

**MINUTES OF THE
PLANNING ADVISORY COMMITTEE (PAC)
MEETING HELD ON FEBRUARY 15, 2023
VIA WEBEX & TELECONFERENCE**

Attendee	Organization
J. Truswell – Chair	ISO New England
J. Macura – Secretary	ISO New England
A. Abdelsamad	QCells
S. Allen	Eversource Energy
P. Asarese	ISO New England
J. Babu	Eversource Energy
N. Baldenko	Eversource Energy
C. Benker	Eversource Energy
P. Bernard	ISO New England
P. Boughan	ISO New England
H. Braun	London Economics
J. Breard	ISO New England
J. Brodbeck	EDPR
J. Burlew	ISO New England
D. Burnham	Eversource Energy
D. Cavanaugh	Energy New England
R. Collins	ISO New England
D. Conroy	RLC Engineering
W. Coste	ISO New England
F. Dallorto	ISO New England
J. Dannels	Shell
M. Drzewianowski	ISO New England
L. Durkin	ISO New England
F. Etori	VELCO
B. Forshaw	Energy Market Advisors, LLC
J. Fundling	Eversource Energy
J. Gordon	CPV
R. Guay	Maine PUC
J. Halpin	Eversource Energy
H. Hunt	NESCOE
N. Hutchings	ISO New England
J. Iafrati	Customized Energy Solutions
M. Ide	Massachusetts Municipal Wholesale Electric Company
S. Judd	ISO New England
S. Keane	NESCOE
R. Kornitsky	ISO New England

N. Krakoff	Conservation Law Foundation
F. Kugell	Central Maine Power Company
R. Lafayette	Eversource Energy
S. Lamotte	ISO New England
A. Lawton	Synapse Energy
P. Lopes	MA DOER
T. Lundin	LS Power
k. Mankouski	ISO New England
B. Marszalkowski	ISO New England
J. Martin	National Grid
T. Martin	National Grid
B. McKinnon	Norwood Municipal Light Department
A. Nichols	ISO New England
S. Nikolov	ISO New England
B. Oberlin	ISO New England
H. Pathan	Eversource Energy
D. Patnaude	Eversource Energy
J. Porter	PPLWeb
H. Presume	VELCO
J. Rotger	Customized Energy Solutions
E. Runge	NEPOOL
M. Scott	National Grid
J. Slocum	Massachusetts Public Utilities Commission
R. Snook	Connecticut Department Energy and Environmental Protection
C. Soderman	Eversource Energy
P. Sousa	Marble River
B. Stein	H.Q. Energy Services (U.S.) Inc.
M. Valencia Perez	ISO New England
P. Vijayan	ISO New England
S. Welch	Doral Renewables, LLC
B. Wilson	ISO New England
J. Zhang	ISO New England

Item 1.0 – Chairs Remarks

Ms. Jody Truswell welcomed the committee and reviewed the days’ agenda. The Environmental Advisory Group (“EAG”) meets February 16, 2023 at 9:30am via teleconference on Webex. The ISO has yet to receive any stakeholder requests to present their input on the Public Policy Transmission Upgrades at today’s PAC meeting; stakeholders have until February 27 to submit their input.

Heather Hunt (Executive Director, NESCOE) discussed the content of a letter posted February 8, 2023, regarding Asset Condition Projects and Process Improvements. The letter addressed

Transmission Owners and opened communication regarding updating the asset conditions improvements process. The letter outlined suggestions promoting visibility, timing, and notice. Ms. Hunt expressed that asset condition projects are a vital opportunity to foster regional planning to expand clean resources. NESCOE will continue this discussion at future PAC meetings.

Item 2.0 – South Naugatuck to Devon Corridor Rebuild

Mr. Chris Soderman (Eversource Energy) gave an update on the South Naugatuck to Devon Corridor rebuild. The project's original scope expanded after additional inspections and engineering analysis identified a greater number of asset conditions and reliability concerns. These included copper conductor and shield wire degradation, OPGW installation, wood structure deficiencies (woodpecker damage, pole top rot, cracked arms, split pole decay), and lattice tower deterioration affecting load support and reliability. The project constructs 385 new steel structures, re-conductors 72.05 circuit miles, and replaces 71.05 circuit miles of existing shield wire with OPGW. The project's upgrades provide a reliable solution—maximizing cost efficiencies, materials procurement, contract execution, and mobilization. The existing 255/256 ACL projects will be canceled and replaced with five new asset condition projects, each aligned with a segment of the corridor (see slide 9). PTF's total estimated cost is \$342.55 million (-25 / +50%) and the project's in-service date is set for Q4, 2025.

In response to Stakeholder questions, Mr. Soderman responded with the following:

- Wood pole damage can occur rapidly, requiring further inspections after a project's conceptual design phase.
- Eversource installed a larger conductor in this corridor to minimize blowout, which provides a cost saving opportunity to maximize line needs in the terminal.
- The length span of the project will remain the same. The dense area was a driver for the additional structures for this project.
- The transformers upgraded from 69 to 115 kV when code changed in the 1940s.
- Exact financial details were not disclosed, but the project's cost estimate would have been significantly higher if Eversource did not retire units 255/256.

Stakeholders made the following comments:

- NESCOE's letter addressing asset condition process improvements is an important topic. It is helpful to understand why projects' cost increases.

Item 3.0 – EPCET February Update

Mr. Ben Wilson and Mr. Richard Kornitsky (ISO New England) presented an educational overview of the Capacity Expansion tool (Energy exemplar's PLEXOS) and a high-level overview of the Policy Scenario as well as additional results for the Market Efficiency Needs Scenario. Thus far, the ISO has presented the Benchmark and Market Efficiency Needs Scenario results. Now, ISO is working on the Policy Scenario of the economic study process. The ISO has run two methods—an unconstrained model and N-1 security constrained dispatch model with interface limits. The ISO will compare the impact of constraints and congestion on LMPs, production cost, emissions, and dispatch by fuel, indicating congestion's environmental and economic impacts in a 10-year planning horizon system. Notably, significant congestion occurred along interfaces already in today's system (Whitefield South, Sheffield Highgate).

Curtailement increases from historical values were primarily caused by oversupply conditions and minor curtailment occurred from transmission constraints. Overall, system congestion costs were valued at \$7.7 million.

EPCET's Policy Scenario phase projects system outcomes when all carbon reduction policies are met. Capacity expansion modeling informs which units could be built or retired. The objective function of this tool strives to minimize the net present value (NPV) of both production and capital costs through LT and MT/MS modeling. Due to the study's R&D nature, there will be many iterations. Policy results are expected in Q3, 2023.

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

- In reference to slide 11, when a curtailment occurs, LMPs are negative—bringing down average LMPs. As a result, net LMPs decrease.
- EPCET uses a 2019 weather year, projecting 2032 results. The Policy Scenario forecasts a further timeline. The case is still developing assumptions and determining how this overlaps with longer transmission needs. These assumptions come from traditional analysis.
- In reference to slide 27, the LT model runs larger chunks, making it easier to process.
- There are different sample methods and the ISO are exploring them.
- Batteries can show the disconnect between LT & MT/ST modeling.
- LT parameters can model ancillary services, but that is not the focus at the moment.
- Modeling concerns are part of an on-going conversation and the ISO will continue to engage with stakeholders (potentially monthly). ISO is committed to communicating major project updates as they occur to stakeholders.
- There are internal discussions about interactions between EPCET and FGRS. It is best to go off the ISO's Annual Work Plan for estimated timelines.
- When building candidate generators, ISO needs to make sure they are used properly. FGRS phase 1 analysis is trying to qualify dispatch-ability.
- The Policy Scenario is looking to the 2050 horizon and focuses on hitting the policy goals put in place.
- The Policy Scenario does not initially include retirements. It will begin by running a wide variety of scenarios to create a large gambit of results indicating how each generator type performs. The goal is to focus on all types of scenarios and to cast a wide net.
- When choosing to retire the unit, the ISO may give a yearly outward maintenance cost and will look at different variables, adjusting the software's capability as needed. The ISO is primarily concerned with the capital cost of destroying or refurbishing a unit.
- In reference to slide 23, the ISO is working in collaboration with neighbors to explore transmission pathways as expansion candidates. Building a new pathway with Quebec is a potential, but the ISO is currently performing research to assess whether Quebec has the resources or capital for such an endeavor.
- Since the policy scenario is an R&D study, the ISO is still determining its level of detail versus different scenarios to run. As the ISO generates results, conversations about the outcomes will be shared.
- The goal of this project is to look at state policy as a whole and see what the potential effects to the system would be like in order to determine plans for the future. These selected policies either are in place today, or will likely be in the future.

- In reference to slide 25, specific assumptions regarding offshore wind will be listed in future presentations.
- EPCET works alongside FGRS Phase 2 and 2050 Transmission Study to align ISO assumptions and results across projects and studies.
- Modeling must occur before the ISO can address specific simulation questions.
- The ISO is considering modeling for multiple weather years to affect production cost runs.
- For the LT model, it is possible to incorporate a constraint to balance resource capacity expansion runs. There is a potential that the ISO could run that in the future. This software allows models to layer different constraints, build off each other.
- The ISO is looking at the possibility of energy storage in Quebec. It is not a base case scenario, but an option.

Stakeholder made the following comments:

- Ancillary services are important to model because there is a vital need for them.
- Stakeholders raised concern about modeling future retired units and how that translates to retaining units, reserve roles, and dispatch-ability.
- Stakeholders expressed a strong interest in definitive information about Quebec and future reliance on neighbors.

Item 4.0 – Vermont 2032 Needs Assessment Scope of Work - Winter Peak Scenarios

Ms. Jinlin Zhang (ISO New England) presented Vermont 2032 Needs Assessment Winter Peak Scenario. In Vermont, the winter peak is significantly higher than summer peak load, so this presentation focused on the modeling assumptions for the 2032 winter peak conditions utilizing the 2022 CELT report data. Notable adjustments included load, active DR, and EE forecast to reflect values expected under 2032 winter peak conditions. New England's conventional generation maximum outputs were updated to the Winter Network Resource Capability (NRC) ratings. All New England transmission facilities' ratings were updated to reflect their winter ratings.

The renewable and Energy Storage Systems (ESS) assumptions were based on the assumptions used for winter peak scenarios in the 2050 Transmission Study.. Offshore wind availability was assumed 40% and onshore wind was set to 65%. Conventional hydro assumptions were based on historical outputs during the winter peak periods. A pseudo-economic dispatch (proposed at August 2022 PAC) was used for conventional generation and generation was dispatched in class order, dispatching all generators in a given class online before dispatching from the next class.

Steady state thermal and voltage analysis will be performed on N-0 (all-facilities-in), N-1 (all-facilities-in, first contingency), and N-1-1 (facility-out, first contingency) for the described set of generation dispatches and inter-regional stresses for the winter peak scenario. Stability analysis will not be performed for the winter peak scenario. If the Needs Assessment identifies needs, a determination will be made on whether the needs are time sensitive.

In response to Stakeholder questions, ISO New England responded with the following:

- ESS were assumed to be dispatched at MWh/6 to account for the fact that on a winter peak load day, the net load after accounting for PV, would be above 95% of the daily net

peak for 5-6 hours (peak hours). Reduction in capacity reflects the possibility of individual batteries slowly discharging throughout the peak, or the aggregate effects of many batteries quickly discharging at different times during the peak hours.

- In response to stakeholder concerns regarding the impact of behind the meter (BTM) ESS on loads, the ISO acknowledged that the ESS modeled in the study are larger installations (> 5 MW) and do not account for behind the meter ESS. The ISO is continuing efforts to incorporate BTM ESS into Transmission Planning studies.
- This study is an addition to the summer peak, not a substitution.
- All resources (including large scale-battery storage) require either an FCM obligation or a contract to be included in a Needs Assessment. ISO does not include resources in a Needs Assessment based solely on the interconnection queue.

Comments:

- Stakeholders felt that BTM ESS assumptions would strongly affect Vermont's winter peak scenarios.

Item 5.0 – Closing Remarks/Adjourn for the Day

Ms. Truswell announced the next Planning Advisory Committee meeting will be held on Thursday, March 16, 2023.

The meeting adjourned at 11:10 P.M.

Respectfully submitted,

_____/s/

Jillian Macura

Secretary, Planning Advisory Committee