

FINAL

Pursuant to notice duly given, a meeting of the NEPOOL Participants Committee was held via teleconference beginning at 9:30 a.m. on Friday, June 11, 2021. A quorum determined in accordance with the Second Restated NEPOOL Agreement was present and acting throughout the meeting. Attachment 1 identifies the members, alternates and temporary alternates who participated in the teleconference meeting.

Mr. David Cavanaugh, Chair, presided and Mr. Sebastian Lombardi, Acting Secretary, recorded. Mr. Cavanaugh expressed appreciation to those who provided written comments thus far in the process and provided an overview of the agenda for the meeting.

APPROVAL OF MAY 13 MEETING MINUTES

Mr. Cavanaugh referred the Committee to the preliminary minutes of the May 13, 2021 Pathways meeting, as circulated and posted in advance of the meeting. Following motion duly made and seconded, the Committee unanimously approved the preliminary minutes of the May 13, 2021 meeting as circulated.

ISO PRESENTATION ON SCOPE AND DEFINITION OF PATHWAYS ANALYSIS

On behalf of the ISO, Mr. Steven Otto reviewed materials that had been circulated and posted in advance of the meeting that continued discussions on the modeling approach and assumptions that the ISO, together with Analysis Group, Inc. (AGI) planned to use to evaluate the forward clean energy market (FCEM) and net carbon pricing (NCP) frameworks.

Mr. Otto began by reviewing the work completed to that point, including a draft of a “Final Scoping Report” that was included with the materials circulated and posted for the meeting. The Scoping Report described the modeling approaches for the FCEM and NCP frameworks and plans

for a comparison against a “status quo” framework, which would allow for key model outputs from each framework to be directly compared. He expressed appreciation for the feedback that had been received to date and posted on the NEPOOL website. He welcomed and encouraged any additional feedback relating to the details in the draft final scoping report.

Turning to the eligibility of imports in a FCEM, Mr. Otto identified the concerns that the ISO sought to balance – (1) allowing resources from outside of New England to contribute to the region’s decarbonization goals can reduce costs to consumers and (2) other regions may not have clean energy requirements and so “double-counting” of clean energy may occur. In seeking to balance these two concerns, he explained that the ISO proposes that AGI’s model permit clean and renewable resources from Canada and resources in New York that sell RECs into New England to qualify for clean energy certificates (CECs) but not permit New York resources that are clean but are non-renewable to be eligible to sell CECs into New England.

Mr. Henry Yoshimura then presented the ISO’s proposed approach for the development of a model for a “hybrid” pathway analysis. He explained that, since the hybrid model builds upon the FCEM and NCP frameworks, the ISO’s and AGI’s current thinking was to complete the analysis of those two frameworks first, in the previously-committed timeframe, and then to complete analysis of and report on the hybrid pathway thereafter. Draft results on the FCEM and NCP frameworks were expected to be available before the end of 2021, with a final report on those modeled market outcomes to be shared with stakeholders and finalized in the first quarter of 2022.

Members commented on, and expressed concerns regarding, the extended timeframe for completion of the hybrid pathway analysis. Mr. Yoshimura and Mr. Todd Schatzki of AGI provided further insight and reasons for that proposed timeframe. A NESCOE representative offered to explore how NESCOE might provide to support acceleration of the process.

AGI PRESENTATION

Mr. Cavanaugh then introduced Mr. Schatzki who, along with his AGI colleague Mr. Chris Llop, reviewed materials, circulated and posted in advance of the meeting, that included an update on several of the proposed modeling inputs and assumptions for the central case, and provided more information in response to several stakeholder questions from previous meetings. Mr. Schatzki began with an overview of the contemplated modeling approach, which included modules to simulate the region's electricity markets (i.e. Energy and Ancillary Service (reserve) markets (EAS), FCM, and the proposed FCEM and NCP frameworks). The "capacity expansion" model would first arrive at a future resource mix and then analyze outcomes in the EAS and capacity markets, reflecting the impacts of the FCEM, NCP and *status quo* frameworks. He explained that this model would by design include simplifying assumptions but offered a desirable level of flexibility.

In response to questions, Mr. Schatzki clarified how conceptually resource retirements would be identified and simulated in the model. He stated that, with respect to resource adequacy, preliminary plans were to assume a reserve margin based on a planning study (e.g. load plus a percentage), with details yet to be finalized. Addressing timeframes, he noted plans to run the Capacity Expansion Module for a full 20 years (to 2040) and possibly to run market simulations for the EAS and FCEM frameworks for one or two interim years (e.g. 2030 or 2035) to obtain additional details.

After a brief recess, Mr. Schatzki continued the discussion on modeling inputs and assumptions, beginning with a review of the preliminary new entry capital costs, which were to rely on the 2021 U.S. Energy Information Administration (EIA) Annual Energy Outlook (AEO) overnight capital costs (and potentially other factors still under consideration). He explained, in response to a question, the reasons for choosing these cost assumptions rather than other recently

developed and differing new entry capital cost assumptions. He confirmed that the list of technologies identified in the presentation would be the full set of resources to be considered in the capacity expansion model. He explained that, for reasons related to pricing determination and siting complexities, Canadian hydro had not been included, but noted AGI's openness to reconsideration in this area. Further, when evaluating current technology "optimism" factors, he clarified that the model would use the details consistent with EIA's usage of the data. When asked about how state policies would influence the capacity expansion model, specifically with respect to onshore and offshore wind, Mr. Schatzki explained that such policies would be reflected in the resource mix used for comparing the status quo with other cases/scenarios.

Mr. Schatzki then reviewed the status quo resource mix, which under all central cases, would reflect region-wide electricity sector emissions 80% below 1990 levels. He noted that the modeling analysis would assume long-term contracts incenting new resource financing and a resource mix consistent with New England States' policy assessments. He then reviewed the policy contribution allocation by state for both the status quo and the FCEM analyses. Responding to a question regarding decarbonization levels, he noted that modeling would begin with status quo levels and move gradually to the carbon targets over the full time period. When asked about the approach to capacity expansion, he clarified that in all three scenarios, AGI intended to pre-determine carbon levels, though the mix of resources that would achieve those levels would be different within each model. He also noted that the process by design wouldn't incent the least cost resource.

Turning to resource retirement assumptions, Mr. Schatzki noted that all three central cases would assume that any currently announced retirements have taken effect, and both Seabrook and

Millstone would remain within the models. He then reviewed the proposed set of scenarios that will be evaluated within the planned models.

Mr. Cavanaugh then introduced Mr. Chris Llop from AGI who addressed stakeholder questions from previous meetings. Mr. Llop reported, among other things, that AGI, in its modeling, proposed to allow clean resources in neighboring states and provinces to import CECs if they also import the associated certificates for all clean/renewable attributes (AGI assumed New York nuclear generation would be used to meet New York's clean energy goals, and would not supply CECs to New England). AGI would address transmission considerations by assuming no transmission congestion in the central cases, considering adjustments to costs for new renewable generation from export-constrained areas to account for incremental transmission costs, and evaluating a scenario with the existing transmission system and power flows to analyze how outcomes differ under each policy approach. Given expected modeling and/or policy complexities, AGI was not likely to specifically account for system engineering constraints associated with integrated solar and storage resources or to focus on municipal solid waste or biomass considerations.

Addressing next steps, Mr. Llop indicated that market simulations and analysis would begin in July and run through August. Stakeholders would be engaged throughout the process as needed, with a presentation of AGI's preliminary analysis of the results planned for October. Mr. Cavanaugh noted that the next Future Grid Pathways Study meeting was scheduled for July 21.

There being no further business, the meeting adjourned at 3:12 p.m.

Respectfully submitted,

Sebastian Lombardi, Acting Secretary

**PARTICIPANTS COMMITTEE MEMBERS AND ALTERNATES
PARTICIPATING IN JUNE 11, 2021 TELECONFERENCE MEETING**

PARTICIPANT NAME	SECTOR/ GROUP	MEMBER NAME	ALTERNATE NAME	PROXY
Actual Energy, Inc.	Supplier		John Driscoll	
Advanced Energy Economy	Fuels Industry Participant	Caitlin Marquis		
American Petroleum Institute	Fuels Industry Participant			Paul Powers
Ampersand Energy Partners LLC	Supplier			Julia Frayer
AR Large Renewable Generation (RG) Group Member	AR-RG	Alex Worsley		
AR Small Load Response (LR) Group Member	AR-LR	Brad Swalwell		
Ashburnham Municipal Light Plant	Publicly Owned Entity		Brian Thomson	
Avangrid Renewables	Transmission	Kevin Kilgallen		
AVANGRID: CMP/UI	Transmission		Alan Trotta	
Belmont Municipal Light Department	Publicly Owned Entity		Dave Cavanaugh	
Block Island Utility District	Publicly Owned Entity	Dave Cavanaugh		
Boylston Municipal Light Department	Publicly Owned Entity		Brian Thomson	
BP Energy Company	Supplier			José Rotger
Braintree Electric Light Department	Publicly Owned Entity			Dave Cavanaugh
Brookfield Renewable Trading and Marketing	Supplier	Aleks Mitreski		
Calpine Energy Services, LP	Supplier	Brett Kruse		Bill Fowler
Castleton Commodities Merchant Trading	Supplier			Bob Stein
Chester Municipal Light Department	Publicly Owned Entity		Dave Cavanaugh	
Chicopee Municipal Lighting Plant	Publicly Owned Entity		Brian Thomson	
Clearway Power Marketing LLC	Supplier			Pete Fuller
Concord Municipal Light Plant	Publicly Owned Entity		Dave Cavanaugh	
Connecticut Municipal Electric Energy Coop.	Publicly Owned Entity	Brian Forshaw		
Conservation Law Foundation (CLF)	End User	Phelps Turner		
Consolidated Edison Energy, Inc.	Supplier	Norman Mah		
CPV Towantic, LLC	Generation	Joel Gordon		
Cross-Sound Cable Company (CSC)	Supplier		José Rotger	
Danvers Electric Division	Publicly Owned Entity		Dave Cavanaugh	
Dominion Energy Generation Marketing, Inc	Generation		Mary Nuara	
DTE Energy Trading, Inc.	Supplier			José Rotger
Dynergy Marketing and Trade, LLC	Supplier	Andy Weinstein		Bill Fowler
Emera Energy Services	Supplier			Bill Fowler
Eversource Energy	Transmission			Parker Littlehale
Exelon Generation Company	Supplier		Bill Fowler	
FirstLight Power Management, LLC	Generation	Tom Kaslow		
Galt Power, Inc.	Supplier	José Rotger		
Generation Group Member	Generation		Abby Krich	
Georgetown Municipal Light Department	Publicly Owned Entity		Dave Cavanaugh	
Great River Hydro	AR-RG			Bill Fowler
Groton Electric Light Department	Publicly Owned Entity		Brian Thomson	
Groveland Electric Light Department	Publicly Owned Entity		Dave Cavanaugh	
H.Q. Energy Services (U.S.) Inc. (HQUS)	Supplier	Louis Guilbault	Bob Stein	
High Liner Foods (USA) Incorporated	End User		William P. Short III	
Hingham Municipal Lighting Plant	Publicly Owned Entity	John Coyle	Dave Cavanaugh	
Holden Municipal Light Department	Publicly Owned Entity		Brian Thomson	
Holyoke Gas & Electric Department	Publicly Owned Entity		Brian Thomson	
Hull Municipal Lighting Plant	Publicly Owned Entity		Brian Thomson	
Ipswich Municipal Light Department	Publicly Owned Entity		Brian Thomson	
Jericho Power LLC (Jericho)	AR-RG			Marji Philips

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PARTICIPANT NAME	SECTOR/ GROUP	MEMBER NAME	ALTERNATE NAME	PROXY
Littleton (MA) Electric Light and Water Department	Publicly Owned Entity		Dave Cavanaugh	
Long Island Power Authority (LIPA)	Supplier		Bill Killgoar	
Mansfield Municipal Electric Department	Publicly Owned Entity		Brian Thomson	
Marble River, LLC	Supplier		John Brodbeck	
Marblehead Municipal Light Department	Publicly Owned Entity		Brian Thomson	
Mass. Attorney General's Office (MA AG)	End User	Tina Belew	Ben Griffiths	
Mass. Bay Transportation Authority	Publicly Owned Entity		Dave Cavanaugh	
Mass. Municipal Wholesale Electric Company	Publicly Owned Entity	Brian Thomson		
Mercuria Energy America, LLC	Supplier			José Rotger
Merrimac Municipal Light Department	Publicly Owned Entity		Dave Cavanaugh	
Michael Kuser	End User		Jason York	
Middleborough Gas & Electric Department	Publicly Owned Entity		Dave Cavanaugh	
Middleton Municipal Electric Department	Publicly Owned Entity		Dave Cavanaugh	
National Grid	Transmission		Tim Martin	
Nautilus Power, LLC	Generation		Bill Fowler	
New Hampshire Electric Cooperative	Publicly Owned Entity	Steve Kaminski		Brian Forshaw; Dave Cavanaugh
North Attleborough Electric Department	Publicly Owned Entity		Dave Cavanaugh	
Norwood Municipal Light Department	Publicly Owned Entity		Dave Cavanaugh	
NRG Power Marketing LLC	Generation		Pete Fuller	
Pascoag Utility District	Publicly Owned Entity		Dave Cavanaugh	
Paxton Municipal Light Department	Publicly Owned Entity		Brian Thomson	
Peabody Municipal Light Plant	Publicly Owned Entity		Brian Thomson	
Princeton Municipal Light Department	Publicly Owned Entity		Brian Thomson	
PSEG Energy Resources & Trade LLC	Supplier		Eric Stallings	
Reading Municipal Light Department	Publicly Owned Entity		Dave Cavanaugh	
Rowley Municipal Lighting Plant	Publicly Owned Entity		Dave Cavanaugh	
Russell Municipal Light Dept	Publicly Owned Entity		Brian Thomson	
Shell Energy North America (US), L.P.	Supplier	Matt Picardi		
Shrewsbury Electric & Cable Operations	Publicly Owned Entity		Brian Thomson	
South Hadley Electric Light Department	Publicly Owned Entity		Brian Thomson	
Sterling Municipal Electric Light Department	Publicly Owned Entity		Brian Thomson	
Stowe Electric Department	Publicly Owned Entity		Dave Cavanaugh	
Sunrun Inc.	AR-DG			Pete Fuller
Taunton Municipal Lighting Plant	Publicly Owned Entity		Dave Cavanaugh	
Templeton Municipal Lighting Plant	Publicly Owned Entity		Brian Thomson	
Vermont Electric Power Company (VELCO)	Transmission	Frank Etori		
Vermont Public Power Supply Authority	Publicly Owned Entity			Brian Forshaw
Village of Hyde Park (VT) Electric Department	Publicly Owned Entity		Dave Cavanaugh	
Wakefield Municipal Gas and Light Department	Publicly Owned Entity		Brian Thomson	
Wallingford DPU Electric Division	Publicly Owned Entity		Dave Cavanaugh	
Wellesley Municipal Light Plant	Publicly Owned Entity		Dave Cavanaugh	
West Boylston Municipal Lighting Plant	Publicly Owned Entity		Brian Thomson	
Westfield Gas & Electric Department	Publicly Owned Entity		Dave Cavanaugh	
Wheelabrator North Andover Inc.	AR-RG		Bill Fowler	