

November 7th, 2022

**Ross Altman**

[Raltman@nysio.com](mailto:Raltman@nysio.com) / [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

*Via E-mail*

**Re: Long Island Public Policy Transmission Need Evaluation Considerations**

NextEra Energy Transmission New York, Inc. (NEETNY) appreciates the opportunity to provide additional input on the evaluation methodology and considerations that NYISO will utilize to analyze the proposals submitted in responses to the Long Island Public Policy Transmission Need (“LI PPTN”) solicitation. NEETNY offers these recommendations to supplement NEETNY’s presentation at the NYISO Electric System Planning Working Group (“ESPWG”) on July 26<sup>th</sup>, 2022<sup>1</sup> and recommendations submitted to the NYISO Public Policy Planning Mailbox on August 15<sup>th</sup>, 2022.

As set forth more fully below, as part of its evaluation of LI PPTN proposals, NEETNY recommends that NYISO evaluate: (1) the flexibility proposals offer to reliably and economically accommodate a variety of OSW injection locations; (2) the operability of each proposal, considering performance across different operating states; (3) qualitative and quantitative differences of each proposal’s ability to integrate offshore wind; and (4) the appropriate new monitored elements and constraints to incorporate into NYISO’s production cost modeling.

**I. Due to the uniqueness of the LI PPTN, NYISO should examine multiple scenarios with varied OSW injection locations across Long Island to determine the “flexibility” of each proposal**

NYISO has noted that the LI PPTN, as compared to previous Public Policy Transmission Need solicitations, is “unique” because it is intended “to unbundle resources that are not yet on the system.”<sup>2</sup> As a result, the specific interconnection locations on Long Island face a high degree of uncertainty that demands a flexible solution. Specifically, a proposal that performs strongly across a variety of OSW injection locations can significantly reduce costs for New York customers by hedging against interconnection uncertainty and supporting greater transmission access for OSW developers which reduces in-service delays while also increasing competition.

In order to appropriately gauge the flexibility of the proposals, NEETNY recommends the following approach:

- 1) Evaluate LI PPTN proposals across multiple scenarios, each with 6 GW of OSW injected into Long Island, but at varied interconnection locations and MW levels. Both reliability (TARA) and economic (GE-MAPS) simulations should be performed for these scenarios. NYISO

---

<sup>1</sup> NEETNY ESPWG Presentation, July 26 2022

<sup>2</sup> “Long Island Offshore Wind Export PPTN: Evaluation Metrics” ESPWG Presentation, July 2022

should evaluate and weigh each solution's performance across multiple diverse LI OSW buildout scenarios given the uncertainty in the future LI OSW interconnection locations that are yet to be awarded.

- 2) Allow LI PPTN transmission developers to incorporate OSW injection locations different than those included in NYISO's 6 GW Alternate case that may be unique to the design of the developer's proposal and could provide substantive benefits to Long Island and New York customers. For example, several of NEETNY's solutions include expandable and highly deliverable injection locations at newly created stations near Valley Stream and Buchanan that can significantly reduce interconnection costs for OSW developers. NYISO has recognized that the injection locations included in their 6 GW Alternate scenario "do not indicate any specific knowledge of development plans" of OSW developers and that "[other] scenarios, including different offshore wind POIs and sizes, may also be used in the evaluation and selection phase."<sup>3</sup>

## **II. NYISO should consider the operational flexibility provided by additional controllable devices such as Phase Angle Regulators and HVDC converter stations**

Each proposal offers varying degrees of operational flexibility; therefore, NYISO should consider quantifying these benefits. A proposal with significantly more operation flexibility will be critical as Long Island undergoes an unprecedented shift change to its generation and transmission make-up. Therefore, operational flexibility will be essential to serve Long Island and New York customers reliably and economically. NYISO has identified three potential evaluation considerations for assessing the "operability" of each LI PPTN proposal<sup>4</sup>:

- The effectiveness of controllable transmission facilities (e.g., PARs and HVDC) for operational flexibility
- The ability of facilities to operate in extreme weather conditions that will more likely occur with climate change (e.g., equipment hardening)
- Other impacts to operability, such as the dispatch of generation, access to operating reserves, access to ancillary services, and the ability to remove transmission for maintenance

NEETNY agrees with these proposed "operability" considerations and encourages NYISO to develop an assessment that allows a quantitative comparison of the LI PPTN proposals and their associated impact(s) on operational flexibility.

NYISO is expected to determine the increases to Long Island export and import capability from each of the LI PPTN proposals as part of its evaluation.<sup>5</sup> The ability of the transmission system to accommodate high transfers of power into and out of Long Island will be a key component of the operational flexibility required by enabling access to operating reserves, reducing the need to cycle or re-dispatch generation, and enabling the reliable delivery of power during extreme weather and/or transmission outages. However, this evaluation typically focuses on the maximum

---

<sup>3</sup> NYISO Long Island Offshore Wind Export Public Policy Transmission Need FAQ, Question 42, August 11, 2021

<sup>4</sup> "Long Island Offshore Wind Export PPTN: Evaluation Metrics" ESPWG Presentation, July 2022, Slide 9

<sup>5</sup> "Long Island Offshore Wind Export PPTN: Evaluation Metrics" ESPWG Presentation, July 2022, Slide 8

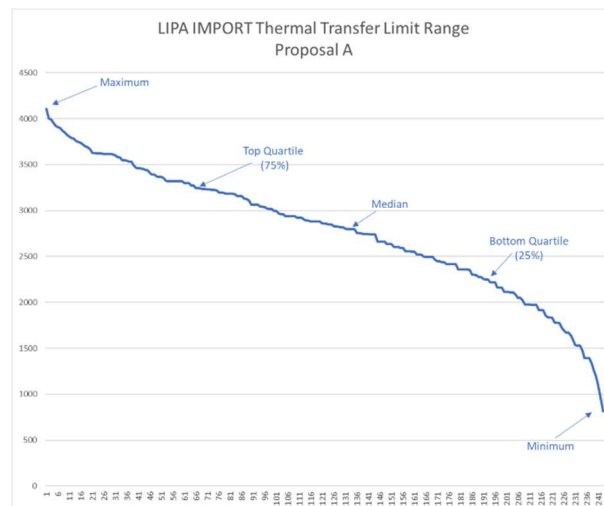
transfer capability increase for each proposed design, likely under optimal setting of power flow control devices<sup>6</sup> included in each of the LI PPTN proposals.

In real-time operations, it is expected that these controllable devices will be set considering a variety of factors, including local area reliability needs to support planned or unexpected outages, and are not always scheduled to maximize transfer capability levels. Device settings adjusted to support local area reliability needs could significantly impact transfer capability levels as well as broader system reliability and economics. Therefore, NEETNY recommends that NYISO consider an approach that evaluates the design of each LI PPTN proposal across multiple different operating states (or schedules) of controllable transmission facilities and its ability to increase Long Island import and export capability.

NEETNY recommends the following methodology to evaluate and quantify the measure of operability mentioned above:

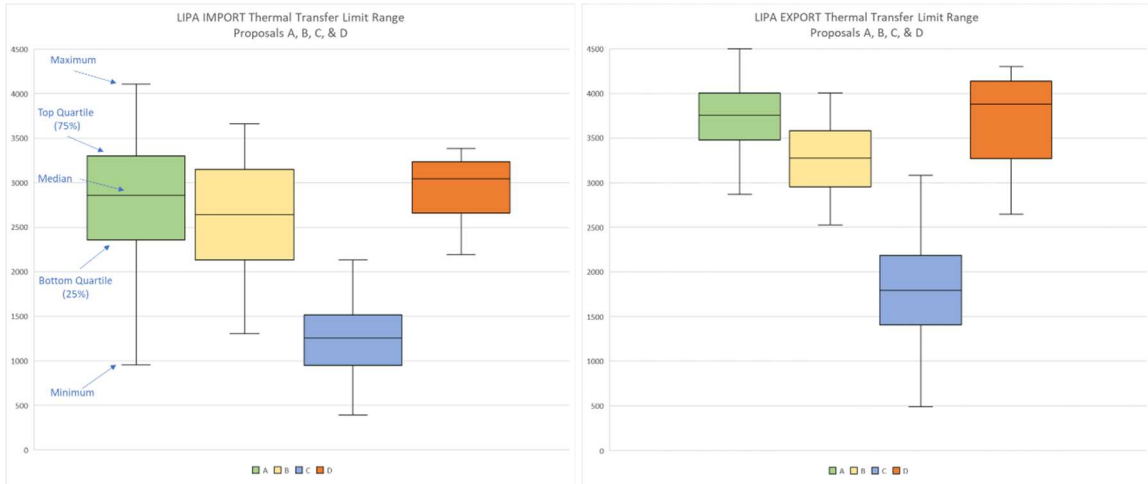
1. Schedule each Long Island tie-line Phase Angle Regulator (“PAR”) or HVDC converter at discrete, reasonable setpoints (e.g., 0%, 37.5%, and 75% of the PAR or HVDC line rating) for both imports and exports.
2. Perform N-1 thermal transfer analysis for Long Island imports and exports across the range of PAR schedules.
3. Consider additional combinations of PAR schedules for key PARs located internal to the Long Island system based upon the design of the proposal.
4. Plot the resulting range of thermal transfer capability limits of the PAR schedules for each solution to evaluate its ability to maintain higher transfer capability across various potential operating states.

The linear plot below provides an illustrative example of the thermal transfer limit (vertical axis) for each of the various operating states simulated for proposal A (horizontal axis).



<sup>6</sup> Each of the LI PPTN proposals include multiple new power flow control devices, such as Phase Angle Regulators and HVDC converter stations, primarily located on newly proposed LIPA tie-lines, which allow for a substantial number of possible operating states from the variation in control device schedules

The box-and-whisker chart below uses standard quartile data markers to provide an illustrative comparison of Long Island import and export thermal transfer capability performance among solutions A, B, C, and D.



**III. NEETNY recommends that NYISO evaluate quantitative and/or qualitative benefits of proposals that offer more cost-effective Points of Interconnection (POIs) into Long Island**

The sixteen proposals submitted to NYISO in response to the LI PPTN solicitation vary considerably in design and physical expandability. Therefore, certain proposals may only be able to accommodate interconnections of OSW at POIs located at different stations as compared to other proposals. As a result, the cost and feasibility for OSW developers to permit and construct transmission to the POIs for each proposal may vary considerably. We suggest NYISO evaluate these costs and feasibility risks, either qualitatively or quantitatively, including consideration of:

- The cost of transmission to electrically connect OSW to their POIs: NEENTY’s comments submitted to NYISO on August 15, 2022 provide additional guidance on how this total cost can be estimated. Identifying the potential cost of different interconnection scenarios will allow NYISO to ensure that the most cost effective and efficient solution is selected to integrate offshore wind into Long Island by considering the holistic cost to New York customers.
- The feasibility of OSW developers to permit/construct to the POIs: A qualitative assessment of the risk associated with the feasibility of an OSW developer’s ability to permit and construct the necessary transmission facilities to interconnect to POIs should be considered.
- Potential network upgrades required: A qualitative assessment of potential network upgrades required at each POI should be considered to help differentiate proposals that create more headroom on the system. For example, a proposal that only overloads one or two 345 kV facilities to accommodate 3 GW (or 6 GW) into Long Island, should be given a different qualitative score than a project that overloads twenty different 345 kV facilities. While a quantitative assessment may not be feasible, NEENTNY believes a high-level qualitative assessment can provide more insight into the potential headroom that a proposal provides.

Identifying the qualitative and quantitative benefits of each OSW injection scenario provides NYISO, NYSERDA, the Public Service Commission, and other stakeholders transparency on the potential additional costs and feasibility of integrating OSW into Long Island. This insight can be utilized by NYISO to identify the most cost effective and efficient transmission solution to integrate OSW into Long Island.

**IV. NYISO should ensure new monitored elements and contingencies applicable for each proposal and scenario are incorporated into the production cost simulations**

Due to the extensive changes expected to both power flows and transmission infrastructure topology across the Long Island and New York City system, it is essential that NYISO accurately capture potential congestion risks for each of the LI PPTN proposal designs. Therefore, NEETNY recommends that NYISO perform the following steps to incorporate new monitored elements and contingencies into its production cost simulations:

- Perform N-0 and N-1 contingency analysis on the 6 GW Long Island OSW scenarios for each of the LI PPTN proposals. Identify all highly loaded monitored elements and contingency pairs. All constraints identified should be added to the production cost simulations consistently across all LI PPTN proposals, except those constraints associated with topology that is unique to a proposal's design.
- Update the 6 GW Long Island OSW scenario power flow models to incorporate both Tier 4 projects that have been awarded since the original 6 GW Alternate case was developed by NYISO. The Tier 4 projects will be included in the production cost models NYISO intends to utilize and, therefore, it is important to align the power flow models so that appropriate new constraints can be identified and added to the production cost simulations. Specifically, because NYISO's assumptions for New York City OSW include injections near the Tier 4 interconnections, any new constraints should be reflected to assess if LI PPTN proposals can help alleviate potential curtailment in the production cost simulations.

NEETNY appreciates the opportunity to continue to offer input into NYISO's evaluation of the LI PPTN proposals to help ensure the long-term benefits of each LI PPTN proposal to Long Island and the rest of New York are fully considered. NEETNY also looks forward to future opportunities to provide input as NYISO further details its proposed evaluation assumptions and methodologies.

Sincerely,

**Andrew Taylor**  
Executive Director  
Transmission Development