

MEMORANDUM

April 29, 2021

To: ISO New England, NEPOOL
From: Pete Fuller & David O'Connor, on behalf of NRG Energy and other stakeholders
Re: Future Grid Pathways Study – Additional Input for May Pathways Meeting

We appreciate the thoughtful and deliberate approach that ISO-NE and Analysis Group are taking in formulating a meaningful analysis of the Forward Clean Energy Market (FCEM, or ICCM¹) and Net Carbon Pricing options as sustainable mechanisms to incorporate State clean energy and emission reduction goals into the ISO markets. In preparation for the May 13 Pathways meeting, we offer this memo to provide additional input and feedback regarding the structure and assumptions for the Pathways study.

The content here was drafted by consultants for NRG Energy, Inc. based on discussions and collaboration with a number of other NEPOOL market participants. We appreciate the opportunity to continue to engage with the ISO, NESCOE and other stakeholders and provide our perspectives on the important design parameters for incorporating the New England States' clean energy and decarbonization objectives into the ISO competitive markets, and we look forward to continued collaboration on these issues.

Treatment of State Programs (RPS, RECs, etc)

We continue to believe that the modeling of any interactions between ICCM and the many State programs to encourage various energy resource technologies should strive for simplicity, focusing on the impact, within ICCM, of potential revenue streams that some resources participating in ICCM could receive from the sale of GIS certificates to RPS compliance entities. Modeling the full RPS environment appears beyond the scope of what is needed and seems likely to add unnecessary complexity to the effort.

As a baseline for comparison and based on the many complexities involved in envisioning a future with both RECs and ICCM, we believe it would be prudent to run a scenario based on ISO's proposed 'Approach 3,' in which States eliminate the RPS and similar programs in favor of the single clean energy product of the ICCM. This scenario would provide potentially useful information to

¹ As noted in our previous materials, we perceive a general preference among stakeholders for the Integrated Clean Capacity Market (ICCM) approach, so we generally refer to ICCM, recognizing that developing a design and model for ICCM will encompass all of the work needed to design and model the FCEM as a separate market from the Forward Capacity Market (FCM), and that the separate FCEM approach will have its own challenges with respect to designing its interactions with FCM.

policymakers regarding the relative cost of using ICCM as a replacement for RPS compared to using it as a complement to existing programs. Incorporating this assumption in the Capacity Expansion model would eliminate any technology or other constraints associated with State RPS programs and should lead to the most cost-effective resource mix for decarbonizing the New England grid.

However, since the status quo is that the State RPS programs exist, it is also important to model the various pathways options operating in tandem with the State programs. As we heard at the April 15 meeting, there are market participants that speak strongly in favor of a version of 'Approach 2,' in which a resource selling into ICCM would be deemed to transfer all of the environmental/REC attributes through that sale. As we understand this approach, ISO would effectively take possession of the associated GIS certificates and would allocate them proportionally to the LSEs having a payment obligation for the clean energy aspect of ICCM. Today's REC markets would become secondary markets for LSEs to trade and balance their positions to shed the certificates they don't need and to acquire the certificates they do need to meet their particular compliance obligations.

At the same time many, if not most, participants appear to be open to some version of ISO's 'Approach 1,' in which a resource selling into ICCM would be transferring the non-carbon-emitting attribute of its energy but would retain all other environmental/REC attributes in the form of GIS certificates. This is the approach ISO-NE tentatively endorsed at the April 15 Pathways meeting.

At that meeting, there was at least one observation that the difficulty many stakeholders are having with this topic might stem in part from the characterization of the ICCM clean energy product as a 'credit,' with all the implications of a product analogous to RECs, such as creating and transacting the 'Clean Energy Attribute Credit' (CEAC) in GIS and having LSE compliance obligations settled in the year following delivery.²

To expand on that idea, we suggest consideration of the following formulation of the ICCM clean energy 'product' as the basis for one scenario. This approach would de-emphasize the concept of clean energy 'credits' as the currency of ICCM/FCM and would define the product simply in terms of an ISO market requirement, based on submitted State and voluntary demand bids. Clearing as a supplier in the clean energy aspect of the ICCM auction would create 'Clean Energy Supply Obligations' (CESO) analogous to 'Capacity Supply Obligations' (CSO) in the Forward Capacity Market, and an obligation on each affected LSE to pay for their proportional share of the total costs paid to CESO suppliers. Consistent with ISO's Approach 1, an eligible MWh of energy would satisfy a seller's CESO delivery obligation in the wholesale market and would also be eligible to generate whatever certificates the technology is eligible for in GIS. LSEs would continue to source RECs as they do today and would be responsible for their RPS compliance under the existing State statutes and regulations.³

² We have described FCEM/ICCM in these terms in our previous documents but we continue to explore other concepts as we learn more about the complexities of this topic.

³ States could specify (through appropriate legal and regulatory actions) the extent to which an LSE's payment for ICCM supply that cleared in the ICCM Auction would satisfy some or all of the LSE's state clean energy compliance obligations.

For modeling purposes, the interaction between REC markets and ICCM would consist of ICCM suppliers accounting for anticipated REC revenues (if any) when formulating their ICCM offers, and in REC prices being reduced as a result of eligible resources also receiving ICCM clean energy revenues. This is consistent with our expectation that the two markets would operate with different formats and on different timeframes (ICCM as a one-time forward auction for an annual quantity vs. RECs traded through broker-based bilateral transactions that occur anywhere from years ahead to several months after delivery). At the time of the ICCM auction, suppliers would gauge their prospects for selling certificates and their anticipated revenues, as well as accounting for any certificates already sold for the future delivery period and their need for the multi-year price lock in ICCM to support financing new investment. These forecasts and expectations would inform their offers into ICCM. Likewise, after securing CESOs, suppliers would adjust their price requirements and expectations in the REC market based on the CESO payments. States may want to adjust the level of Alternative Compliance Payments (ACP) downward to account for the availability of revenues from ICCM.

Thus, for Pathways purposes, the model could simply assume a price for the various REC products and use these prices as a discount off of estimated resource costs for purposes of estimating offer prices into ICCM. For modeling purposes, this is a simple and straightforward approach, and could accommodate several REC pricing scenarios, as well as estimated risk adders that suppliers might build into their offer prices based on uncertainty in the price and ability to transact their certificates.

However, we also believe that modeling 'Approach 1' in this way would not preclude the States from adopting a different approach for flanging ICCM up to existing State programs. The approach suggested here would provide insights regarding how ICCM could co-exist with a continuation of these programs, and a comparison to a 'no RPS' scenario.

Treatment of Storage Resources

As noted in our previous feedback on Pathways modeling, we suggest modeling ICCM clean energy attributes as having a constant value in any hour, which we have previously referred to as a 'static' approach. We continue to believe that is the simpler approach for the quantitative modeling effort, but we also strongly support parallel efforts to better understand how dynamic, or time-varying value of the ICCM clean energy product could work. For example, understanding hourly dynamics, patterns and relationships of emission rates and correlations to demand, price or other observable factors. We would then expect to develop one or more frameworks for dynamic valuation of the ICCM clean energy attribute to be used in actual implementation of the new market.

Fundamentally, we agree with ISO-NE's observation in recent materials that energy storage will be a valuable part of the future mix and will need to be compensated for its contributions and services. We are not convinced that the assumed on-peak/off-peak energy price differentials that ISO hypothesizes in its most recent materials⁴ will exist on a reliable basis or at the magnitudes suggested by ISO's examples. As such, we are still interested in exploring other vehicles to compensate energy

⁴ ISO-NE, 'Storage Resource and Pathways to a Future Grid,' April 8, 2021

storage resources and other ‘non-energy-intensive’ resources that provide flexibility and responsiveness to the system, though these mechanisms may not necessarily be in the context of ICCM.

Additionally with respect to energy storage resources, NEPOOL and ISO-NE found in the context of the recent evaluations of FCM parameters that there are a number of ways in which traditional production cost and similar simulation models need to be specifically adapted and perhaps modified to properly reflect the operations and optimization of energy storage resources between functions and across the hours of a day. It would be very helpful to have some materials and discussion at the Pathways meetings regarding how the Analysis Group’s model simulates the optimization and operation of energy storage.

Capacity Expansion Model

It also became clear at the April 15 Pathways meeting that the Capacity Expansion model would be a central component of the quantitative analysis. Analysis Group proposes, very reasonably, to set a near-term baseline of resources and system conditions and then run the Capacity Expansion model with each of the three assumption sets (ie, Status Quo contracting, ICCM, and Net Carbon Pricing) out to 2040 to estimate how the system would evolve under each of the frameworks. Since this model will be a major determinant of the study outcomes, Analysis Group should provide documentation and/or presentation on the inputs and logic of the model. Specifically, since financing of new projects is a key question to be explored in the Pathways analysis, how does the AG Capacity Expansion model simulate the investment decisions and the potentially different costs of capital under the different frameworks?

Modeling ICCM or FCEM

There continues to be a general preference for the ICCM approach and we look forward to further discussion of this issue at the May 13 meeting.

MOPR

In the materials for the April 18 Pathways meeting Analysis Group notes on slide 8 that ‘Application of MOPR will be determined.’ We note that the outcome of the pending Offer Review Trigger Price filing (anticipated in early June) and FERC’s technical conference regarding ISO-NE’s Resource Adequacy construct (May 25) will be instructive in terms of what the near-term MOPR will look like, and what changes might be expected, and on what time scale.

Regardless of what we learn in the near term, for setting up the modeling exercise we suggest evaluating the impact of a MOPR that draws a distinction between ‘in-market’ and ‘out of market’ revenues. For the Status Quo and Net Carbon cases, this would entail testing a scenario with MOPR and one without. For the ICCM case, there would be no explicit MOPR, but the model should assume all new resources offer at their full economic costs net of anticipated EAS revenues, ie, with no MOPR but with standard market-based incentives to not make an investment that is expected to lose money.

We appreciate the continued openness of ISO-NE, Analysis Group, NEPOOL and all the stakeholders to our input and we look forward to continuing to work toward a successful modeling exercise and ultimately to a successful reformation of the region's markets to support decarbonization and reliable operations of the power system.