

FINAL

Pursuant to notice duly given, a meeting of the NEPOOL Participants Committee was held via teleconference beginning at 9:30 a.m. on Thursday, April 15, 2021. 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 welcomed everyone to the third meeting of Pathways to the Future Grid evaluation process. He thanked those who provided written comments following the March 18 meeting.

APPROVAL OF FEBRUARY 18, 2021 AND MARCH 18, 2021 MEETING MINUTES

Mr. Cavanaugh referred the Committee to the preliminary minutes of the February 18, 2021 and March 18, 2021 Pathways meetings, as circulated and posted in advance of the meeting. Following motion duly made and seconded, the Committee unanimously approved the preliminary minutes of the February 18, 2021 as circulated but with the addition of the identification of Mr. Peter Fuller's company, Autumn Lane Energy Consulting, and the preliminary minutes of the March 18, 2021 meetings as circulated.

ISO PRESENTATION***Interaction with Existing State Policy***

On behalf of the ISO, Dr. Chris Geissler reviewed materials that had been circulated and posted in advance of the meeting that included material on existing state policies and the role of storage, along with a response to additional stakeholder comments. He noted that, following the ISO's presentation, the Analysis Group (AG) would join the call to kick off discussions on the

modeling approach and the assumptions they intend to use to evaluate the straw Forward Clean Energy Market (FCEM) and net carbon pricing frameworks.

Dr. Geissler then turned the presentation over to Mr. Steven Otto, who provided an overview of the potential modeling approaches for consideration and reviewed the anticipated interactions between the alternative market frameworks being discussed and the existing state clean energy programs. He then presented six cases that demonstrated total payments to resources under the different approaches with different relationships between the demands for clean energy certificates (CECs) and renewable energy certificates (RECs). Referencing the ISO's presentation materials, Mr. Otto explained that the cases considered a stakeholder concern where, under Approach 1, resources that can sell both CECs and RECs may see increased payments relative to Approach 2.

In response to questions during his presentation, Mr. Otto confirmed that modeling efforts were expected to include some competitiveness assumptions with respect to the CEC and REC markets. He responded to comments noting that the new CEC and FCEM framework could provide a broader, more expansive regional market that could potentially benefit current state programs. Mr. Otto stated that the models anticipated that various stakeholders, including corporations or municipalities, would have the opportunity to purchase CECs. He clarified that RECs and CECs both represent megawatt hours (MWhs) of energy produced – RECs for MWhs produced by a particular type of renewable resource; CECs for MWhs produced in a way that doesn't produce carbon emissions. He went on to address at highest level issues related to the sale of CECs in a forward market and the alternatives or consequences to the seller of forward CECs that does not ultimately meet its obligation to produce carbon-free energy and/or to provide the CECs in a delivery year. Throughout the presentation many questions and comments

were provided by stakeholders about the relationship of RECs and CECs and how they might be handled in the potential frameworks during the modeling process. Additionally, Mr. Otto took note of concerns with potential double counting of CECs and RECs. Concluding his presentation, Mr. Otto stated that the ISO planned to propose that the Analysis Group assume Approach 1 for modeling purposes, noting that Approach 1 appeared relatively simple to model, would avoid the “double payment” concern identified by stakeholders, and would allow for the continuation of existing state programs.

Role of Storage in FCEM and Net Carbon Pricing Frameworks

Dr. Geissler proceeded to review the portion of the presentation about the potential role of storage in the FCEM and net carbon pricing frameworks, noting the memos addressing these issues that had also been circulated and posted in advance of the meeting, and which used a series of numerical examples to examine the treatment of storage under both frameworks.

Under an FCEM framework, Dr. Geisler noted that clean energy resources could reduce their energy market offer price to reflect the value of CECs received. In this case, the FCEM would increase energy market revenues for storage resources that increase clean energy production by charging when the marginal supplier is clean, and discharging when the marginal supplier is not clean. In response to a question, Dr. Geissler reinforced the importance of appropriately identifying the overarching, expected end product for each framework. Regarding the value of storage, Dr. Geissler noted the importance of modeling in an effort to identify pricing structures that are in line with financing methods. After much stakeholder comment, Dr. Geisler reinforced the importance of keeping within the confines of the design stage of these pathways discussions, noting the other efforts underway that address many of the comments/issues being raised.

Under a net carbon pricing framework, Dr. Geissler explained that storage would be compensated for its marginal contributions to clean energy production via increased energy market revenues. By awarding CECs, storage would be compensated at a rate that exceeds its contributions, which would be inconsistent with sound market design. Lastly under the net carbon pricing framework, storage would be compensated for its marginal contributions to reducing carbon emissions when it is not charged by carbon-emitting resources.

At the conclusion of the ISO's presentation, Dr. Geissler responded to stakeholder feedback with preliminary observations, explaining that the ISO does not propose to model CECs for carbon emitting resources. He indicated that the ISO would seek to align design elements with three criteria: (i) consistency with stakeholder preferences; (ii) sound market design principles; and (iii) simplicity in modeling. Additionally, he referenced stakeholder feedback in regard to understanding an Integrated Clean Capacity Market (ICCM) construct further, noting the memo provided by the ISO at the March 18, 2021 meeting, which offered initial thoughts on a conceptual ICCM approach that could be considered in the modeling efforts. Lastly, he expressed his appreciation for the stakeholder comments to date and welcomed additional stakeholder feedback.

Following the presentation, some members asked about the prioritization of the analysis of an ICCM construct. Dr. Geissler noted that this construct, should it be analyzed further, would be considered under one of the current models. When asked about the ISO's plans for ongoing stakeholder engagement throughout the modeling process, he stated that the ISO intended to provide updates throughout the process.

ANALYSIS GROUP: PATHWAYS STUDY

Mr. Cavanaugh introduced Mr. Todd Schatzki from the Analysis Group, who from materials that had been circulated and posted in advance of the meeting summarized: (i) AG's assignment, approach and process schedule; (ii) its proposed model structure and mechanics; and (iii) the potential inputs, assumptions, and scenarios to be analyzed. Mr. Schatzki explained that AG's assignment is to evaluate proposed alternative market approaches (not designed to be immediately implementable) to support a more decarbonized future grid and compare them to continuation of the current markets/existing rules. AG will quantitatively and qualitatively differentiate three approaches – the status quo, FCEM/ICCM and net carbon pricing, including market incentives and implied environmental and economic outcomes. He emphasized the desire for, and importance of, timely and interactive stakeholder feedback throughout the process, with identified milestones through 2021 and a final report to be delivered in February 2022.

In response to questions during his presentation on model components and mechanics, Mr. Schatzki acknowledged reliability considerations, while not a focus of AG's efforts, could be picked up in AG's efforts, in part, in the targets and assumptions agreed upon, but were likely to come more directly into play in the Future Grid reliability studies process. Nonetheless, he encouraged members to share with AG any relevant information or guidance from NERC. Mr. Schatzki explained further the roles, rationale and interplay among capacity expansion (different under each approach) and the energy and ancillary services and FCM modules in the market simulation process. With respect to project finance feasibility, structures and assumptions under the models, Mr. Schatzki acknowledged the importance of those issues, the need for more information in this area, and because the information may not be captured in the market

simulations, the potential need to capture the information outside the models. Members stressed the importance of addressing those issues to inform any decision on which model to pursue.

Mr. Schatzki then reviewed the modeling inputs and assumptions that need to be agreed upon prior to the analysis with respect to study parameters, electricity markets and capacity markets. He also summarized and requested feedback on approach inputs and assumptions, including state policies (including whether and/or how to include renewable portfolio standards), the status quo, net carbon pricing, and FCEM/ICCM.

In discussions, members offered suggestions for incorporating state policies in the modeling and the need for adjustments should outputs not align with specific state policies. Mr. Schatzki further confirmed the importance of sharing relevant details by state in the output of the model. He then reviewed potential scenarios for the model, noting he does not intend to represent a 100% carbon reduction target. When asked about how storage is intended to be represented in the models, Mr. Schatzki acknowledged the importance of storage and described the role it will play in modeling. Lastly, he reviewed the project timeline, noting modeling efforts will begin after June, with feedback to be provided and solicited throughout the process.

Mr. Cavanaugh concluded the meeting by urging Participants to submit any written feedback or comments by e-mail to him and Dr. Geissler.

There being no further business, the meeting adjourned at 4:20 p.m.

Respectfully submitted,

Sebastian Lombardi, Acting Secretary

**PARTICIPANTS COMMITTEE MEMBERS AND ALTERNATES
PARTICIPATING IN APRIL 15, 2021 TELECONFERENCE MEETING**

| PARTICIPANT NAME | SECTOR/ GROUP | MEMBER NAME | ALTERNATE NAME | PROXY |
|---|----------------------------|--------------------|----------------------|--------------------------------|
| Acadia Center | End User | Deborah Donovan | | |
| Advanced Energy Economy | Fuels Industry Participant | Caitlin Marquis | | |
| American Petroleum Institute | Fuels Industry Participant | Paul Powers | | |
| AR Large Renewable Generation (RG) Group Member | AR-RG | Alex Worsley | | |
| AR Small Load Response (LR) Group Member | AR-LR | Brad Swalwell | | |
| AR Small RG Group Member | AR-RG | Erik Abend | | |
| Ashburnham Municipal Light Plant | Publicly Owned Entity | | Brian Thomson | |
| Associated Industries of Massachusetts (AIM) | End User | | | Roger Borghesani |
| AVANGRID: CMP/UI | Transmission | | Alan Trotta | |
| Belmont Municipal Light Department | Publicly Owned Entity | | Dave Cavanaugh | |
| Block Island Utility District | Publicly Owned Entity | Dave Cavanaugh | | |
| Boston Energy Trading and Marketing | Supplier | Michael Kramek | | |
| 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 | | |
| 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 | |
| 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 | | |
| Cross-Sound Cable Company (CSC) | Supplier | | José Rotger | |
| Danvers Electric Division | Publicly Owned Entity | | Dave Cavanaugh | |
| DTE Energy Trading, Inc. | Supplier | | | José Rotger |
| Dynergy Marketing and Trade, LLC | Supplier | Andy Weinstein | | Bill Fowler |
| Emera Energy Services | Supplier | | | Bill Fowler |
| Enel X North America, Inc. | AR-LR | Michael Macrae | | |
| Environmental Defense Fund | End User | Jollette Westbrook | | |
| Eversource Energy | Transmission | James Daly | | Parker Littlehale; Jason Stark |
| Exelon Generation Company | Supplier | Steve Kirk | Bill Fowler | |
| FirstLight Power Management, LLC | Generation | Tom Kaslow | | |
| Galt Power, Inc. | Supplier | José Rotger | | |
| Generation Group Member | Generation | Dennis Duffy | Abby Krich | Alex 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 | |
| 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 | | 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 | Mark Spencer | Nancy Chafetz | |

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|--|-----------------------|--------------------|-------------------|---|
| Littleton (MA) Electric Light and Water Department | Publicly Owned Entity | | Dave Cavanaugh | |
| Long Island Power Authority (LIPA) | Supplier | | Bill Killgoar | |
| Maine Public Advocate Office | End User | Drew Landry | | |
| Mansfield Municipal Electric Department | Publicly Owned Entity | | Brian Thomson | |
| Maple Energy LLC | AR-LR | | | Doug Hurley |
| 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 | |
| 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 Brunswick Energy Marketing | Supplier | | | Andrew Robinson |
| New Hampshire Electric Cooperative | Publicly Owned Entity | Steve Kaminski | | Brian. Forshaw; Dave Cavanaugh; Brian Thomson |
| New Hampshire Office of Consumer Advocate (NHOCA) | End User | | | Jason Frost |
| NextEra Energy Resources, LLC | Generation | Michelle Gardner | | |
| 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 Department | 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 | |
| Rodan Energy Solutions (USA) Inc. | Provisional | Aaron Breidenbaugh | | |
| 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 | Roger Borghesani | Mary Smith | |
| Union of Concerned Scientists | End User | | Francis Pullaro | |
| Vermont Electric Power Company (VELCO) | Transmission | Frank Ettori | Karin Stamy | |
| Vermont Energy Investment Corp (VEIC) | AR-LR | | Doug Hurley | |
| Vermont Public Power Supply Authority | Publicly Owned Entity | | | Brian Forshaw |
| Versant Power | Transmission | Lisa Martin | | |
| Village of Hyde Park (VT) Electric Department | Publicly Owned Entity | | Dave Cavanaugh | |
| Wakefield Municipal Gas & Light Department | Publicly Owned Entity | | Brian Thomson | |

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|--|--------------------------|--------------------|---------------------------|--------------|
| 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 | |