsibility for the CETU and associated system upgrades. This is to be determined based on the cost estimates provided in the final CRPS report.
- The ISO anticipates using prior CRPS reports to inform entry into a future cluster study following a withdrawal. However, the ISO cautioned that circumstances could persist where the base case varies too greatly and an additional study would be necessary.

Stakeholders issued the following comments:

- A stakeholder recommended the ISO provide more information on the needs related to series compensation.
- A stakeholder encouraged the ISO's leniency for the specifications required to modify an existing IR under Order No. 2023.

Item 3.0 – 2024 Economic Study – Benchmark Results & Review of Stakeholder Requested Scenario Proposals

Mr. Richard Kornitsky & Ms. Elinor Ross (ISO-NE) presented the preliminary Benchmark Scenario results and reviewed the proposed Stakeholder-Requested Scenario for the 2024 Economic Study cycle. The benchmark scenario's preliminary results indicated that the modeled generation by fuel type reflected historic results, modeled LMPs were lower than historical LMPs since it attempted to minimize production cost, and certain interface flows reflected historic flows better than others. However, all had similar average and net flows.

The ISO received one Stakeholder-Requested Scenario proposal to evaluate the operation of peaker generation plants under ISO forecasted heating and EV charging loads combined with expected growth in clean generation, covering high and low variations for load and generation. The outcome of the proposal would result in directional guidance to see what combinations of relative growth of grid load versus clean generation capacity could result in increased or decreased operation of peaker plants, as well as what level of accelerated clean supply growth or decreased grid load might serve to resolve local peaker plant emissions.

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

- The ISO plans to add additional curtailment information in future presentations.
- The ISO uses a simple simulation for spinning reserves and ancillary services. It is 100% of largest continuities plus 50% of second largest contingencies. This is a simple model because of the perfect foresight of the model.
- Tariff changes for the Economic Process Improvements Phase 2 are still underway. As a result, the ISO will conduct the Market Efficiency Needs Scenario (MENS) following the Policy Scenario. This allows the ISO to produce some 2024 Economic Study results ahead of the Tariff changes necessary to perform the MENS.

A stakeholder provided the following comment:

- The volatility between the simulated results and actual results is not surprising due to a much narrower bandwidth. However, this raises slight concern when looking further out onto the system because the volatility will be significantly greater. The ISO should consider this during its final analysis.

Item 4.0 – Line X-178 115 kV Line Rebuild

Mr. Chris Soderman (Eversource) provided a follow up presentation discussing additional solution alternatives developed in response to stakeholder feedback and provided analysis comparing all solution alternatives. Eversource performed additional analysis of solution alternatives with reduced scope compared to the full rebuild presented at the February 28 PAC meeting. Structure replacements were evaluated and classified as follows: 1) immediate replacement structures 2) uplift structures and 3) opportunity structures. Eversource provided analysis the following three alternatives:

- Alternative 1 – Replace only immediate replacement structures and uplift structures
- Alternative 2 – Alternative 1, plus additional opportunity structures
    - Estimated Cost: $436.6 M (-50% / +200%)

- Alternative 3 – Complete line rebuild, including replacement of all additional structures overloaded with the addition of OPGW
    - Estimated Cost: $360.8 M (-25% / +50%)
    - Preferred alternative presented to the PAC in February

Alternative 2 would leave structures older than 40 years in place, and would likely require future projects as these older structures deteriorate. Eversource states the total cost of Alternative 2 plus additional future projects has a greater chance of increasing compared to the estimate for Alternative 3. In conclusion, Alternative 3 remains Eversource's preferred solution.

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

- Eversource is in the process of conducting its 2024 inspections. After completion, Eversource will require time to assess the identified structural defects, which could take anywhere from several weeks to many months, depending on inspection results.
- At this time, Eversource does not intend to present its 2024 inspection results to the PAC.
- The terrain surrounding X-178 will likely contribute to a greater number of structures affected by uplift. Eversource will follow up with more details on the number.
- Eversource, while unsure on the exact location of each of the 41 "Priority C" structures, confirmed they are scattered across the X-178 line, rather than confined to one section of the line.
- Eversource plans to focus on its transition to OPGW as part of its line rebuild projects because telecommunication providers have notified Eversource that existing service will be discontinued over the course of the next decade.
- Alternative 3's refined cost estimate incorporates escalation.
- Eversource has not submitted any filings related to this project within the New Hampshire docket.
- Eversource's preferred solution mitigates issues identified in the 2050 Transmission Study.
- Eversource assessed other communications alternatives before designating OPGW as a preferred solution. Eversource considered ADSS cables but operational concerns prevented Eversource from pursuing that alternative further.

Stakeholders issued the following comments:

- Many stakeholders felt Eversource should provide additional detail on X-178's proposed pole replacements.
- Multiple stakeholders encouraged Eversource to consider including the 2024 line inspections into the solution scope for X-178.
- A stakeholder noted concern that the replacement of the 41 "Priority C" structures would further contribute to the uplift issue.
- A stakeholder felt asset condition projects of substantial cost and/or controversy require more than 30 minutes of allocated time on the PAC agenda to facilitate meaningful discussion.
- A stakeholder urged the NETOs to consider using the 2050 Transmission Study results as a requirement in the Asset Condition Process Guide (ACPG) to inform future right-sizing efforts.

- A stakeholder was supportive relying on the 2050 Transmission Study results to advise the scope of asset condition projects, but cautioned that while these study results are useful it was built on assumptions and uncertainty. The stakeholder felt justification for asset condition projects should not rely solely on those results.
- NESCOE requested more insight into the needs driving OPGW installation on the line.
- NESCOE noted its frustration and reiterated its request for Eversource to provide a targeted solution cost analysis.
- NESCOE felt cost estimates for both permanent and temporary rights of way would be useful metrics.
- Multiple stakeholders felt it would be beneficial for PAC to see the cost comparison between the cost of a temporary and permanent ROW.
- A stakeholder requested more analysis regarding this project's impact on ratepayers.

Item 5.0 – Line N133 Structure Replacement Project

Mr. Chris Soderman (Eversource) presented an overview of the N133 structure replacement project. The line extends 6.37 miles from Schiller substation in New Hampshire to Three Rivers substation in Maine. Recent inspections identified 19 structures targeted for replacement, 6 of which were identified as Priority C (Moderate Defect) and 13 identified as Priority B (Minimal Defect). Eversource provided analysis on the following three alternatives:

- Alternative 1: Replace only Priority C structures
- Alternative 2: Replace Priority C structures, uplift, and nearby Priority B structures
- Alternative 3: Full rebuild

Eversource recommends Alternative 2 as the preferred solution. This solution has an estimated PTF cost of $5.503M (-25% / +50%) with an in-service date of Q4 2024.

In response to a question, Eversource issued the following statement in response:

- Eversource estimates construction will be completed within 3 to 4 months.

Item 6.0 – Campville 115 kV Substation Relay Upgrades

Mr. John Babu (Eversource) provided an overview of the Campville substation replay upgrades. Manufacturers no longer support the current relay/communication equipment and there is a history of failures and mis-operations of certain relays. Eversource proposes to replace 8 relays (4 GE and 4 SEL) with new SEL relays which will allow for the conversion to differential protection over fiber and the elimination of Power Line Carrier (PLC) equipment. The estimated PTF cost is $5.067M (-25% / +50%) with an estimated in-service date of Q3 2025.

There were no stakeholder questions.

Item 7.0 – MEPCO Sections 396 and 3001 End of Life Strategy

Mr. Zach Logan (Avangrid) presented MEPCO Sections 396 and 3001 end-of-life strategy. Recent assessments of Sections 396 and 3001 designated Section 396 in "Fair" overall condition and Section 3001 in "Good" overall condition. As such, Avangrid has determined an immediate full line rebuild is unnecessary. Avangrid provided analysis on the following six alternatives for MEPCO's end-of-life strategy:

1. Rebuild all structures older than 2010
2. Rebuild all structures older than 2010 and install new conductor
3. Rebuild in multiple segments
4. Continue maintenance (25 structure replacements per year with wood poles
5. Continue maintenance (increased structures per year with steel poles)
6. Reconductor after maintenance replacements are complete

Avangrid recommends Alternative 5 as the preferred solution, which includes an initial package of 53 structures. Avangrid anticipates construction to begin in January 2025 and the work in 2025 is estimated to cost $9.25M.

In response to questions, Avangrid issued the following statements in response:

- Project mobilization would include applicable matting and line work.
- Continued maintenance replacements at an increased rate would allow Avangrid the opportunity to replace the rejected structures along with any structures designated as "fair."
- Avangrid anticipates continued maintenance to include 40-50 structure replacements per year based on historical averages.
- Avangrid will provide individual cost breakdowns for Section 396 and Section 3001.

Stakeholders issued the following comments:

- Including the pros and cons for each alternative is useful information.

Item 8.0 – RSP Project List and Asset Condition List June 2024 Update

Mr. Jon Breard (ISO-NE) provided an RSP Project List and Asset Condition List (ACL) update. The RSP Project List had no major cost estimate changes greater than $5M between March and June 2024. The SEMA 2028 Short Circuit Solutions and Maine 2028 Short Circuit Solutions were added to the RSP Project List. Three upgrades in the Greater Boston area were placed in-service since March 2024 and there have been no cancelled projects. Additionally, the ACL added six new projects and placed 17 projects in-service.

There were no stakeholder questions.

Item 9.0 – Maine Transfer Limit Updates

Mr. Dan Schwarting (ISO-NE) provided an update on the Maine transfer limits. Three major interfaces in Maine (Orrington–South, Surowiec–South, and Maine–New Hampshire) were analyzed to determine new thermal, voltage, and stability interface transfer limits. Previously,

stability limits on the northern New England interfaces were based on Bulk Power System (BPS) classification testing, according to Northeast Power Coordinating Council (NPCC) Document A-10. However, recent changes with the NPCC Document A-10 have separated transfer limits from BPS testing. Moving forward, interface limits will be based solely on "design contingencies" (*i.e.,* loss of transmission lines, transformers, etc.).

The ISO anticipates implementing the new transfer limits in day-to-day operations, including both the day-ahead and real-time energy markets, in late June or July. The revised transfer capabilities will be incorporated into various planning studies and processes, such as Needs Assessments, Solution Studies, competitive solutions process (for any pre-NECEC analysis), Proposed Plan Application (PPA) studies for transmission projects with an in-service date before NECEC's in-service date, and interconnection studies (starting with the Transitional Cluster Study).

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

- The ISO will discuss the impact on capacity transfer limits and any resulting implications on Forward Capacity Market (FCM) inputs in more detail at future meetings.
- The ISO last evaluated transfer limits for these interfaces in Maine in 2012. Since then, the system has undergone many changes.
- The ISO attributes a decrease in thermal limits to increased flows on 115 kV lines, which may have been caused by various system changes since 2012. Since these interfaces are limited by stability performance rather than thermal limits, these changes have not decreased the overall interface transfer capability.
- In future SIS and PPA studies, thermal analysis at the new limit will determine if an adverse impact is present.
- The ISO plans to address any potential implications with the transitional Capacity Network Resource (CNR) group study in the next coming months.

Stakeholders issued the following comments:

- A stakeholder voiced appreciation for a separate CEII appendix, which allowed this presentation to remain non-CEII.

Item 10.0 – Closing Remarks/Adjourn for the Day

Ms. Truswell announced the next PAC meeting will be held on Wednesday, July 17, 2024. The meeting adjourned at 2:43 P.M.

Respectfully submitted,

_____/s/_____

Jillian Macura

Secretary, Planning Advisory Committee