Sebastian Lombardi
Assistant Secretary

October 18, 2021

VIA ELECTRONIC MAIL

TO: PARTICIPANTS COMMITTEE MEMBERS AND ALTERNATES

RE: Supplemental Notice of October 25, 2021 NEPOOL Participants Committee Working Session

Pursuant to Section 6.6 of the Second Restated New England Power Pool Agreement, supplemental notice is hereby given that the October Future Grid "Pathways Study" meeting will be held **in person on *Monday*, October 25, 2021, at 9:30 a.m. at the Doubletree Hotel, 5400 Computer Drive, Westborough, MA** for the purposes set forth on the attached agenda and posted with the meeting materials at nepool.com/meetings/.

The safety protocols that will be in effect for in-person attendance at the October 25 Participants Committee meeting can be viewed here. In summary, only those who are fully vaccinated, and have provided in advance of the meeting proof of full vaccination (to pmgerity@daypitney.com), will be permitted to attend in person. Additional safety measures are outlined in the protocols.

As with any in-person meeting, there will be COVID-related risks associated with in-person attendance at the October 25 working session, but there are also substantial benefits from being together in-person. Efforts have been made to reduce the risks and to ensure that no unvaccinated people attend the meeting, but each of you will need to perform your own risk/benefit calculus in deciding whether to participate remotely or in-person.

If you plan to attend the October 25 Pathways Study meeting in-person, we ask that you please let us know via e-mail (kdube@daypitney.com) by no later than this Friday, October 22. For those who otherwise attend NEPOOL meetings but plan to participate in the October 25 meeting virtually, please use the following dial-in information: **866-803-2146; Passcode: 7169224.** To join using WebEx, click this link and enter the event password **nepool**.

For your information, the October 25 meeting will be recorded. NEPOOL meetings, while not public, are open to all NEPOOL Participants, their authorized representatives and, except as otherwise limited for discussions in executive session, consumer advocates that are not members, federal and state officials and guests whose attendance has been cleared with the Committee Chair. All those in attendance or participating, either in person or by phone, are required to identify themselves and their affiliation at the meeting. Official records and minutes of meetings are posted publicly. No statements made in NEPOOL meetings are to be quoted or published publicly.

Respectfully yours,

/s/
Sebastian Lombardi, Assistant Secretary

NEPOOL

FINAL AGENDA
NEPOOL Participants Committee
In-Person Working Session: Pathways to the Future Grid
October 25, 2021
Doubletree Hotel, Westborough, MA
Start time: 9:30 a.m.

The agenda items for the October 25 working session are as follows:

1. To approve the draft minutes of the September 23, 2021 Participants Committee "Pathways Study" meeting. The draft preliminary minutes of that meeting are included with this supplemental notice and posted with the meeting materials.

2. Analysis Group to provide preliminary set of results for the central cases from their ongoing pathways analyses. An update on modeling progress and next steps will also be discussed. Analysis Group's presentation materials will be circulated under separate cover when received.

Additional stakeholder feedback received from Eversource on the request that AGI study a scenario that compares the cost of an offshore wind transmission system versus the costs of offshore wind projects with individual generator lead lines is attached and posted with the meeting materials.

PRELIMINARY

Pursuant to notice duly given, a meeting of the NEPOOL Participants Committee was held via teleconference beginning at 1:00 p.m. on Thursday, September 23, 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.

APPROVAL OF JULY 21 PATHWAYS STUDY MEETING MINUTES

Mr. Cavanaugh referred the Committee to the preliminary minutes of the July 21, 2021 Pathways Study meeting, as circulated and posted in advance of the meeting. Following motion duly made and seconded, the Committee unanimously approved those minutes.

ANALYSIS GROUP (AGI) PRESENTATION

Mr. Cavanaugh then introduced Mr. Todd Schatzki of AGI, who, along with his colleague Mr. Chris Llop, reviewed materials, circulated and posted in advance of the meeting. Mr. Schatzki informed the Committee that the purpose of their presentation was to provide information on the following outstanding quantitative model inputs and assumptions: (i) load assumptions across the study years (2020-2040); (ii) behind-the-meter solar; (iii) summer/winter qualified capacity; (iv) resource siting and transmission upgrade costs; and (v) status quo resource mix.

Mr. Chris Llop began by discussing the load assumptions across the study years. He indicated that for years 2030 and 2040, the model would assume loads based on the Massachusetts Decarbonization Roadmap: 80x50 Study, and that for the base year, they planned to assume actual

2019 load from ISO-NE's 2020-2029 Forecast Report of Capacity, Energy, Loads and Transmission (CELT 2020 Report).

Turning to behind-the-meter solar modeling assumptions, Mr. Llop explained that the behind-the-meter solar growth in 2021-2030 in all scenarios will be based on the 2021 CELT Report. For years 2031-2040, behind-the-meter solar growth assumptions will be constant and equal to the incremental growth in 2030. He further noted that the behind-the-meter solar photovoltaic (PV) would be modeled as supply and would be eligible for clean energy certifications (CECs) under the Forward Clean Energy Market (FCEM) framework.

Concerning summer/winter Qualified Capacity (GC) modeling assumptions, Mr. Llop stated that, for all resources, AGI planned to estimate QC (for meeting resource adequacy) as the average of summer and winter QC. He added that they would rely upon existing ISO-NE rules for the summer and winter QC assumptions for new and existing intermittent resources, noting that seasonal QC for such resources would be the median output during intermittent reliability hours, as currently defined in the ISO-NE Tariff and calculated using generation profiles that differ by location and rely on 2019 weather patterns. For dispatchable resources, Mr. Llop indicated that the seasonal claimed capacity in the CELT Report would be used and clarified that if a resource was not reflected in the CELT Report but cleared in FCA15, the summer and winter QC from that auction would be used in the modeling.

Mr. Schatzki then discussed resource siting and transmission upgrade cost modeling assumptions, noting that the pathways study effort aimed to compare differences in outcomes, including total costs, between alternative approaches to decarbonization. He indicated the intent to assume reasonable estimates for new resource costs that reflect differing factors affecting development of new resources, including plant costs (and cost change due to technological change),

transmission costs, and other plant siting challenges. Referencing AGI's presentation materials, Mr. Schatzki then proceeded to provide the Committee with an overview of the approach AGI planned to take with respect to resource siting and transmission upgrade cost modeling assumptions for onshore and offshore wind resources. He explained that new resource capital costs would reflect both generation plant and transmission upgrades for onshore and offshore wind, and that the transmission upgrade cost assumptions would reflect existing available transmission capability and incremental transmission upgrades needed to increase deliverability. Mr. Schatzki concluded AGI's presentation with a brief overview of the planned modeling assumptions for the *status quo* resource mix, noting that, as previously discussed with the Committee, AGI's modeling assumptions would align with the findings of certain state-commissioned deep decarbonization studies.

In response to a question about the constant growth rate for behind-the-meter solar PV, Mr. Llop explained that they would need to see the results of the scenarios and let the model play out. When asked about data on pricing as a result of the model, Mr. Schatzki confirmed that certain market economic outcomes from AGI's modeling, such as pricing, would be shared with the Committee, but that the form in which this information would be shared was still being determined. When asked about whether AGI would consider different behind-the-meter configurations, Mr. Llop clarified that AGI did not intend to model generic utility-scale solar. Responding to a question about assumptions for establishing qualified capacity levels/ratings, Mr. Llop indicated that AGI intended to look at the historical requirements and make assumptions without modeling variability. A question about the permitting of solar PV and the land available for such projects was addressed by Mr. Schatzki, who noted that the model would consider the impact of incremental costs associated with less available land for future projects due to increased solar PV project development. In response to an inquiry as to whether AGI's model plans to incorporate any

changes to ISO-NE's minimum offer price rule (MOPR) construct or take into account FERC Order 2222 implications, Mr. Schatzki noted that neither would be part of the model.

Addressing next steps, Mr. Schatzki indicated that an initial set of results for each of the central cases would be presented in October 2021. In December, updates based on stakeholder feedback would be provided along with an initial set of results for the scenarios. Mr. Cavanaugh noted that the next Future Grid Pathways Study meetings were scheduled for October 25 and December 6.

There being no further business, the meeting adjourned at 3:16 p.m.

Respectfully submitted,

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Sebastian Lombardi, Acting Secretary

PARTICIPANTS COMMITTEE MEMBERS AND ALTERNATES
PARTICIPATING IN THE SEPTEMBER 23, 2021 TELECONFERENCE MEETING

PARTICIPANT NAME	SECTOR/ GROUP	MEMBER NAME	ALTERNATE NAME	PROXY
American Petroleum Institute	Fuels Industry Participant	Paul Powers		
AR Large Renewable Generation (RG) Group Member	AR-RG	Alex Worsley		
AR Small RG Group Member	AR-RG	Erik Abend		
AR Small Load Response (LR) Group Member	AR-LR	Brad Swalwell		
Ashburnham Municipal Light Plant	Publicly Owned Entity		Brian Thomson	
Associated Industries of Massachusetts	End User			Doug Hurley
AVANGRID: CMP/UI	Transmission		Jason Rauch	
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
Brooks, Dick	End User	Dick Brooks		
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	
CLEAResult Consulting, Inc.	AR-DG	Tamera Oldfield		
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		
CPV Towantic, LLC	Generation	Joel Gordon		
Cross-Sound Cable Company (CSC)	Supplier		José Rotger	
Danvers Electric Division	Publicly Owned Entity		Dave Cavanaugh	
DTE Energy Trading, Inc.	Supplier			José Rotger
Dynegy Marketing and Trade, LLC	Supplier			Bill Fowler
Emera Energy Services	Supplier			Bill Fowler
Eversource Energy	Transmission			Parker Littlehale
Exelon Generation Company	Supplier	Steve Kirk	Bill Fowler	
FirstLight Power Management, LLC	Generation	Tom Kaslow		
Galt Power, Inc.	Supplier	José Rotger	Jeff Iafrati	
Generation Group Member	Generation			A. Worsley
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	
Harvard Dedicated Energy Limited	End User			Doug Hurley
H.Q. Energy Services (U.S.) Inc. (HQUS)	Supplier		Bob Stein	
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	
Littleton (MA) Electric Light and Water Department	Publicly Owned Entity		Dave Cavanaugh	
Long Island Power Authority (LIPA)	Supplier		Bill Killgoar	
Maine Power LLC	Supplier	Jeff Jones		
Mansfield Municipal Electric Department	Publicly Owned Entity		Brian Thomson	
Maple Energy LLC	AR-LR			Doug Hurley
Marblehead Municipal Light Department	Publicly Owned Entity		Brian Thomson	
Mass. Attorney General's Office (MA AG)	End User		Ben Griffiths	

PARTICIPANTS COMMITTEE MEMBERS AND ALTERNATES
PARTICIPATING IN THE SEPTEMBER 23, 2021 TELECONFERENCE MEETING

PARTICIPANT NAME	SECTOR/ GROUP	MEMBER NAME	ALTERNATE NAME	PROXY
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	
Middleborough Gas & Electric Department	Publicly Owned Entity		Dave Cavanaugh	
Middleton Municipal Electric Department	Publicly Owned Entity		Dave Cavanaugh	
National Grid	Transmission	Tim Brennan	Tim Martin	
Natural Resources Defense Council	End User	Bruce Ho		
Nautilus Power, LLC	Generation		Bill Fowler	
New England Power Generators Association (NEPGA)	Fuels Industry Participant	Bruce Anderson		
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	
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	
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	
The Energy Consortium	End User			Doug Hurley
Vermont Energy Investment Corporation	AR-LR		Doug Hurley	
Vermont Electric Power Company (VELCO)	Transmission	Frank Ettori		
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	

EVERSOURCE ENERGY

247 Station Drive, NE 210
Westwood, MA 02090
781-441-8258

October 18, 2021

Dear NEPOOL Participants and Stakeholders,

During the September 23, 2021 Pathways to the Future Grid working session, National Grid requested that the Analysis Group study a scenario that compares the costs of an offshore wind (OSW) transmission system versus the costs of OSW projects with individual generator lead lines.

Eversource does not support this request for the following reasons:

- First, comparing the costs of various transmission configurations will not affect the results. According to Analysis Group's September 23 presentation, "Because resource siting and transmission upgrade cost modeling assumptions will be the same in all central cases, differences in the level of costs (potentially higher or lower than the true cost) will tend to have comparable effects on each approach." The central cases are designed to compare differences in outcomes between alternative market-based approaches to decarbonizing the power sector. Comparing costs of different transmission configurations does not provide information related to different market-based approaches for decarbonizing the resource mix. The consultant specializes in economic analysis and would likely need support from transmission engineers to develop transmission cost estimates that would then become assumptions in the analysis. This additional work, while providing little additional information germane to the analysis, would further increase the time associated with its completion. Stakeholders eagerly await the results of the analysis as an input into subsequent discussion of market design and potential reform considerations.

- Second, this request is beyond the scope of the Pathways study. Determining the relative costs of a potential OSW transmission system versus the costs of individual generator lead lines with a reasonable degree of accuracy would require a detailed engineering study and an assessment of the business and timing risks that each approach could impose on OSW generation. To the extent that the costs of transmission facilities for OSW are expected to have a material impact on the study results, Eversource suggests using a high-level range of potential costs rather than expanding the scope of the Pathways effort.

- Finally, Eversource believes that this request will add further delay to an already extensive process. In 2020, the Massachusetts Department of Energy Resources (DOER) held an Offshore Wind Transmission Technical Conference, which was sandwiched around two sets of Offshore Wind Transmission Stakeholder Q&A's and represents a significant amount of perspectives immediately available to stakeholders. As mentioned above, stakeholders are eagerly awaiting

the results of the analysis as in input to time-sensitive market design and potential reform proposals.

Thank you for the opportunity to comment and we look forward to continuing to work on this important initiative for New England market participants and stakeholders.

Sincerely,

James Daly
Vice President Energy Supply