STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

CASE 20-E-0197 - Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act.

COMMENTS OF THE NEW YORK INDEPENDENT SYSTEM OPERATOR, INC. ON INITIAL REPORT ON THE POWER GRID STUDY AND DEPARTMENT OF PUBLIC SERVICE STAFF QUESTIONS

Pursuant to the Notice Seeking Comment issued by the Secretary on February 3, 2021,[1] the New York Independent System Operator, Inc. ("NYISO") respectfully submits these comments to the Public Service Commission ("PSC" or "Commission") in the above-entitled proceeding on the January 19, 2021 Initial Report on the New York Power Grid Study ("Initial Report"), and on the February 3, 2021 Department of Public Service Staff Questions ("Questions"). The NYISO is commenting on the Initial Report and Questions to discuss the need for transmission expansion to meet the requirements of the Accelerated Renewable Energy Growth and Community Benefit Act ("AREA" or "Act").[2]

The NYISO appreciates the extensive efforts by the New York State Department of Public Service ("DPS"), the New York State Energy Research and Development Authority ("NYSERDA"), and the Utilities in conducting the Power Grid Study. On January 19, 2021, the NYISO submitted initial comments on the Utility Transmission and Distribution Investment

[1] Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act*, Notice Seeking Comment (February 3, 2021).

[2] Chapter 58 (Part JJJ) of the laws of 2020. The NYISO answers the DPS' questions related to its mission and responsibilities in the body of these comments.

Working Group Report and the Technical Conference.[3] In those comments, the NYISO emphasized:

(i) the importance of additional transmission infrastructure to meet the state's climate change policy objectives;

(ii) the factors contributing to the need for bulk transmission expansion to achieve the state's climate change policy objectives; and

(iii) the value of the NYISO's Public Policy Transmission Planning Process ("Public Policy Process") to solicit, evaluate and select efficient and cost effective bulk transmission solutions eligible for cost allocation and recovery through its tariffs.

After reviewing the Initial Report of the State Power Grid Study in its entirety, the NYISO believes its comments remain valid, and offers further recommendations to the PSC to take proactive steps to invest in transmission expansion that will support the delivery of renewable energy to New York consumers.

Projects to expand the New York transmission system to facilitate the delivery of renewable energy are underway, such as the Western NY and AC Transmission Projects, and the New York Power Authority's ("NYPA") Smart Path projects. Beyond these projects, more bulk transmission expansion is needed to fully achieve the Climate Leadership and Climate Protection Act ("CLCPA") mandates. The NYISO offers the following recommendations to the Commission:

[3] Case 20-E-0197, Comments of the New York Independent System Operator, Inc. on Compliance Report by Electric Utilities on Developing Distribution and Local Transmission in Response to State Climate Change Laws, and on Technical Consultants' Studies (January 19, 2021), available at: https://www.nyiso.com/documents/20142/18663846/20210119-NYISOCommentsCase20E0197-complete.pdf/b5647ddb-e79c-259c-37af-19c7c999345f

(i) Prioritize transmission investments to meet the requirement that 70 percent renewable energy be delivered to consumers by 2030 ("70 x 30"). Initiate certain local and bulk power transmission system needs and projects now before opportunities for efficient transmission system design are foreclosed. Prioritize needs that are shown to have near-term benefits to meet the 2030 target, and work with the various parties on a coordinated planning approach needed to meet all of the CLCPA goals (Point I);

(ii) Consider the benefits of energy storage as a key resource, rather than as a transmission asset, to enable the integration of renewable resources to meet the requirements of the CLCPA (Point II); and

(iii) Continue to leverage NYISO's capabilities and tariffs in partnership with the state to improve coordination and stakeholder inclusion in the transmission planning process. Update the PSC's 2014 procedures implementing the Public Policy Process to align with the current tariff. The NYISO offers specific recommendations on the use of its planning processes and study capabilities to inform the state's decision making, utility plans, and investment decisions (Point III).

BACKGROUND

The AREA directs the Commission to take actions to provide that New York's electric power grid will support the state's CLCPA mandates.[4] The Act calls for the PSC to "commence

[4] 2019 Laws of New York, ch. 106. The CLCPA requires that: (i) seventy percent of energy consumed in New York State be produced by renewable resources by 2030; (ii) by 2040 electricity consumed must be emissions free; and (iii) the state's jurisdictional load serving entities must procure at least nine gigawatts of offshore wind electricity generation by 2035, six gigawatts of photovoltaic solar generation by 2025, and support three gigawatts of statewide energy storage capacity by 2030.

a proceeding to establish a bulk transmission investment program . . . that identifies bulk transmission system investments that the commission determines are necessary or appropriate to achieve the CLCPA targets (the state 'bulk transmission investment plan')."[5] The PSC will "establish a prioritized schedule for implementation of the state bulk transmission investment plan, and in particular shall identify projects which shall be completed expeditiously to meet the CLCPA targets."[6]

The AREA provides that:

> The commission shall utilize the state grid operator's public policy transmission planning process to select a project necessary for implementation of the state bulk transmission investment plan, and shall identify such projects no later than eight months following a notice of the state grid operator's public policy transmission planning process cycle, except that for those projects for which the commission determines there is a need to proceed expeditiously to promote the state's public policy goals, such projects shall be designated and proceed in accordance with subdivision five of this section.[7]

The Act authorizes NYPA to undertake the development of such bulk transmission investments, on its own or in partnership with others, found by the Commission to be "needed expeditiously" to achieve CLCPA targets.[8] On July 2, 2020, the DPS and NYPA filed a petition requesting that the Commission adopt criteria to use in evaluating and prioritizing transmission needs, and determining which bulk transmission investments qualify as "priority projects" to be developed by NYPA under the Act.[9] On October 15, 2020, the Commission issued an Order on

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[5] AREA at §7(4).
[6] *Id.*
[7] *Id.*
[8] *Id.* at § 5.
[9] Case 20-E-0197, *Proceeding on Motion of the Commission to Implement Transmission Planning Pursuant to the Accelerated Renewable Energy Growth and Community Benefit Act*, Petition Requesting Adoption of Criteria for Guiding Evaluation of Whether a Bulk Transmission Investment Should Be Designated as a Priority Transmission Project, and for Designation of Certain Transmission Investments in Northern New York as a Priority Transmission Project (July 2, 2020).

Priority Transmission Projects that adopted some of the proposed criteria for designating priority transmission projects, and designated the Northern New York transmission projects for development by NYPA.[10]

On November 2, 2020, the Utilities filed the Utility Transmission and Distribution Investment Working Group Report. On November 23, 2020, the DPS and NYSERDA convened a technical conference that included presentations on the Power Grid Study comprised of three components: (i) Utility Local Transmission Studies, presented by electric utilities, (ii) New York Offshore Wind Integration Study, presented by DNV-GL, PowerGEM, and WSP, and (iii) Zero-Emission Electric Grid in New York by 2040, presented by Siemens.[11] The NYISO submitted comments on the Utility Transmission and Distribution Investment Working Group Report and the Technical Conference on January 19, 2021.[12]

In a related transmission planning proceeding, on October 9, 2020, the NYISO submitted proposed Public Policy Transmission Needs from 15 stakeholders to the Commission.[13] The NYISO commented that the PSC should declare Public Policy Transmission Needs in the 2020-2021 Public Policy Transmission Planning Process ("Public Policy Process") to address the state's climate change policy requirements in the CLCPA and in the AREA.[14] The Commission

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[10] *Id.*, *Order on Priority Transmission Projects* (October 15, 2020).

[11] Notice of Technical Conference (November 5, 2020). On November 24, 2020, the DPS and NYSERDA submitted the presentations as part of the record in this proceeding.

[12] Case 20-E-0197, Comments of the New York Independent System Operator, Inc. on Compliance Report by Electric Utilities on Developing Distribution and Local Transmission in Response to State Climate Change Laws, and on Technical Consultants' Studies (January 19, 2021), available at: https://www.nyiso.com/documents/20142/18663846/20210119-NYISOCommentsCase20E0197-complete.pdf/b5647ddb-e79c-259c-37af-19c7c999345f

[13] Case 20-E-0497, In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2020, Comments of the New York Independent System Operator, Inc. (January 19, 2021). Submittal letter available at: https://www.nyiso.com/documents/20142/10601510/2020-10-09-Flng-Ltr-PSC-Prpsd-PPTNS.pdf/efb60bfe-de29-3a12-b8ec-995d84633523

[14] Case 20-E-0497, In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2020, Comments of the New York Independent System Operator, Inc.

did not determine Public Policy Transmission Needs in the 2016-2017 Public Policy Process and recently issued an order on the 2018-2019 and 2020-2021 process needs.[15]

The AREA calls on the DPS to "undertake a comprehensive study for the purpose of identifying distribution upgrades, local transmission upgrades, and bulk transmission investments that are necessary or appropriate to facilitate the timely achievement of the CLCPA targets."[16] The law provides that the study "shall … separately address needed bulk transmission system investments."[17] The AREA states that the DPS will conduct the power grid study in consultation with NYSERDA, NYPA, the Long Island Power Authority ("LIPA"), the NYISO, and the Utilities.[18]

COMMENTS

I. The PSC Should Prioritize Transmission and Distribution Investments to Support Renewable Energy Delivery to Consumers

A. The NYISO's 70 x 30 Analysis Demonstrates the Need for Additional Transmission Infrastructure to Deliver Energy from Generation Pockets to Consumers Statewide to Meet the 2030 Requirement

Achieving New York's public policy objectives will require additional transmission capacity to deliver renewable resources from constrained pockets to the bulk electric grid for delivery across the state to consumers. Much of New York's existing and proposed renewable energy capability is upstate. The resource mix and geographic distribution of new renewable

(January 19, 2021), available at: https://www.nyiso.com/documents/20142/18663846/20210119-NYISOCmmntsCase20E0497-cmplt.pdf/0d6d7a86-4435-7770-2a51-330bf7806bb1

[15] Case 20-E-0497 - In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2020; Case 18-E-0623 – In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2018; *Order Addressing Public Policy Requirements for Transmission Planning Purposes* (March 19, 2021), available at: http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={8C8F3D7A-4FEB-4B18-88F5-82CF587895C9}

[16] AREA, at § 7(2).

[17] *Id.*

[18] *Id.*

resources are expected to dramatically change the pattern of power flowing across the system. To maximize the load served by renewable generation, intra-state energy transfers will need to increase, even as statewide load fluctuates, because more renewable generation and resource potential is available upstate to serve the downstate load. Transmission expansion, at both bulk and local levels, will be necessary to efficiently deliver renewable power to New York's consumers. Bulk transmission build-out usually requires long lead time, and may take as long as 5-10 years from concept to commission. In order to support the CLCPA mandates for 2030 and beyond, additional transmission and distribution expansion should be prioritized and initiated now.

The Initial Report states that "Transmission expansion programs already underway have positioned the state well to achieve its 2030 milestones."[19] It states that additional efforts are needed to accelerate local transmission and distribution upgrades, expand the Long Island bulk transmission system to facilitate offshore wind, identify offshore wind interconnections and local transmission upgrades in New York City, and to implement additional storage. The report states that integrating additional offshore wind by 2035 "is projected to be achievable without major onshore bulk transmission upgrades beyond expanding the Long Island bulk transmission links and likely local upgrades in New York City."[20]

The NYISO respectfully disagrees with the conclusions in the Initial Report that new bulk transmission facilities beyond those already in progress are not needed to meet the CLCPA 70 x 30 goal. The need for additional bulk power system transmission expansion was first identified in 2018 with the NYISO's analysis and identification of transmission constrained

[19] Initial Report, at 2.
[20] *Id.*

renewable generation pockets driven by achievement of the Clean Energy Standard ("CES").[21] Renewable generation pockets are areas containing more renewable energy production than can be delivered with the existing transmission system. This concept was further examined in the NYISO's recent Congestion Assessment and Resource Integration Study ("CARIS"),[22] which included a 70 x 30 CLCPA scenario that models these resource levels as projected through 2030 and identifies system constraints, generator curtailments, and other potential operational limitations. The results of these studies demonstrate that renewable generation pockets are likely to develop throughout the New York system as the existing transmission grid becomes overwhelmed by significant renewable capacity additions around the state.

In the 70 x 30 scenario, approximately 11 percent of the annual total potential renewable energy production of 128 TWh is curtailed across the New York system. However, some generation pockets are much more constrained than others. Curtailments result from the hourly balancing of generation and load subject to transmission constraints. When generation exceeds the transmission limits and load within a pocket in a given hour, the generation output must be reduced, or curtailed. For any given hour, the output of a wind or solar plant may range from fully curtailed (zero output) to full output, as shown in Figure 1 below.

[21] http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7BA5018B6B-1730-4F9F-970A-CAECE9287D0E%7D

[22] https://www.nyiso.com/documents/20142/2226108/2019-CARIS-Phase1-Report-Final.pdf/bcf0ab1a-eac2-0cc3-a2d6-6f374309e961

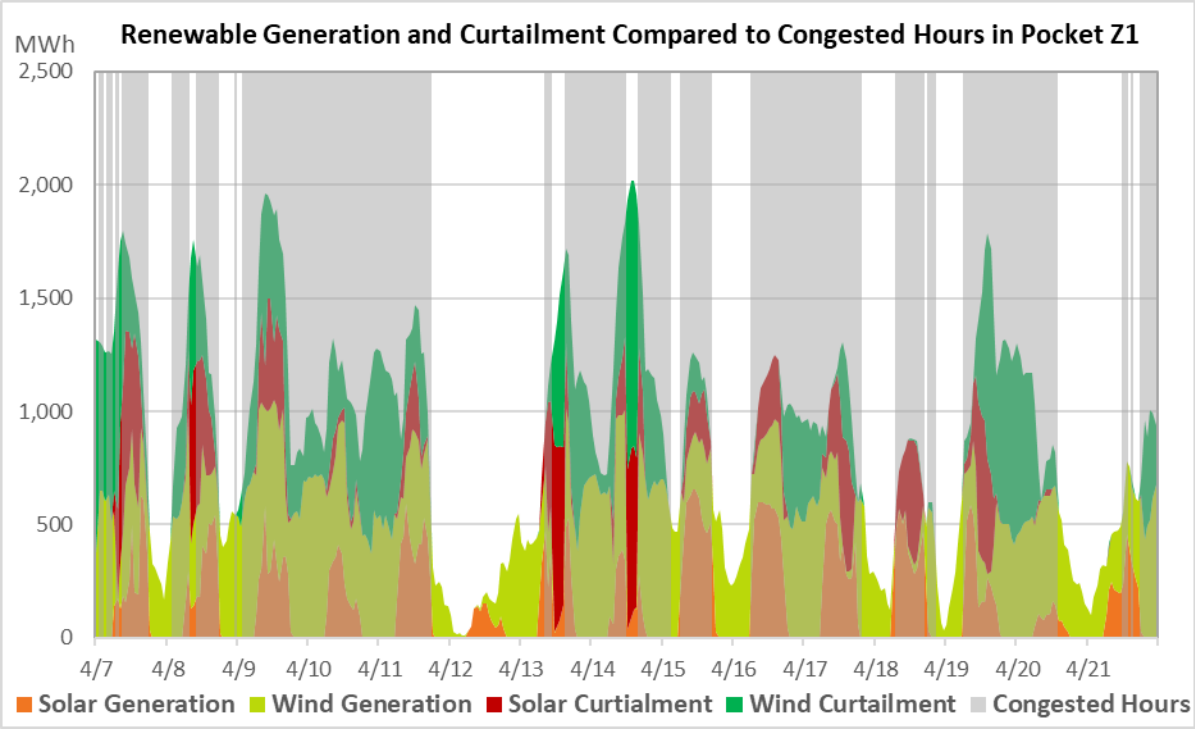

Figure 1: Example of Renewable Generation and Curtailment in Congested Hours

Specific to the downstate renewables, offshore wind is curtailed at 9 percent for multiple cases in the New York City generation pocket due to the wind resources being mostly located upstream of the 138 kV and 345 kV transmission corridors. Offshore wind is curtailed at 3 percent and 4 percent for multiple cases in the Long Island pocket due to the new wind resources being mostly located upstream of the 138 kV transmission corridor.

The assessment shows that renewable generation pockets will likely result from both the existing renewable resources and the large amount of expected additional wind and solar resources. This supports the conclusion that additional transmission expansion, at both the bulk and local levels, will be necessary to efficiently deliver renewable power to New York consumers to meet the goal of 70 percent renewable energy provided to retail customers by 2030. Figure 2 below depicts the generation pockets from the NYISO's 70 x 30 scenario:

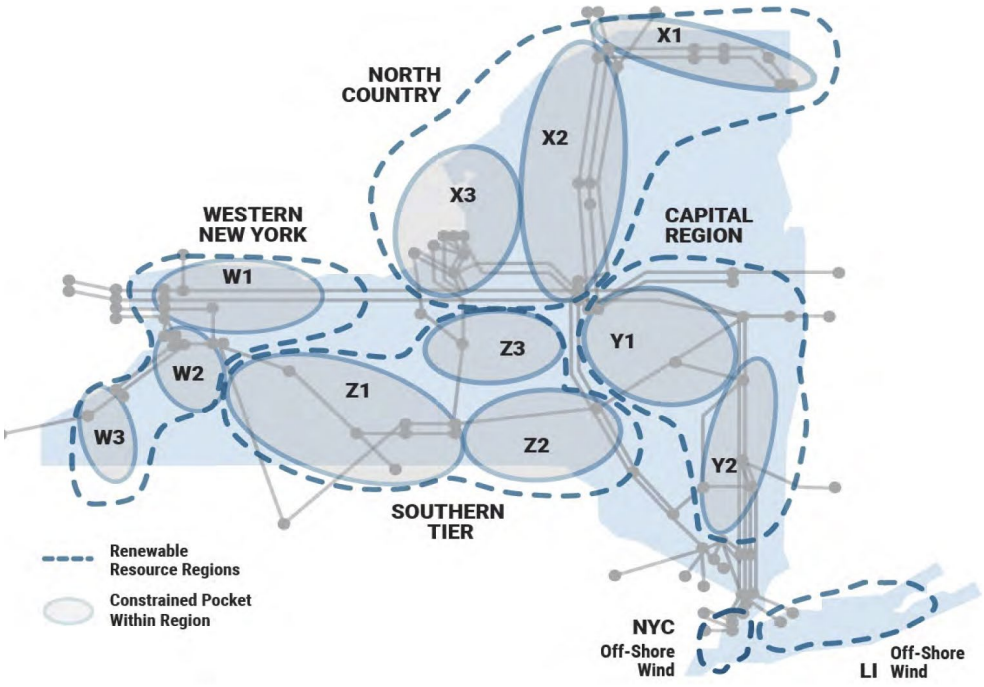

Figure 2: Renewable Generation Pockets Map

The NYISO supports some of the additional findings in the Initial Report that future needs for additional bulk-power and local transmission upgrades may arise sooner than projected in the Utility Local Transmission and Distribution Studies, New York Offshore Wind Integration Study, and Zero-Emission Electric Grid in New York by 2040.[23] The long lead time to build transmission and the required rate of new renewable development are competing factors that narrow the window of opportunity to address future needs in the most efficient manner. While the transmission expansion is already underway, the contributions of previously-approved transmission projects are already reflected in the NYISO's 70 x 30 scenario analysis. Even with those additions, the NYISO's assessment demonstrates that additional transmission infrastructure is needed to deliver energy from generation pockets to consumers statewide.

[23] Initial Report, at p. 98.

B. Recommendations for Transmission Project Prioritization

Certain Initial Report work and recommendations by the DPS and NYSERDA staffs are particularly helpful to prioritizing the following transmission investments that are quickly actionable. These recommendations are well positioned to be acted on quickly by the state, and offer well understood benefits:

1. The PSC Should Proceed with the Proposed Phase 1 Local Transmission projects

The Utilities identified numerous Phase 1 local transmission and distribution projects that are intended to address asset condition, reliability, security or compliance needs, but that can also help renewable energy delivery. The Utilities estimated that these projects would create incremental headroom of approximately 8,600 MW, much of which can facilitate renewable generation delivery to the bulk system from constrained generation pockets, at a total estimated cost of about $6.8 billion.[24] The transmission projects are expected to manifest beginning in 2021 and throughout the next decade. Collectively, they represent an opportunity to leverage ongoing asset maintenance and reliability programs to capture important CLCPA benefits.

Con Edison's Transmission Reliability and Clean Energy ("TRACE") Projects are an example of such no-regret proposals. The TRACE projects consist of three new facilities proposed by Con Edison within New York City: (i) a new 345/138 kV PAR controlled 138 kV Rainey – Corona feeder; (ii) a new 345/138 kV PAR controlled 138 kV Gowanus – Greenwood feeder; and (iii) a new 345 kV/138 kV PAR controlled 138 kV Goethals – Fox Hills feeder.[25] Beyond their necessity to meet reliability needs following the deactivation of peaking generators

[24] Initial Report, Appendix C, at p. 5.

[25] These facilities are the subject of a separate Con Edison retail rate filing. Case 19-E-0065, Petition of Consolidated Edison Company of New York, Inc. for Approval to Recovery Costs of Certain Transmission Reliability and Clean Energy Projects (December 30, 2020).

in New York City,[26] the TRACE Projects are necessary to facilitate achievement of the state's clean energy goals as defined in the CLCPA. They do so in at least two ways: first, by enabling the retirement of downstate fossil fuel-fired "peaking" generation units by addressing the associated reliability needs. Second, the TRACE projects will open transmission pathways into constrained New York City load pockets, improving access by cleaner renewable generation to be delivered to consumers in those areas. The benefits of these multi-value projects are well understood and the NYISO supports the Commission expediting their development.

2. Transmission Expansion for Offshore Wind Integration

The Initial Report finds that the amount of offshore wind ("OSW") required to meet the CLCPA mandates will likely exceed the target of 9,000 MW.[27] Considering the limitations on feasible points of interconnection and cable routes, the costs to integrate offshore wind in New York City and Long Island are likely to increase due to siting and transmission constraints. Including NYSERDA's 2020 OSW awards, there are already 4,316 MW of OSW projects that have been selected and will need to be interconnected in New York.

In addition, as part of the Utility Transmission and Distribution Study, LIPA[28] and Con Edison[29] individually identified the need to strengthen the transmission backbone and local transmission and distribution networks in order to deliver offshore wind output to consumers.

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[26] On February 23, 2021, the NYISO presented reliability planning updates to the Electric System Planning Working Group including how the three feeders, together with updated load forecasts and operational changes to certain series reactors, will satisfy the reliability needs identified on the Bulk Power Transmission Facilities identified in the 2020 Reliability Needs Assessment (RNA). The NYISO presentation can found at https://www.nyiso.com/documents/20142/19415353/07%202020-2021RPP_PostRNABaseCaseUpdates.pdf/b81547bc-0411-7958-de0c-7b74244904a5.
The NYISO will formalize its findings in its 2021-2030 Comprehensive Reliability Plan to be published later this year. The NYISO's RNA was approved by its Board of Directors in November 2020 and can be obtained at the following link: https://www.nyiso.com/documents/20142/2248793/2020-RNAReport-Nov2020.pdf/64053a7b-194e-17b0-20fb-f2489dec330d

[27] Initial Report, at p. 72.

[28] Utility Transmission and Distribution Report, at p. 133.

[29] *Id.,* at p. 111.

LIPA also pointed out the need to expand the transfer capability to deliver the OSW generation connected on Long Island to New York City customers.

The Initial Report, the transmission owners' ("TO") assessments, and the NYISO's 70 x 30 scenario assessment all align to support prioritizing OSW integration in New York City and Long Island. Considering that bulk transmission development requires coordinated efforts between the DPS, NYISO, transmission developers, and the local TOs, the Commission should prioritize transmission expansion for OSW integration for Long Island and New York City now, to meet the 70 x 30 requirement and additional CLCPA targets. Given the multi-year lead time necessary for transmission development in New York, the NYISO supports the Commission's order issued last week determining that the CLCPA is a Public Policy Requirement that is driving the need to increase transmission capability from Long Island to Southeast New York. [30] The NYISO will begin work right away to address that need in its Public Policy Transmission Planning Process.

3. Other Recommendations

The Initial Report identified several other recommendations that can yield significant benefits, but require further consideration in the near future:

a. Offshore Wind Meshed System

The Initial Report determined that a "meshed" system to connect offshore wind farms would offer reliability and economic benefits. Furthermore, the Initial Report states that a meshed system could be implemented retroactively after offshore wind farms come in-service,

[30] Case 20-E-0497 - In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2020; Case 18-E-0623 - In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2018; *Order Addressing Public Policy Requirements for Transmission Planning Purposes* (March 19, 2021), available at: http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={8C8F3D7A-4FEB-4B18-88F5-82CF587895C9}

which would allow for greater flexibility in developing different offshore sites.[31] In supporting the offshore wind meshed system, the PSC must move quickly before the option is no longer viable, and should evaluate several issues when deciding the path forward:

- What technical specifications are needed to convert a radially-connected OSW farm into a meshed system? Many offshore wind farms are already in the design phase and will be finalized shortly.
- Would radial connections be capable of delivering the benefits of a meshed system? The transmission and substation upgrades of radially connected OSW farms in development are currently being designed with only a single OSW facility's output in mind.
- Does commercially available technology exist to create the meshed system? For example, lack of practical and economic DC-breakers have presented an impediment to previously proposed DC-grids like the one that the Initial Report recommends.
- By what process should a meshed system be designed, sourced, and constructed?
- How are the interconnection rights of radially connected OSW farms affected when their generator lead lines are connected to other wind farms? If the radial connection is to be converted to a mesh system, would these facilities become subject to open access transmission services under the NYISO's tariffs?
- Would the meshed system be considered as part of the bulk transmission system operated by NYISO?

[31] Initial Report on the New York Power Grid Study, at p. 75.

The NYISO respectfully disagrees with the finding from the Power Grid Study that a decision to implement a meshed system can be delayed.[32] Although other operational challenges could be further identified and studied as additional renewables integrate into New York, a meshed network to connect offshore wind farms is best pursued as soon as possible before opportunities for an efficient design are foreclosed. Considering the impacts from the offshore wind grid, the issues identified above for the PSC's consideration could have significant impacts on grid operations, interconnection planning, and market design. These issues should be addressed to prepare all relevant stakeholders for a future meshed system, if deemed desirable. While designing with expandability in mind would likely cost more upfront, it would likely still be cheaper than replacing interconnection facilities later, and could also maximize the use of limited available transmission cable routing options.

b. Establishment of Local Renewable Energy Zones

The bulk power system envisioned in the state's climate change laws will likely operate under a very different set of resources and demands than today. Rather than relying on traditional fossil fuel-fired generating units to meet the electricity demand, new renewable generating units will need to be interconnected throughout the New York Control Area ("NYCA") to provide emissions-free power. Renewable resources have different siting and sizing considerations when compared to traditional fossil fuel-fired generation due to the availability of the solar and wind resources that serve as the "fuel" for renewables and the need for large real estate footprints to accommodate them. The natural resources and the land needed to site solar and wind renewable resources also tend to be located in the northern and western

[32] Initial Report, at p. 3.

regions of upstate New York, including the Southern Tier and, for wind, off the coasts of New York City and Long Island.

As a result, renewable generation investments will necessarily concentrate in certain geographic areas where bulk transmission facility expansion will be required in order to deliver the renewable energy to consumers. These locations are confirmed by the geographic distribution of projects in the northern, central and eastern portions of the state that have received NYSERDA awards of renewable energy credits ("RECs") to date. The NYISO Interconnection Queue also indicates where developers are considering siting within New York State. Based on the NYISO Interconnection Queue as of February 28, 2021, approximately 90 percent of the land-based renewable capacity outside of New York City and Long Island is located in NYISO Zones A through E, and approximately 10 percent is located in Zones F and G.[33] Those areas in Zones A through E are mostly remote from New York's existing bulk power transmission facilities.

The Initial Report recommended creating Renewable Energy Zones where new transmission would be built to tap the potential for large scale renewable generation in areas lacking sufficient access to transmission. Specifically, the Initial Report identified areas in Zone G and southern Zone F.[34] While these areas are attractive from the standpoint of energy prices and proximity to load, it does not appear that lack of "on ramp" transmission is the major barrier to development. Compared to areas further upstate, more distributed than utility-scale solar is under development in Zone G. This is likely due to difficulty in obtaining real estate and permits

[33] The NYISO Interconnection Queue is available at the following link: https://www.nyiso.com/interconnections

[34] Initial Report, at p. 40.

for the larger sites needed for utility scale solar projects (*e.g.,* approximately 600 acres is needed for a 100 MW solar project) in Zone G.

The NYISO encourages the PSC to establish Renewable Energy Zones where the necessary energy and land resources exist, especially in the areas of the state in which NYSERDA has awarded significant RECs and where developers have proposed to interconnect. To provide full delivery of energy from Renewable Energy Zones, a holistic plan should address the bulk transmission needs identified in the NYISO's 70 x 30 scenario findings.

II. The PSC Should Treat Energy Storage as a Resource, Not Transmission.

The analysis contained in the Initial Report assumes that energy storage will be optimally located and dispatched to maximize the renewable generation output.[35] This approach appears to treat energy storage as a transmission asset rather than as a resource.

Although other ISOs have rules that treat storage as a transmission asset and are considering rules for treating storage as transmission while also allowing market revenues, the NYISO does not support treating storage as transmission and believes that storage is best utilized as a resource given its characteristics.[36] Energy storage resources can contribute to resource adequacy, support grid flexibility, help satisfy transmission constraints, and maximize the use of renewable energy resources on the New York power system by mitigating spillage, and therefore

[35] Initial Report at p. D-27, E-24.

[36] The Midcontinent Independent System Operator, Inc. ("MISO") and the California Independent System Operator, Inc. ("CAISO") allow energy storage resources to participate as a transmission asset as part of their planning processes, but do not currently permit such resources participating as a transmission asset with cost-based recovery to also be compensated for providing market services. The MISO allows for the selection of a storage facility as a transmission-only asset ("SATOA") in the MISO Transmission Expansion Plan. *See* MISO OATT, Att. FF, Section II.G, available at: https://docs.misoenergy.org/legalcontent/Attachment_FF_-_Transmission_Expansion_Planning_Protocol.pdf. CAISO also evaluates energy storage in its planning process as a potential alternative to system reinforcement as either a local capacity resource or as a transmission asset, with all cost recovery through regulated rates. *See* CAISO 2019-2020 Transmission Plan at pp 33-35 (March 25, 2020), available at: http://www.caiso.com/Documents/ISOBoardApproved-2019-2020TransmissionPlan.pdf; see also CAISO Issue Paper, Storage as a Transmission Asset, et al., available at: https://www.caiso.com/Documents/IssuePaper-StorageasaTransmissionAsset.pdf.

are best treated as a resource.[37] Accordingly, the NYISO's wholesale market rules properly treat energy storage as a resource eligible to participate in capacity, energy and ancillary services markets.

In evaluating transmission necessary to achieve the state's climate change goals, the Commission should model energy storage resources in a manner consistent with how they will operate in the NYISO's wholesale electricity markets. In August 2020, the NYISO became the first independent system operator in the United States to implement its comprehensive energy storage market participation rules.[38] Initially proposed in 2018 in response to Federal Energy Regulatory Commission ("FERC") Order No. 841,[39] the NYISO's energy storage rules provide for full participation in the NYISO's capacity, energy and ancillary services markets. The NYISO's market model will also enable energy storage to co-locate with generating resources like wind and solar or allow energy storage to aggregate with other resources.[40] Based upon the integration of energy storage as a resource in the NYISO's markets, the Commission should treat energy storage as a critical resource rather than as a transmission asset in making its

[37] Energy storage functions as an active resource receiving and discharging electricity to the power system, rather than a passive resource like conductors, transformers, capacitors and other transmission assets.

[38] New York Independent System Operator, Inc., Docket No. ER10-467-000 *et al.*, *Order on Compliance Filing* (December 20, 2019), 169 FERC ¶ 61,225; *id., Order on Compliance Filing and Addressing Arguments Raised on Rehearing* (August 3, 2020); *id.*, *Delegated Order* (October 23, 2020).

[39] New York Independent System Operator, Inc., Docket Nos. RM16-23-000, et al., *Compliance Filing* (December 3, 2018), available at: https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1439/Attachments/20181203_NYISOFilngLttr_OrdrNo841.pdf

[40] The NYISO recently filed proposed amendments to its tariff to implement storage resources co-located with a solar or wind resource that share a common point of injection. New York Independent System Operator, Inc., Docket No. ER21-1001-000, Proposed Tariff Revisions to Implement Co-located Storage Resources, (January 29, 2021), available at: https://www.nyiso.com/regulatory-viewer

The NYISO is further working to develop and implement rules that would allow participation of hybrid resources (*i.e.*, renewable and storage resources participating as a single resource).

determinations for New York State to achieve CLCPA requirements, including integration of 3,000 MW of storage capability.[41]

The NYISO's proposed updated Economic Planning Process will also assist with maximizing the value of energy storage as a key resource. The recent CARIS analysis pointed out that energy storage could decrease congestion, and when dispatched effectively, energy storage would help to increase the utilization of the renewable generation.[42] The results support the conclusion that it is important to further study how storage, combined with additional transmission at both the bulk and local levels, can facilitate efficient delivery of renewable power to New York consumers. As stated below in Section III (D), the NYISO has filed tariff amendments to add an energy deliverability metric to its Economic Planning Process. The energy deliverability metric will enable developers and policymakers to determine the best locations on the power system to integrate energy storage to optimize the delivery of renewable energy to the power system.

III. The NYISO Supports Enhanced Coordination with the Commission and Additional Stakeholder Participation in the Transmission Planning Process

A. The PSC Should Draw Upon the NYISO's Analytical and Stakeholder Processes to Assist its Transmission System Planning Decisions

Successful achievement of CLCPA mandates will require not only a carefully designed master strategy in the beginning to meet the 2030 and 2040 targets, but also regular progress review and allowance for plan adjustment in the next few decades. Planning activities will need to be closely coordinated between NYSERDA renewable generation programs, utility local transmission and distribution upgrades, and NYISO bulk system planning and interconnection

[41] It is not clear to the NYISO what distinguishes energy storage from other types of resources, such as generation, that would render appropriate its treatment as a transmission asset.

[42] CARIS report, at p. 10.

processes. Input should be gathered on an ongoing basis from all sectors, including end use consumers, transmission owners, public power and environmental interests, generation and resource owners, and other suppliers. Through its shared governance process, the NYISO has established a collaborative relationship with stakeholders, policymakers and interested parties. The PSC should continue to leverage the NYISO in partnership as an authoritative source of information and analysis to inform its decisions.[43]

The NYISO's Comprehensive System Planning Process ("CSPP") is comprised of the following elements: The Local Transmission Owner Planning Process, Reliability Planning Process, Economic Planning Process, Public Policy Transmission Planning Process, and inter-regional transmission planning conducted with neighboring control areas in the United States and Canada. The components of the CSPP are conducted over a two-year cycle, and in each cycle, changes in supply and demand, as well as public policies, are incorporated into the reliability planning base case that forms the foundation of each process. This continuous study cycle provides that planning study findings are constantly updated to provide stakeholders with the latest assessments of the bulk system.

The NYISO publishes the Load and Capacity Data report ("Gold Book") every year. The Gold Book provides open and transparent information on the following aspects:

- Historical and forecast seasonal peak demand and energy usage, and energy efficiency, electrification, and other load-modifying impacts;
- Existing and proposed generation and other capacity resources; and
- Existing and proposed transmission facilities.

[43] The NYISO serves the public interest and provides benefit to consumers by fulfilling an array of essential responsibilities, which include reliable operation of New York's bulk power system, fair and open administration of competitive wholesale electricity markets, planning for the future of New York's power system, and advancing the technological infrastructure of the electric system serving New York.

The Gold Book serves as the foundation of a comprehensive data set of generation, transmission, and demand forecasts for New York. By accurately understanding what elements comprise the bulk power system today and the needs of tomorrow, we can better meet the evolving challenges of operating and planning an efficient and reliable power grid.

The NYISO's *Reliability and Markets for the Grid of the Future* ("Master Plan")[44] details the plans to examine market structures, rules and processes, and develop enhancements over the next five years that will help provide for the reliability and economic efficiency of the grid while supporting the state's public policy goals. In producing this annual document, the NYISO aims to achieve three concurrent goals; (i) establish a clear framework for achieving the NYISO's vision of the future wholesale markets; (ii) align the objectives for the next five years with the most recent Strategic Plan; and (iii) support annual stakeholder-driven project prioritization efforts. Together, these goals will help to synthesize a clear and direct path forward as we engage in transforming the bulk power system and wholesale electricity markets.

The NYISO has also conducted studies based on stakeholder needs and requests to inform policymakers, utilities, developers and other stakeholders, such as the 2019 Reliability and Market Considerations for a Grid-in-Transition ("Grid-in-Transition")[45] and the Climate Change Impact and Resilience Study. In the Grid-in-Transition report, the NYISO reviews the reliability and market implications of the state's plans for a transition to cleaner energy resources. This report details the many steps that should be considered as New York envisions the grid of the future. The NYISO is currently in discussions with stakeholders regarding the

[44] The 2019 Master Plan Reliability and Markets for the Grid of the Future is available on NYISO website: https://www.nyiso.com/documents/20142/17255913/2020%20Master%20Plan%20FINAL.pdf/6b88b220-da25-cad8-d371-bdf91d4059fe

[45] The Reliability and Market Considerations for a Grid in Transition report is available on the NYISO website, https://www.nyiso.com/documents/20142/2224547/Reliability-and-Market-Considerations-for-a-Grid-in-Transition-20191220%20Final.pdf/61a69b2e-0ca3-f18c-cc39-88a793469d50

approaches to considering the recommendations in this report. In the stakeholder-requested Climate Change Impact and Resilience study, the NYISO and its consultants developed electricity demand projections through 2050 considering the long-term climate trend in the Phase I study,[46] and then reviewed the potential impacts on power system reliability in the Phase II study.[47] The Phase II Study assessed the impacts from the electricity demand projections for 2040 due to the potential climate change in New York to the power system reliability, system load and resource availability, and identified future energy needs that will need to be addressed. These two studies demonstrate that the NYISO has the appropriate expertise and the stakeholder communication channels to provide the analysis policymakers and investors will need in New York's constantly evolving energy landscape.

B. The NYISO's Revised Public Policy Transmission Planning Process Provides Opportunities for Enhanced Planning to Meet New York State's Climate Change Policy Requirements

The NYISO and the PSC have closely coordinated on roles and responsibilities of the Public Policy Process since the onset of the process in 2014. The PSC's responsibilities include the identification of Public Policy Requirements and determining whether transmission solutions are the appropriate response to such policy objectives. The PSC determines the transmission needs that should be referred to the NYISO, and the NYISO then solicits, evaluates, and selects the more efficient or cost-effective transmission solution to meet Public Policy Transmission Needs.[48] As called for in the AREA, if additional bulk Public Policy Transmission Needs are identified in the review process, the PSC should leverage NYISO's FERC Order No. 1000

[46] https://www.nyiso.com/documents/20142/16884550/NYISO-Climate-Impact-Study-Phase1-Report.pdf/4311bdd4-a389-afbe-9ee9-b6bf523b0a36

[47] https://www.nyiso.com/documents/20142/16884550/NYISO-Climate-Impact-Study-Phase-2-Report.pdf/e9214fd4-9c52-036d-b92b-15f282e686e6

[48] *See* NYISO Open Access Transmission Tariff ("OATT") § 31.4.

competitive planning process and issue orders determining transmission needs in a timely manner.

In 2018, the NYISO undertook an initiative to examine how to improve its CSPP to be more responsive to evolving reliability, economic, and public policy needs. Over the last two years, the FERC has approved tariff revisions to streamline the NYISO's evaluation and selection process for competing transmission projects.[49] For example, although the Commission can decide to rescind or modify a Public Policy Transmission Need at any time, it no longer has to issue a second order confirming the need after the NYISO determines the viability and sufficiency of proposed transmission projects and before the NYISO may select the winning project. [50] To provide that developers have a clear understanding of the transmission need and the manner in which the NYISO will apply its criteria for selection of transmission projects, the NYISO added to its process a technical conference preceding its solicitation of solutions.[51] The NYISO further aligned the project information requirements of the Public Policy Process and its interconnection processes to expedite consideration of proposed projects in both processes.[52] At the behest of the Commission and end-use sector interests, the NYISO adopted tariff amendments that allow transmission developers to propose, and enable the NYISO to consider, binding cost containment commitments for the capital costs of transmission projects.[53] Finally,

[49] *New York Indep. Sys. Operator, Inc.*, Order Accepting Tariff Filing, 166 FERC ¶ 61,099 (February 8, 2019).

[50] OATT § 31.4.6.7 (NYPSC's Modification or Elimination of a Public Policy Transmission Need).

[51] OATT § 31.4.4.3.1.

[52] OATT § 31.4.4.3.4.

[53] *See* OATT §§ 31.1.1 (definition of "Cost Cap"); 31.4.5.1.8 (Developer proposal of Cost Cap); 31.4.8.2 (NYISO consideration of Cost Cap); 31.4.8.3 (Developer must abide by Cost Cap and put it in Development Agreement); 6.10.6 (Developer must include Cost Cap in rate filing), *available at* https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1650/Attachments/20200818-NYISOPttnDclrtryOrdr.pdf.

the NYISO has worked to resolve other issues associated with the handling of upgrades to existing transmission facilities that are part of Public Policy Transmission Projects.[54]

Following adoption of these changes, the NYISO outlined an estimated timeline to complete the Public Policy Process within approximately 18 months following the PSC's identification of a Public Policy Transmission Need as the responsible entity under the OATT (see Table 1 below).

Table 1: Illustrative Timeline Following Need Identification

Major Steps	**Process Steps**	**Estimated Months by NYISO**
Solicitation of Solutions	Prepare baseline analysis	3
	Hold technical conference	
	Issue solicitation for solutions	2
	Solutions due in 60 days	
Viability and Sufficiency Assessment	Perform Viability & Sufficiency Assessment	4
	Stakeholder review	
	Final Viability & Sufficiency Assessment filed with PSC	
Evaluation and Selection	Evaluate transmission solutions and issue draft report	6
	Stakeholder review	3
	Board review and action	

[54] To address a remaining area of uncertainty, the NYISO filed in August 2020 a petition for declaratory order with the FERC seeking confirmation of the right of Transmission Owners to build, own, and recover the costs of upgrades to their existing transmission facilities. While FERC's action on the petition will provide helpful clarifications, the NYISO does not believe that its pending petition will inhibit its ability to evaluate and select the more efficient or cost effective solution to a new Public Policy Transmission Need. *New York Indep. Sys. Operator, Inc.*, Petition for Declaratory Order, Docket No. EL20-65-000 (August 18, 2020), *available at* https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1650/Attachments/20200818-NYISOPttnDclrtryOrdr.pdf.

The NYISO is committed to meeting these estimated timeframes to the extent practicable.[55] The NYISO will apply its streamlined Public Policy Process in addressing the Offshore Transmission Need determined by the Commission last week. The NYISO's updated process will enable the state to timely obtain efficient and cost-effective transmission additions or expansions to achieve its offshore wind and other CLCPA policy goals. In determining the designation of additional transmission needs as either priority projects needed expeditiously or as needs for consideration in the Public Policy Process, the PSC should consider whether transmission needed to meet the CLCPA's 2030 and 2040 goals must be completed more quickly than the cumulative time expected by the NYISO's streamlined Public Policy Process, the Commission's siting process under Public Service Law Article VII, and construction and entry into service. Considering typical schedules for siting processes, engineering, procurement, and construction, the NYISO estimates that the total timeline for projects pursued through the NYISO Public Policy Process from the PSC's declaration of a need to entry of a transmission project into service could span approximately five to six years.[56] Given the timeframe specified by state policy, the NYISO's Public Policy Process is well suited today to identify efficient and cost effective transmission solutions to address needs beyond 2025. Beginning to address those transmission needs now will allow for greater resource energy than having developers propose projects one by one and paying for transmission additions piecemeal.

[55] The actual timeline to complete the NYISO process for a specific Public Policy Transmission Need depends on many factors, including the PSC process, complexity of the needs and proposals, number of needs identified, number of proposals submitted, and review by stakeholders and the NYISO's Board of Directors.

[56] This timeframe is illustrative and could vary in the NYISO's process or in individual transmission procurement processes that would proceed on their own timeline for siting, engineering, procurement and construction.

C. The PSC Should Update its Procedures to Align with the NYISO's Revised Public Policy Process

The February 3, 2021 DPS questions under "Planning" ask:

> Considering the Power Grid Study findings, is there a need to revise the Commission's procedures for implementing its role under the NYISO's Order 1000 planning tariff? If so, how should those procedures be modified?[57]

The roles of the PSC in determining Public Policy Requirements and Public Policy Transmission Needs, the metrics for evaluating solutions, and any additional studies to be conducted by the NYISO, are established in the NYISO's OATT.[58] The tariff states that:

> The NYPSC will maintain procedures to govern the process by which it will review proposed transmission need(s), which procedures shall: ensure that such process is open and transparent, provide the ISO and interested parties a meaningful opportunity to participate in such process, provide input regarding the NYPSC's consideration, and result in the development of a written determination as required by law.[59]

On August 14, 2014, the PSC adopted a "Policy Statement on Transmission Planning for Public Policy Purposes."[60] The Commission adopted a six-step process for consideration and determination of Public Policy Requirements that may drive the need for transmission and the subsequent withdrawal of those needs. The NYISO uses the PSC's determination to solicit transmission and other solutions to Public Policy Transmission Needs, considers the viability and sufficiency of those solutions, and selects the more efficient or cost effective solution to fulfill the need.[61] In its Policy Statement, the Commission stated that it "may revisit these policies and

[57] DPS Questions, at 4.
[58] OATT § 31.4.2.1.
[59] *Id*.
[60] Case 14-E-0068, Proceeding on Motion of the Commission to Establish Policies and Procedures Regarding Transmission Planning for Public Policy Purposes, Policy Statement on Transmission Planning for Public Policy Purposes (August 15, 2014) ("Policy Statement").
[61] OATT § 31.4.

procedures in the future, as appropriate, in order to properly align them with the state's public policy objectives and the NYISO's approved process."[62] Given the statements of the AREA concerning use of the NYISO's Public Policy Process to address transmission for meeting CLCPA needs, and the pendency of proposed Public Policy Transmission Needs for the biennial 2020-2021 planning cycle, the NYISO recommends that reexamination of the PSC's procedures is appropriate at this time.

The PSC's procedures states:

> Step 6: If the Commission Order in Step 4 identifies potential transmission needs that should be referred to the NYISO to solicit and evaluate solutions, the Commission will review the results of the NYISO's subsequent viability and sufficiency analyses of potential solutions. The Commission will thereafter issue a written Order, following its issuance of a SAPA notice and review of any comments, explaining whether a transmission solution should continue to be analyzed by the NYISO, or whether a non-transmission solution should be pursued instead. In the event a non-transmission alternative will be pursued, the Commission will determine that there is no longer a Public Policy Requirement driving the need for a potential transmission solution that warrants further evaluation by the NYISO.[63]

In 2018, the NYISO filed tariff amendments to its Public Policy Process to remove the requirement that the PSC issue an order confirming a Public Policy Transmission Need before the NYISO can move forward with its evaluation and selection process.[64] At that time, the NYISO stated that the requirement to wait for a subsequent PSC order under the State Administrative Procedure Act before commencing its process to evaluate and select the more

[62] Policy Statement, at 12.
[63] Policy Statement, Appendix, at 2-3.
[64] *See* NYISO Filing (December 18, 2018), available at the following link: https://nyisoviewer.etariff.biz/ViewerDocLibrary//Filing/Filing1443/Attachments/20181211%20Trnsmttl%20Ltr%20Shrt%20Trm%20PPTPP%20Rvsns.pdf

efficient or cost effective transmission project could cause significant delays in completion of the Public Policy Process. The FERC accepted the tariff revisions in February 2019.[65]

Under this revision, the Commission can still consider whether to issue an order eliminating or modifying the Public Policy Transmission Need at any time prior to the NYISO's selection of the more-efficient or cost-effective transmission solution, but the NYISO can proceed with evaluation and selection in the meantime. The NYISO OATT states:

> 31.4.6.7 NYPSC's Modification or Elimination of a Public Policy Transmission Need
>
> 31.4.6.7.1 If, at any time prior to the ISO's selection of the more efficient or cost effective transmission solution pursuant to Section 31.4.11.2, the NYPSC issues an order, subject to and in accordance with the State Administrative Procedure Act, that determines that either: (i) there is no longer a transmission need driven by a Public Policy Requirement that requires the ISO's evaluation of potential transmission solutions, or (ii) the transmission need should be modified, the ISO shall take the following action.
>
> 31.4.6.7.2 If the NYPSC determines that there is no longer a transmission need driven by a Public Policy Requirement in an order as set forth in Section 31.4.6.7.1, the ISO will not perform or complete, as applicable, an evaluation, or make a selection of, a more efficient or cost-effective transmission solution under Sections 31.4.7 through 31.4.11 for the Public Policy Transmission Need initially identified by the NYPSC for that planning cycle pursuant to Section 31.4.2.1.
>
> 31.4.6.7.3 If the NYPSC modifies the transmission need driven by a Public Policy Requirement in an order as set forth in Section 31.4.6.7.1, the ISO will re-start its Public Policy Transmission Planning Process as an out-of-cycle process to evaluate Public Policy Transmission Projects to address the modified Public Policy Transmission Need. This out-of-cycle process will begin with the ISO's solicitation for Public Policy Transmission Projects to address the modified Public Policy Transmission Need in accordance with Sections 31.4.3 and 31.4.4.3. The ISO shall then perform the remainder of the out-of-cycle Public Policy Transmission Planning Process in accordance with the process requirements in Section 31.4 that follow its solicitation for proposed solutions.

[65] *New York Independent System Operator, Inc.,* Docket No. ER19-528-000, *Order Accepting Tariff Filing,* 166 FERC ¶ 61,099 (February 8, 2019), available at the following link: https://nyisoviewer.etariff.biz/ViewerDocLibrary/FercOrders/20190208%20Ordr%20Accpt%20PPTPP%20Rvsns_23152.pdf

Based upon these tariff provisions, the NYISO respectfully submits that it would be appropriate for the Commission to amend Step 6 of its Policy Statement. The Commission could eliminate the current provisions in Step 6 that call for the issuance of a second PSC order following the completion of the NYISO's viability and sufficiency assessment to confirm that there continues to be a need for transmission to fulfill a Public Policy Requirement. The PSC could replace that provision with a revised Step 6 that indicates that at any time prior to the NYISO's selection of a transmission solution, it may cancel or it may modify a transmission need driven by a Public Policy Requirement.[66]

Finally, the PSC should clarify in its procedures that it will issue a determination in future biennial cycles of the Public Policy Process finding a transmission need(s) driven by a Public Policy Requirement or finding no needs. The NYISO OATT states that:

> The NYPSC shall issue a written statement that identifies the relevant Public Policy Requirements driving transmission needs and explains why it has identified the Public Policy Transmission Needs for which transmission solutions will be requested by the ISO. The statement shall also explain why transmission solutions to other suggested transmission needs should not be requested. . . . If the NYPSC does not identify any transmission needs driven by Public Policy Requirements, it will provide confirmation of that conclusion to the ISO, and the ISO shall not request solutions.[67]

A PSC determination that there are or that there are not Public Policy Needs for which the NYISO should solicit solutions would provide certainty to developers, TOs and other stakeholders regarding their proposed needs and whether the biennial planning process will or will not proceed further. While the Public Policy Process is conducted on a two-year cycle, the

[66] The revised Step 6 could also address any procedural steps the PSC would need to undertake under the State Administrative Procedures Act and other provisions of state law prior to making such a determination to cancel or modify.

[67] OATT § 31.4.2.1.

PSC can issue a Public Policy Transmission Need order at any time, either within the cycle or out of cycle.[68]

D. The NYISO's Reliability Planning Process and Economic Planning Processes Provide New Opportunities for Enhanced Planning Coordination with the PSC, Transmission Owners and all Stakeholders

The NYISO is combining components of the Comprehensive System Planning Process to issue annual planning reports that will assist the PSC not only when determining Public Policy Transmission Needs, but also when reviewing the state's overall strategy and progress toward achieving the requirements of the CLCPA. The NYISO initiated an Economic Planning Process improvement effort in 2020. The NYISO received unanimous stakeholder approval to submit the tariff changes to FERC, which are expected to become effective this April in time for the next cycle of the Economic Planning Process.[69] The revised process would create a 20-year System & Resource Outlook ("Outlook") of system performance and transmission constraints across the entire New York grid. It would add energy deliverability as a metric reported for resources on the system, and update other metrics such as the value of transmission to save on installed capacity costs. If the changes are accepted by FERC this spring, the NYISO will undertake its first Outlook study this year.

Together, the Comprehensive Reliability Plan and the System & Resource Outlook will become the marquee NYISO planning reports that will provide an annual comprehensive power system outlook to policymakers, investors and developers. In these reports, the NYISO will summarize the comprehensive planning needs, and provide details of the planning assessment.

[68] *See* OATT § 31.4.1

[69] The NYISO filed its expanded planning process on February 9 2021, and it is available on the NYISO's website at: https://www.nyiso.com/regulatory-viewer

Along with the annual Gold Book, these planning reports will help facilitate the Commission's comprehensive review of the state's progress toward achieving the CLCPA targets.[70]

To provide that consumers will fully receive the output from renewable generation additions, a proactive analysis to identify the ability of proposed projects to deliver energy to end users should be considered when soliciting and selecting projects to achieve the state's energy policy targets. With the newly expanded metric of energy deliverability, the NYISO expects to provide more insights of system congestion and renewable energy resource integration in the System & Resource Outlook. The NYISO's examination of potential generation pockets can facilitate a generator owner's decision in siting new renewable generators, and NYSERDA's annual determination in the REC solicitation process. For example, during the 2020 large scale renewable RFP, NYSERDA allocated 10 points towards an "operational flexibility and energy deliverability" category that scored the ability of projects to deliver power to the electrical system without causing curtailment for existing or planned renewable generators.[71] This energy deliverability metric will become increasingly important as more renewable energy projects begin commercial operation and headroom on the transmission system diminishes. In the CES Modification Order, the PSC directed NYSERDA to more fully examine "interactive effects" amongst and between the projects when scoring in future RFPs beginning in 2021.[72]

Traditional system upgrade analysis only examines temporal snapshots of system conditions, and must be supplemented to properly assess temporal issues that should drive the extensive buildout expected in the next few decades. Using production cost simulation tools, an

[70] AREA, Part JJJ, § 7(7).

[71] Purchase of New York Tier 1 Eligible Renewable Energy Certificates (RECs) Request for Proposals (RFP) No. RESRFP20-1, at p. 51. https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00Pt000000P00roEAB

[72] http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={EAAF1A1E-2A05-49A7-A4D1-C5755E5BE536}

8,760-hour chronological assessment can be performed to look into the amount of energy that can actually be produced and consumed over an extended period of time, rather than being curtailed due to transmission limitations during a snapshot in time. This energy deliverability analysis will include quantification of the energy projected to be produced by each resource considering the impact of applicable local, statewide, and interregional transmission constraints as compared to the total amount of energy that such resource is capable of producing in the absence of transmission constraints, and accounting for resource availability for each resource type including wind, solar, and water. The metric will also include quantification of the collective impact of resources on energy deliverability at constrained locations, and provide information about the capability remaining on the transmission system to support deliverability of energy from resources.

The NYISO's energy deliverability assessment will provide additional analysis and valuable insights concerning New York State's transmission needs and the energy deliverability of future generation resources that will better position Market Participants, developers, policymakers, and other interested parties to meet New York State's transmission infrastructure needs and support the state's decarbonization goals. Continued coordination between NYSERDA, NYISO, and the TOs to perform energy deliverability analyses will be important to select renewable projects that efficiently integrate into the transmission system to effectively achieve state goals.

E. The TOs' Local Transmission Owner Planning Processes Provide an Opportunity for Enhanced Planning Coordination

The fourth component of the CSPP is the Local Transmission Owner Planning Process ("LTPP"). The NYISO and the Utilities have historically worked together in sharing their planning responsibilities. The Transmission Owners are responsible for planning their

transmission systems for the transmission districts, while the NYISO has the responsibility to plan for the Bulk Power Transmission Facilities for the New York Control Area. The LTPP requires the TOs to consider transmission needs and solutions driven by Public Policy Requirements on their local systems.[73] The TOs, LIPA and NYPA are required to present their draft Local Transmission Plans ("LTPs") for comments in the NYISO stakeholder process, including their local transmission plans undertaken in response to any public policy needs identified on their local systems. The TOs consider stakeholder comments on their draft LTPs before they are finalized.[74] The TOs' updated Local Transmission Plans are posted on the NYISO's website. The TOs, LIPA and NYPA present those plans through the NYISO stakeholder process at least once every two years, and may present updates as they occur. This is the first step in the Reliability Planning Process cycle. The Transmission Owners typically present their plans at the NYISO stakeholder meetings in the fourth quarter prior to the year that the NYISO's Reliability Need Assessment is conducted. This information feeds into the compilation of the annual Gold Book, and forms the basis of the system models that the NYISO uses to conduct all of its transmission system planning studies.

Anticipating the paradigm shift of resources and demand in New York over the next few decades, the NYISO believes further planning coordination could be beneficial by aligning different processes. The Utility Local Transmission Studies propose a Hypothetical Annual Utility LTP Cycle.[75] This hypothetical cycle of activities can be a springboard to identify opportunities for further collaboration with the NYISO's transmission planning processes. A high-level NYISO planning activity flowchart is laid out side-by-side in Table 2 below.

[73] OATT § 31.2.1.1.2.2.
[74] OATT § 31.2.1.2.
[75] Utility Transmission and Distribution Report, at p. 43, Figure 9.

Table 2: Planning Activity Flowchart

<table>
<tr><th></th><th>Utilities Hypothetical Planning Activities</th><th>NYISO High-Level Planning Activities</th></tr>
<tr><td>January</td><td>Annual stakeholder summit</td><td rowspan="3">• Kick off annual data collection for Gold Book.
• NYISO concludes ongoing planning studies, discuss with stakeholder, and releases the findings.</td></tr>
<tr><td>February</td><td rowspan="5">Utility analysis, LTP planning with stakeholder insight</td></tr>
<tr><td>March</td></tr>
<tr><td>April</td><td>Gold Book released with stakeholder input</td></tr>
<tr><td>May</td><td>Reliability and/or Economic Planning studies kickoff that incorporate consideration from generation, energy storage, transmission, and demand forecast.</td></tr>
<tr><td>June</td><td rowspan="2">NYISO analysis and stakeholder discussion</td></tr>
<tr><td>July</td></tr>
<tr><td>August</td><td>Optional stakeholder briefing</td><td>• If reliability needs are identified, additional inputs from utilities and generator owners can be incorporated into reliability analysis.
• Public Policy Process kicks off in August in the even years.</td></tr>
<tr><td>September</td><td rowspan="2">LTP presentation and collaboration with NYISO</td><td>NYISO conducts analysis and discuss with stakeholders</td></tr>
<tr><td>October</td><td>NYISO compiles stakeholder comments on public policy transmission planning and submits to PSC</td></tr>
<tr><td>November</td><td rowspan="2">Utility analysis, incorporating NYISO input into the next planning cycle</td><td rowspan="2">NYISO conducts analysis and discuss with stakeholders.</td></tr>
<tr><td>December</td></tr>
</table>

By taking a closer look at the hypothetical flowchart, one can observe how the planning activities align between the Utilities and the NYISO. Take the activities proposed in the first quarter, for example. When utilities solicit direct feedback by hosting annual stakeholder summits, generator developers could identify specific locations that are under development, and the TOs and developers could take the feedback under consideration for transmission expansion

analysis in time to submit the comments to NYISO's Public Policy Transmission Planning Process in August in the even years. The NYISO reliability or economic planning reports that conclude in the first quarter of each year could provide the assessment of the bulk power system in the New York Control Area in time to be incorporated into the Utilities' own analyses of their local transmission systems. When completed, the Utilities' resulting updated LTPs can then be included in NYISO studies and reports, such as interconnection studies, the Gold Book, and other planning studies for the bulk system in the New York Control Area. The NYISO appreciates the Utilities' efforts to propose this hypothetical planning cycle, and believes that there are further opportunities for planning coordination beyond the examples described above.

F. The Additional Studies Available in the NYISO's Reliability and Economic Processes Enable Developers and Policymakers to Obtain NYISO Analyses to Assist their Planning and Development Efforts

The NYISO's reliability, economic and public policy processes provide for any interested party to request additional studies to inform their planning and development efforts, some of which are on a confidential basis. Below is a summary of some of the studies and potential uses in helping shape policy:

- In the Reliability Planning Process, interested parties can request that the NYISO conduct an Additional Reliability Study to determine how a proposed resource or transmission project would affect a local or bulk power system Reliability Need.[76]

[76] *See* Reliability Planning Process Manual (NYISO Manual 26), Request for Additional Reliability Study (Attachment D), and Agreements for Additional Reliability Studies (Attachment E), available at: https://www.nyiso.com/documents/20142/2924447/rpp_mnl.pdf/67e1c2ea-46bc-f094-0bc7-7a29f82771de

- The current Economic Planning Process provides for interested parties to obtain an Additional CARIS Study.[77] The pending expanded Economic Planning Process will enable requestors to obtain longer-term Requested Economic Planning Studies over a twenty-year period that includes analysis of the energy deliverability of their proposed transmission or generation projects.[78]
- The transmission expansion process allows for an exploratory Transmission Service Study to identify conceptual transmission options to, among other things, create incremental transfer capability or address the reliability or operational concerns of a specific area on the transmission system without formally proposing a project under the Transmission Interconnection Procedures.[79] For example, a requestor can assess transmission options for connecting to and expanding certain substations prior to submitting an Interconnection Request.

These additional planning studies can also provide useful information to developers, transmission owners, and other interested parties on the reliability, economic, and emissions impacts of potential solutions to Public Policy Transmission Needs. While the additional studies must be conducted within the NYISO's available resources, the NYISO encourages all interested parties to avail themselves of studies that may inform their policy, procurement or investment decisions.

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[77] *See* OATT § 31.3.1.2.3; Economic Planning Process Manual (NYISO Manual 35), Additional CARIS Study Request Form (Appendix B), and Additional CARIS Study Agreement Form (Appendix C), available at: https://www.nyiso.com/documents/20142/2924447/epp_caris_mnl.pdf/6510ece7-e0a6-7bee-e776-694abf264bae

[78] The NYISO proposed to incorporate the study requirement for the Requested Economic Planning Study into a new § 31.3.3 of the OATT and to incorporate the request and agreement forms into the tariff into new §§ 31.13 and 31.14. The NYISO's proposed tariff changes are available at: https://www.nyiso.com/regulatory-viewer

[79] *See* Transmission Expansion and Interconnection Manual, Transmission Service Study, available at https://www.nyiso.com/documents/20142/2924447/tei_mnl.pdf/b2f926e9-2faa-2c42-5a09-2402cdb8bacc. However, the Transmission Service Study identifies a concept that a developer wishes to pursue, then it can submit a formal Transmission Interconnection Application or Interconnection Request for the proposed project in the respective process.

G. Recommendations on Next Steps and Path Forward

In its questions on system planning studies, the DPS staff inquired about additional analyses that need to be conducted to identify locations for flexible resources, and to better understand their potential operational impacts. The NYISO believes it is uniquely positioned to advise the PSC on these operational challenges in the bulk system, not only because the planning process is designed to examine reliability, economic, and public policy planning cohesively, but also because the continuous study process will regularly update the assessments to reflect the latest system conditions. In the NYISO's role as the NERC-registered Planning Coordinator and Reliability Coordinator for New York, the Commission obtains the NYISO's review of the transmission system reliability impacts of proposed transmission projects that are under consideration. Moreover, as the administrator of the wholesale electricity market in New York, the NYISO continues to collaborate with stakeholders to improve its market mechanisms that will send appropriate price signals for resource and transmission investments in the New York bulk power system. Through the joint governance process and rigorous collaboration with stakeholders from all sectors, the NYISO strives to accomplish the balance between the "need for coordinated planning of renewable generation, energy storage, and transmission and the requirements of competitive energy markets and open access tariffs."[80]

As an example of potential new assessments, the NYISO plans to better bridge the timescale modeling gap between multi-decadal resource mix evolution (capacity expansion model) through the planning and into operational timescales (sub-hourly to five-minute real-time) modeling in an iterative integrated framework. Economic planning studies would begin to assess technology options, costs, capabilities, implementation pipeline, regulatory alignment, and

[80] DPS Staff Questions, Planning, at p. 4.

other factors to inform how an identified gap would be filled. This approach is consistent with the recommendation of the Initial Report.[81]

In assessing future system conditions associated with an emissions-free electric grid, the Climate Change Impact and Resilience Study Phase II identified the need for "dispatchable and emission-free resources"[82] to cover any circumstances where the renewable resources are insufficient to meet identified demand, and to evaluate what attributes such a dispatchable resource must have to help meet reliability needs. The Initial Report identified a similar need and assumed that the requirements for significant controllable zero-emitting resources could be met with renewable natural gas fueled generation plants located downstate.[83] The technology to support such dispatchable and emission-free resources has yet to be developed and commercialized, and can only be established as viable with significant development on technology research, infrastructure investment, and market incentives. Without such new technology, continuously maintaining reliability in the zero-emission future may not be feasible. The PSC should consider expanding research and development efforts to identify such technologies to complement the existing non-dispatchable zero-emitting resources. The NYISO's study capabilities can assist the PSC by assessing when, where and how much energy and ancillary services such new technologies will need to provide to the future grid to maintain system reliability.

The NYISO's processes support the integration of advanced grid-enhancing technologies. The NYISO's planning processes are designed to encourage market-based solutions first and

[81] Initial Report, at p. 93.

[82] Climate Change Impact and Resilience Study, at 32. The report is available at the following link: https://www.nyiso.com/documents/20142/16884550/NYISO-Climate-Impact-Study-Phase-2-Report.pdf/e9214fd4-9c52-036d-b92b-15f282e686e6, at 32. The NYISO is submitting this report for the Commission's consideration as part of the record in this proceeding.

[83] Initial Report, p. E-34.

foremost, and to select a regulated transmission solution only when market-based solutions are insufficient to address a need. The NYISO's markets are designed to send price signals for economic investments, including investments in advanced technologies. Projects that expand the transmission capability of the system may also be eligible for incremental Transmission Congestion Contracts, which could provide revenue for such projects consistent with their ability to reduce grid congestion. When necessary, the NYISO selects transmission projects consistent with the evaluation and selection and provisions of the NYISO's tariffs,[84] and the selected projects may obtain cost allocation and cost recovery through the NYISO's tariffs.[85] The NYISO's competitive selection processes provide a wide range of metrics to evaluate project performance as well as cost effectiveness. Proposals that include advanced technologies to increase transfer capability may be ranked higher by offering more efficient or cost effective transmission projects in the NYISO's competitive selection process.

The NYISO is committed to assisting the state to achieve the CLCPA mandates, as an authoritative source of information to improve coordination and stakeholder inclusion in the planning process. The NYISO is willing to further explore planning process enhancements that may be necessary, and looks forward to continuing the collaboration with the PSC, DPS, NYSERDA, TOs and other stakeholders.

CONCLUSION

The addition of transmission infrastructure is essential to achieving New York State's policy targets under the CLCPA and the Accelerated Renewable Energy Growth and Community Benefit Act. The NYISO's Public Policy Process can work in tandem with the Utility Local

[84] *See, e.g.,* NYISO OATT §§ 31.2.6.5, 31.4.7, 31.4.8.
[85] *See* NYISO OATT §§ 31.1.4, 31.4.8.2, 31.5.5.1, 6.10 (Rate Schedule 10).

Transmission & Distribution infrastructure initiative and the Priority Transmission Project process to fulfill these significant transmission needs. The NYISO looks forward to continuing its work with the DPS, NYSERDA, and the Utilities to address the state's infrastructure needs.

Dated: March 22, 2021

Respectfully submitted,

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