

**By Electronic Delivery**

October 10, 2018

Hon. Kathleen H. Burgess  
Secretary to the Commission  
New York State Public Service Commission  
Agency Building 3, 19<sup>th</sup> Floor  
Albany, NY 12223-1350

**Subject: Case No. 18-E-0623** – In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2018

Dear Secretary Burgess:

The New York Independent System Operator, Inc. (“NYISO”) hereby submits proposed transmission needs driven by Public Policy Requirements for consideration by the New York State Public Service Commission (“Commission” or “NYPSC”) as a part of the NYISO’s 2018–2019 transmission planning cycle.

The NYISO Open Access Transmission Tariff (“OATT”) provides that at the start of each cycle of its Public Policy Transmission Planning Process, the NYISO “will provide a 60-day period, . . . to allow any stakeholders or interested parties to submit to the [NYISO], or for the [NYISO] on its own initiative to identify, a proposed transmission need(s) that it believes is being driven by Public Policy Requirement(s) and for which transmission solutions should be requested and evaluated.”<sup>1</sup> The NYISO “will post all submittals on its website after the end of the needs solicitation period, and will submit to the NYPSC all submittals proposed by stakeholders, other interested parties, and any additional transmission needs and criteria identified by the [NYISO].”<sup>2</sup> For any submittal proposing transmission needs that require a physical modification to transmission facilities in the Long Island Transmission District, the NYISO will post those submittals on its website and submit them to the Commission and the Long Island Power Authority (“LIPA”), together with any transmission needs and criteria proposed by the NYISO.<sup>3</sup>

The OATT further provides that the Commission “will review all proposed transmission need(s) and, with input from the [NYISO] and interested parties, identify the transmission needs,

---

<sup>1</sup> OATT Section 31.4.2.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

if any, for which specific transmission solutions should be requested and evaluated.”<sup>4</sup> In connection with the Commission’s role in the NYISO’s Public Policy Transmission Planning Process, the Commission issued, on August 15, 2014, a “Policy Statement on Transmission Planning for Public Policy Purposes” in the above-titled proceeding to establish procedures “to guide the transmission planning process for public policy purposes.”<sup>5</sup>

In the case of submittals proposing transmission needs that require a physical modification to transmission facilities in the Long Island Transmission District, the tariff requires LIPA to review those submittals and identify the transmission needs within the Long Island Transmission District driven by a Public Policy Requirement, in consultation with the New York State Department of Public Service.<sup>6</sup> The OATT also requires LIPA to issue a written statement as to whether a Public Policy Requirement does or does not drive a need to physically modify transmission facilities solely within the Long Island Transmission District and then transmit to the Commission for review and a determination whether the transmission need identified by LIPA should be considered a Public Policy Transmission Need for purposes of the NYISO evaluating transmission solutions for selection and regional cost allocation under the Public Policy Transmission Process.<sup>7</sup>

On August 1, 2018, the NYISO issued a letter inviting stakeholders and interested parties to submit proposed transmission needs driven by Public Policy Requirements to the NYISO on or before October 1, 2018. Submitted for filing herewith in the above-entitled proceeding are fifteen proposals for transmission needs driven by Public Policy Requirements provided to the NYISO by: (i) Anbaric Development Partners LLC, (ii) Avangrid Networks, Inc., (iii) H.Q. Energy Services (U.S.) Inc., (iv) Invenergy LLC, (v) ITC New York Development, LLC, (vi) LS Power Grid New York, LLC, (vii) NextEra Energy Transmission New York, (viii) New York Transco LLC, (ix) The City of New York, (x) The New York Power Authority, (xi) Indicated New York Transmission Owners,<sup>8</sup> (xii) PowerBridge, LLC, (xiii) PPL Translink, (xiv) PSEG Long Island, and (xv) Transource Energy, LLC. The NYISO has posted these submittals on its Planning Studies website.<sup>9</sup>

---

<sup>4</sup> OATT Section 31.4.2.1.

<sup>5</sup> NYPSC Case No. 14-E-0068, Policy Statement on Transmission Planning for Public Policy Purposes (August 15, 2014), at p 3.

<sup>6</sup> OATT Section 31.4.2.3.

<sup>7</sup> *Id.*

<sup>8</sup> For purposes of their comments, the Indicated New York Transmission Owners include Central Hudson Gas & Electric Corporation; Consolidated Edison Company of New York, Inc.; Niagara Mohawk Power Corporation d/b/a National Grid; New York Power Authority; New York State Electric & Gas Corporation; Orange & Rockland Utilities, Inc.; and Rochester Gas & Electric Corporation.

<sup>9</sup> The submittals are posted under “Proposed Needs” contained within the “Public Policy Documents” folder on the NYISO’s Planning Studies website, which can be accessed at [http://www.nyiso.com/public/markets\\_operations/services/planning/planning\\_studies/index.jsp](http://www.nyiso.com/public/markets_operations/services/planning/planning_studies/index.jsp).

Hon. Kathleen H. Burgess  
Secretary to the Commission  
Case No. 18-E-0623  
October 10, 2018  
Page 3

Please contact me at (518) 356-6220 or [cpatka@nyiso.com](mailto:cpatka@nyiso.com) if you have any questions.

Respectfully submitted,

NEW YORK INDEPENDENT SYSTEM OPERATOR, INC.

By: /s/ Carl F. Patka

Carl F. Patka, Assistant General Counsel

Brian R. Hodgdon, Attorney

New York Independent System Operator, Inc.

10 Krey Boulevard

Rensselaer, NY 12144

September 30, 2018

Via Electronic Mail [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

Re: Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle

Anbaric Development Partners LLC (Anbaric) provides these comments in response to the NYISO's August 1st Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle. We applaud NYISO for undertaking this effort to accommodate and support New York State's public policy objectives, and we look forward to continuing engagement in the planning process.

Anbaric has identified two public policy requirements that drive the need for upgrades to the transmission system across New York State at both the Bulk Power System level and at the Local Transmission level. Anbaric understands that the instant solicitation has been undertaken by NYISO pursuant to Section 31.4 of Attachment Y; we also encourage the State's TO's to include Public Policy Requirements in their Local Transmission Plans as required by Section 31.2 of Attachment Y.

### **Public Policy Need – Offshore Wind Standard**

On July 12, 2018 the PSC issued its *Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement* (Case 18-E-0071 – *In the Matter of Offshore Wind Energy*), in which “the Commission determines that a series of actions related to offshore wind are necessary to help achieve the Clean Energy Standard (CES) goal, as part of a strategy to reduce statewide greenhouse gas emissions by 40% by 2030 in a fair and cost-effective manner. The Commission therefore adopts a supplementary goal, to contribute toward the overall objective of the CES, whereby the quantity of electricity supplied by renewable resources and consumed in New York State should include the output of 2.4 GW of new offshore wind generation facilities by 2030.”<sup>1</sup>

Compliance with the Offshore Wind Standard will require significant investments in new and upgraded transmission infrastructure.

First, offshore wind development will occur in Federal waters offshore of Zones J and K, where there is currently no electric grid. Wise development of offshore wind resources will require extending the open access transmission system out into the ocean to create new interconnection opportunities for offshore wind generators. Integrating 2.4 GW of a new source of generation into Zones J and K in a manner that makes the best use of its energy production potential will require significant transmission planning and construction.

Longstanding Federal and State policies require separate ownership of generation and transmission. In its seminal Order 888 FERC concluded “that functional unbundling of services [was] necessary to

---

<sup>1</sup> NYPSC Case 18-E-0071: *In the Matter of Offshore Wind Energy, Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement*, July 12, 2018, pages 3-4.

implement non-discriminatory open access transmission”<sup>2</sup> and that “[n]on-discriminatory open access to transmission services is critical to the full development of competitive wholesale generation markets and the lower consumer prices achievable through such competition.”<sup>3</sup>

Second, because transmission to support offshore wind will most likely connect into Zones J and K, additional system upgrades will be required to ensure full deliverability into NYCA. Especially during light load conditions within Zones J and K, offshore wind generation may experience significant curtailments if additional onshore upgrades are not undertaken to ensure that electricity generated by offshore wind can be distributed by grid operators to other parts of New York State. Anbaric commissioned Pterra to identify transmission needs that arise from injecting 2,400 MW or more of offshore wind into Zones J and K. As further explained in the attached executive summary, Pterra identified the following two corridors in Zones J and K as needing transmission upgrades to accommodate 2,400 MW of offshore wind:

- In New York City, the 138 kV corridor from Vernon substation to Dunwoodie substation through Sherman Creek, and the path from Farragut to West 48th St through East 13th St.
- In Long Island, the 138 kV corridor from Ruland Rd to Newbridge Rd and East Garden City (EGC), from EGC on two paths, one going north to Shore Rd via Carle Place and Roslyn Rd, and the other going south/southwest to Valley Stream and onto Jamaica substation.

Addressing transmission needs in these corridors will unbundle OSW capacity for up to 2,400 MW by 2030. By sizing the additional transmission capacity appropriately, on the same corridors, as much as 4,800 of OSW can be unbottled. Anbaric would be happy to discuss the details of this study with NYISO upon request.

Proposed evaluation criteria include:

- Proposed offshore transmission systems should make the best use of available points of interconnection.
- Proposed offshore transmission systems should enable, rather than preclude, future expansion of offshore resources.
- Proposed offshore transmission systems should be designed to encourage competition among offshore generators by providing access to multiple Wind Energy Areas.
- Proposals should demonstrate their cost effectiveness of delivering offshore resources (\$/MWh).

---

<sup>2</sup> *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities*, Order No. 888, FERC Stats. & Regs. ¶ 31,036 at P 31,093.

<sup>3</sup> *Id.* at P 31,086; see also *Open Access Same-Time Information System (formerly Real-Time Information Networks) and Standards of Conduct*, Order No. 889, 75 FERC ¶ 61,078 at P 61,135 (1996) (“[w]e will require the functional unbundling of transmission operations and wholesale marketing functions because we are persuaded that this will prevent abuses based on preferential access to information and other discriminatory behavior, without compromising reliability”); *Preventing Undue Discrimination and Preference in Transmission Service*, Order No. 890, FERC Stats. & Regs. ¶ 31,241 at P 61,252 (2007) (“[b]ecause many traditional vertically integrated utilities...did not provide open access to third parties and favored their own generation if and when they provided transmission access to third parties, access to cheaper, more efficient generation sources remained limited”); *Wholesale Competition in Regions with Organized Electric Markets*, Order No. 719, 125 FERC ¶ 61,071 at P 1 (2008) (“[e]ffective wholesale competition protects consumers by providing more supply options, encouraging new entry and innovation, spurring deployment of new technologies,...improving operating performance, exerting downward pressure on costs, and shifting risk away from consumers”).

- Demonstration of a proposal’s feasibility, including the ability to interconnect the project(s) to the NYISO grid, permit the project(s), finance the project(s), and construct the project(s).

### **Public Policy Need – Facilitating Clean Energy Standard Compliance in Local Transmission Planning**

On August 1, 2016, the New York Public Service Commission (PSC) adopted the State’s Clean Energy Standard (CES) (Cases 15-E-0302, *et al.*, *Order Adopting a Clean Energy Standard* [August 1, 2016] [*CES Order*]). The *CES Order* directs load serving entities (LSEs) selling to customers in New York to purchase, either from the New York State Energy Research and Development Authority (NYSERDA) or directly from renewable resource owners, renewable energy credits (RECs) in quantities equal to a portion of their New York State loads.

Achieving the State Energy Plan goal, “that 50% of New York’s electricity is to be generated by renewable resources by 2030” (*CES Order* at 2), presents a significant challenge. For LSEs operating in Zones J and K the options for meeting their CES obligations will almost entirely consist of purchasing RECs that are generated by resources located in areas remote from Zones J and K, primarily in western and northern New York (Zones A-E) or from offshore wind resources. However, the supply of RECs from those areas will be constrained by the limits of the transmission system’s capability to absorb new renewable energy into the New York Control Area. These challenges were highlighted in the July 27, 2018 NYISO ESPWG/TPAS presentation “Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets” which identified four ‘generation pockets’ where output from renewable generators is likely to be significantly constrained as New York expands the availability of new renewable resources in order to satisfy the CES. New transmission solutions, many at the Local Transmission level, will be required to meet the CES and in numerous cases non-transmission solutions may be able to efficient and cost-effective solutions to identified needs.

Anbaric commissioned Pterra to replicate NYISO’s Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets and identify thermal overloads under n-0 and n-1 conditions arising in generation pockets Y and Z that could be solved by transmission and non-transmission solutions. Examples of these needs include:

- 115 kV lines Coddington-Montour Falls, Montour Falls-Ridge Road, and North Waverly-Lounsbury, and the 115/34.5 kV transformer at Coddington substation following contingencies (n-1)
- IP Corinth-Spier Falls Hydro 115 kV line following a tower contingency
- 34.5 kV lines Newark-NRLT-MP and Lansingburg-North Troy from a bus failure and a line outage, respectively
- 115 kV circuit Delhi-Delhi Tap due to a contingency related to Edic-Fraser 345 kV line
- IP Corinth-Spier Falls Hydro 115 kV following a tower contingency
- 34.5 kV circuit G.E.-Oakdale-Westover from contingency loss of the Oakdale-Westover 115 kV line
- Avon-Golah 34.5 kV line from loss of East Golah-Barilla 115 kV circuit and also from loss of General Foods-Barilla 115 kV line
- Numerous additional 34.5, 69 and 115 kV facilities in Zones E, F, and G

Addressing transmission needs in these corridors through the Local Transmission Planning process, which includes a Public Policy Requirements avenue (see OATT 31.2.1.1.2.2), with transmission and non-transmission solutions will unbundle renewable energy generation needed to achieve the CES and increase the flexibility and resiliency as additional renewables are added to the system. Anbaric would be happy to discuss the details of this study with NYISO and the relevant TO's upon request and encourages NYISO to use this opportunity to underscore the role TO's can play in their individual Local Transmission Planning processes.

Thank you for providing this opportunity to comment on transmission needs being driven by public policy requirements for the 2018-2019 Transmission Planning Cycle.

Respectfully,



Clarke Bruno  
Lead Partner, Transmission



Soam Goel,  
Lead Partner, Distributed Energy

Attachment:

“Public Policy Transmission Needs for Anbaric Offshore Wind, Executive Summary”

By Pterra, LLC

September 18, 2018



# Public Policy Transmission Needs for Anbaric Offshore Wind

September 18, 2018

## Executive Summary

---

Pterra, LLC ("Pterra") was contracted by Anbaric Development Partners ("ADP") to conduct a transmission analysis to identify transmission needs in the New York Control Area ("NYCA") associated with development of offshore wind ("OSW") generation.

A previous analysis by the New York Independent System Operator ("NYISO") presented in "Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets", presented at NYISO ESPWG/TPAS meeting on July 27, 2018 (hereinafter referred as the "NYISO PPTN Study"), indicated that:

- New renewable generation added to meet the 50-by-30 goal of the State's Clean Energy Standard ("CES") could be bottlenecked, with four general areas for potential generation pockets. (All these areas are in upstate New York)
- However, the potential system impacts of injecting 2400 MW of off-shore wind in Zones J (New York City) and K (Long Island) were not analyzed.

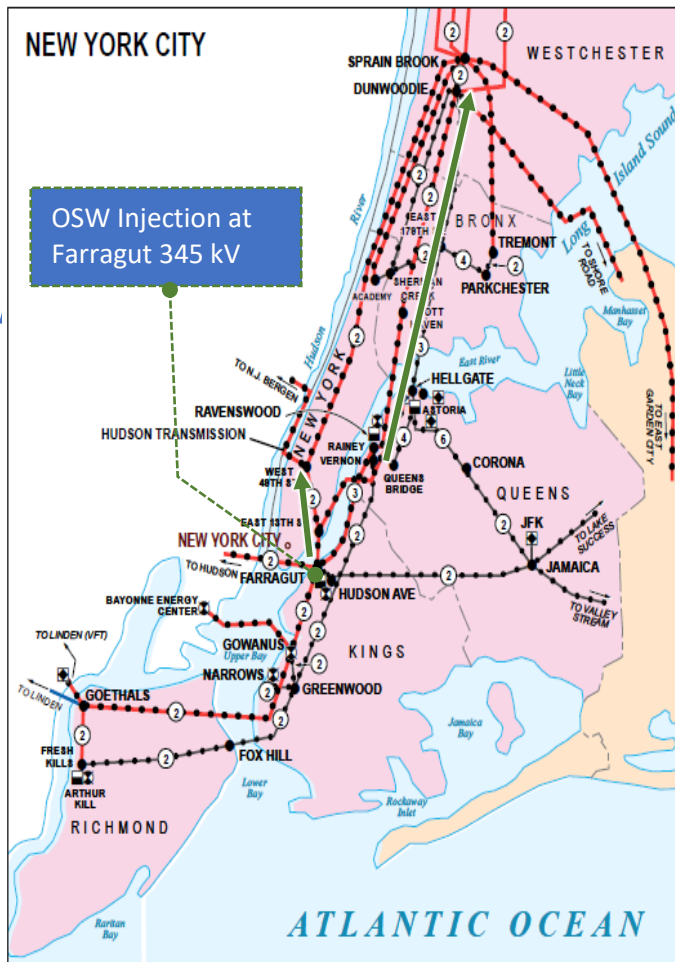
OSW offers the unique transmission perspective of access to the load centers of New York State located in Zones J and K. Relative to the long transmission distances required in the generation pockets identified in the NYISO PPTN Study, transmission needs in Zones J and K can involve much shorter distances due to the more compact nature of the grid there and the immediacy of access to customer loads. The challenges lie in finding routes for new transmission paths, some of which can be alleviated by a finding of Public Policy Transmission Need for key corridors in the specific Zones.

The base case power flow model used in this study was requested from NYISO as part of the FERC 715 filing for 2017. The specific case used is the summer peak base case for 2027. The total NYISO load was adjusted to match the total of about 33,300 MW reported in the NYISO PPTN Study. Imports were adjusted to match those of the summer peak case in the NYISO PPTN Study.

The following Study Cases were developed for this study: Case A – This is the 2027 summer peak case with NYISO loads modified to total about 33,300 MW. This case does not have any OSW injection. Cases B, C and D – Case A but with OSW total of 2400, 3600 and 4800 MW, respectively. Injection points for the OSW were limited to Farragut substation in Zone J and Ruland Rd substation in Zone K. Additional renewables totaling 404 MW in zone K were applied to match the total new renewables for the Zone as reported in the NYISO PPTN Study. All OSW and new renewables were dispatched at maximum, while the rest of the NYISO system was dispatched for typical summer peak conditions using "frequently committed units" (this term is derived from the NYISO PPTN Study) and existing renewables.

To identify transmission needs, steady-state thermal normal (n-0) and contingency (n-1) analyses<sup>1</sup> were conducted using the TARA<sup>2</sup> software. Monitored elements comprised of 115 kV and above portions of the New York state transmission system in Millwood (Zone H), Dunwoodie (Zone I), New York City (Zone J), and Long Island (Zone K). Additionally, Long Island 69 kV facilities were also monitored in the study. To identify bottled OSW capacity, the security-constrained dispatch option of TARA was used.

The analysis is based on “snapshot” system conditions as represented by the power flow cases. The results are indicative, rather than normative, consistent with planning practice.



**Findings:**

1. Normal and contingency analysis identified a number of thermal overloads in Zone J. The figure at left shows the transmission system in Zone J. The general vicinity of the overloads for an OSW injection of 1200 MW at the Farragut substation is indicated by the green path. As the OSW injection is increased to 1800 and 2400 MW, other parallel paths, indicated by orange arrow, also begin to show overloads.

The transmission need for Zone J can be generally described as the path from Vernon substation to Dunwoodie substation through Sherman Creek for OSW of up to 1200 MW, with the addition of the path from Farragut to West 48<sup>th</sup> St through East 13<sup>th</sup> St for additional OSW up to 2400 MW.

Using the optimization feature of TARA shows that the OSW injection is limited to 968 MW to avoid the n-1 overloads.

Sensitivity analysis of alternative OSW injections points at Gowanus 345 kV and Hudson Ave East 138 kV substations show additional overloads and even less injection capacity

without transmission upgrades.

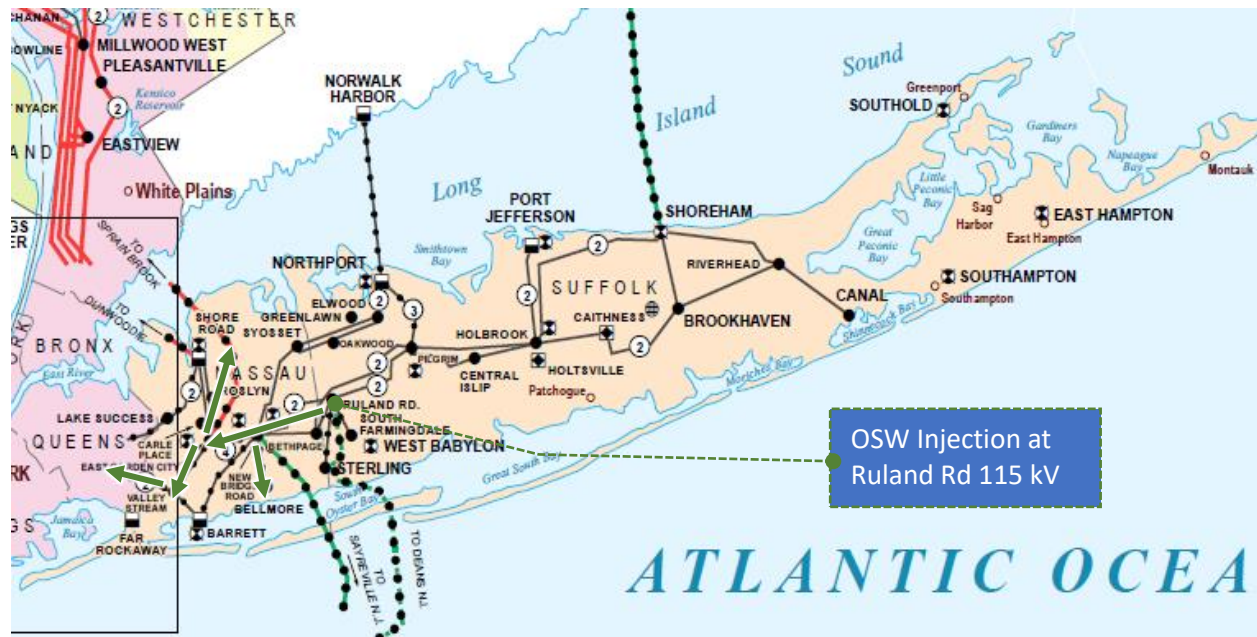
2. For Zone K, normal and contingency overloads were likewise observed. In the figure on the next page, showing the transmission system in Zone K, the overloads for a 1200 MW injection at Ruland Rd are observed for the path from Ruland Rd to Newbridge Rd and East Garden City (EGC), and from EGC to Shore Rd via Carle Place and Roslyn Rd. From Valley Stream, the overloads extend to Jamaica substation on the interface with Zone J. A portion of the 69 kV system from Bellmore is also overloaded. As the injection is increased, up to

<sup>1</sup> All the proposed analyses address thermal n-0 and n-1 constraints issues only. Reliability issues relating to voltage, stability, short circuit, deliverability and other technical aspects are not included in the Scope, and hence, were not performed in this study.  
<sup>2</sup> TARA (Transmission Adequacy & Reliability Assessment) is a power flow program developed by PowerGem LLC.

2400 MW, the overloads increase in magnitude, and the underlying 69 kV system is also affected.

To avoid the overloads, OSW generation injection at Ruland Rd is limited to 718 MW.

Sensitivity analysis of alternative OSW injection points in Zone K of East Garden City and Valley Stream 138 kV substations show much larger magnitudes of overloads with maximum OSW injection much less than that of Ruland Rd.



### Conclusions:

The New York State target of having 2400 MW of Off Shore Wind capacity by 2030 would need to have supporting transmission in order to come to fruition. The injection capacity at the most likely OSW generation injection locations in New York City (Zone J) and Long Island (K) is limited. This study of 2028 conditions, extended from a previous study by NYISO<sup>3</sup>, determined that available transmission capacity limits OSW to about 1,686 MW. Additional OSW injection above this limit would lead to thermal overloads of transmission facilities, including the underlying 69 kV distribution system in Long Island.

Designating the following corridors as public policy transmission needs would lead to unbotling of the OSW generation:

- In New York City, the 138 kV corridor from Vernon substation to Dunwoodie substation through Sherman Creek, and the path from Farragut to West 48<sup>th</sup> St through East 13<sup>th</sup> St.
- In Long Island, the 138 kV corridor from Ruland Rd to Newbridge Rd and East Garden City (EGC), from EGC on two paths, one going north to Shore Rd via Carle Place and Roslyn Rd, and the other going south/southwest to Valley Stream and onto Jamaica substation.

<sup>3</sup> "Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets", presented at NYISO ESPWG/TPAS meeting on July 27, 2018

Addressing transmission needs in this corridor will unbottle OSW capacity for up to 2400 MW by 2030. By sizing the additional transmission capacity appropriately, on the same corridors, as much as 4800 of OSW can be unbottled.



**September 28, 2018**

Mr. Zachary Smith  
Vice President, System & Resource Planning  
New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

**Sent via email**

**Re: Response of AVANGRID to New York Independent System Operator Solicitation of Transmission Needs Driven by Public Policy Requirements**

Dear Mr. Smith:

Avangrid Networks, Inc. ("AVANGRID") submits this letter in response to the August 1, 2018 Public Policy Requirements solicitation associated with the New York Independent System Operator's ("NYISO") Public Planning Transmission Planning Process for the 2018-2019 Transmission Planning Cycle. As described below, AVANGRID identifies herein Public Policy Requirements associated with the New York State Public Service Commission's ("NYPSC") Clean Energy Standard, Clean Energy Fund and Reforming the Energy Vision Proceedings, the New York State Energy Plan and the NYISO 2010 Wind Generation Study/New York State Transmission Assessment and Reliability Study ("STARS").

**The Clean Energy Standard ("CES")**

On August 1, 2016, the NYPSC issued its Order Adopting a Clean Energy Standard ("CES"). The order adopted the goal of the State Energy Plan that 50% of the electricity used in New York State will be generated by renewable sources by 2030. The order also confirmed the related goal of preserving existing zero-emissions nuclear generation resources as a bridge to the clean energy future. To achieve these goals, the order requires every load serving entity in New York State to procure qualifying

Renewable Energy Credits (“RECs”) and Zero-Emissions Credits (“ZECs”) in quantities that satisfy the mandatory minimum requirements established by the order<sup>1</sup>.

To achieve the CES goals, New York will need to increase dramatically its reliance on renewable resources. A large proportion of these resources will likely be developed in areas of western and northern New York State, remote from load centers. New transmission facilities will be required so that renewable energy required by the NYPSC order is not bottled in local transmission systems and can reach load centers throughout the state, including those in downstate regions<sup>2</sup>. New transmission facilities will also be important to help preserve the upstate nuclear plants as they provide the zero-emission bridge to New York’s clean energy future by reducing current system congestion which impedes these plants’ access to downstate energy and capacity markets. Increased energy and capacity revenues for such plants will also reduce future ZEC prices for the benefit of customers statewide<sup>3</sup>.

Earlier this year, in March 28, 2018, NYISO issued the “2017 Congestion Assessment and Resource Integration Study”<sup>4</sup>, completing the first phase (CARIS Phase I) of its two-phase economic planning process and providing a set of findings associated with the congestion issues in New York State. More recently, NYISO issued its “Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets” in July 2018. This study indicates the potential for significant renewable generation restrictions unless the northern and western NY transmission system is reinforced.

### **Clean Energy Fund and Reforming the Energy Vision Proceedings**

In addition to the CES Order, the NYPSC has issued orders in other proceedings with the objective of increasing alternative energy resources in New York State, including orders in the Clean Energy Fund and Reforming the Energy Vision proceedings. In its January 21, 2016 Clean Energy Fund order, the NYPSC approved a ten year commitment for \$5.3 billion to clean energy programs in New York State to be managed by the New York State Energy Research and Development Authority under the Commission’s supervision<sup>5</sup>. The Clean Energy Fund innovation and research programs involving smart grid, renewables, and distributed energy resources integration may need additional transmission to increase the ability to deliver grid scale renewable energy to the State’s load centers, particularly since such renewable resources are likely be developed in western and northern New York State<sup>6</sup>.

---

<sup>1</sup> Order to Adopting a Clean Energy Standard at 2 (Aug. 2016), available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={44C5D5B8-14C3-4F32-8399-F5487D6D8FE8}>

<sup>2</sup> Order to Adopting a Clean Energy Standard at 33 (Aug. 2016), available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={44C5D5B8-14C3-4F32-8399-F5487D6D8FE8}>

<sup>3</sup> Order to Adopting a Clean Energy Standard at 128 (Aug. 2016), available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={44C5D5B8-14C3-4F32-8399-F5487D6D8FE8}>

<sup>4</sup> This report is available at [https://www.nyiso.com/public/webdocs/markets\\_operations/committees/mc/meeting\\_materials/2018-03-28/05\\_CARIS2017\\_Appendix\\_B\\_J.pdf](https://www.nyiso.com/public/webdocs/markets_operations/committees/mc/meeting_materials/2018-03-28/05_CARIS2017_Appendix_B_J.pdf)

<sup>5</sup> Order Authorizing the Clean Energy Fund Framework at 106 (Jan. 2016), available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={B23BE6D8-412E-4C82-BC58-9888D496D216}>

<sup>6</sup> Clean Energy Fund Information Supplement at 138 (Jun. 2015), available at <http://documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId={FC3FBD53-FBAC-41FB-A40E-3DA0A5E0866A}>

## **Climate Change and Emissions Policies Driving the Need for Transmission**

State regulators have taken actions to address climate change by releasing goals for carbon emissions reductions. The New York State Energy Plan calls for a 40 percent reduction in greenhouse gas emissions in the energy sector, including power generation, industry, buildings and transportation<sup>7</sup>. Transmission projects will be needed as part of the solution to address these requirements.

### **New York City Objectives**

The City of New York has released its own energy objectives that call for an 80 percent reduction in the city's greenhouse gas emissions by 2050 and a 35 percent reduction in such emissions from City government by 2025<sup>8</sup>. While these objectives have yet to be codified into law or regulation thus far, statutory or regulatory changes could be adopted in the future and they will likely be an additional driver behind the development of new renewable resources in New York State and therefore the need for additional transmission to support this development.

These objectives have been reaffirmed during the past two years, and have been documented in the "One NYC 2017 Roadmap to 80x50"<sup>9</sup>. Additionally, on June 2, 2017 the New York City Mayor signed Executive Order 26 committing New York City to the principles and goals set forth in the Paris Climate Agreement<sup>10</sup>.

### **The NYISO 2010 Wind Generation Study and New York State Transmission Assessment and Reliability Study ("STARS")**

As evaluated in NYISO studies, significant growth in intermittent resources (such as wind) at the regional and local transmission levels leads to increased needs for balancing services from quick starting and ramping generation. Transmission solutions add additional flexibility that the electric system needs to manage increased energy production from variable resources.

The NYISO 2010 Wind Generation Study was a technical study to evaluate the impact of large-scale integration of wind generation on the New York Power System with simulations "analyzed to identify the transmission constraints – local and system – that result in potential wind energy production being limited (i.e., "bottled")" with "three general areas of congestion: southwestern portion of Central (Zone C), Willis (Zone D), and Watertown (Zone E)."<sup>11</sup> The New York State Transmission Assessment and Reliability Study ("STARS") concluded, "[t]o meet state public policy objectives of increased renewable resources, the underlying local [transmission] upgrades identified in the NYISO 2010 Wind Generation

---

<sup>7</sup> 2015 New York State Energy Plan, Volume 1 at 112, available at <https://energyplan.ny.gov>

<sup>8</sup> See One NYC: 2016 Progress Report. Accessed at <http://www1.nyc.gov/html/onenyc/downloads/pdf/publications/OneNYC-2016-Progress-Report.pdf>

<sup>9</sup> Details of the NYC's Roadmap can be obtained at <https://www1.nyc.gov/site/sustainability/codes/80x50.page>

<sup>10</sup> This Executive Order can be found at [https://www1.nyc.gov/assets/home/downloads/pdf/executive-orders/2017/eo\\_26.pdf](https://www1.nyc.gov/assets/home/downloads/pdf/executive-orders/2017/eo_26.pdf)

<sup>11</sup> Growing Wind: Final Report of the NYISO 2010 Wind Generation Study at 76 (Sept. 2010), available at [http://www.uwig.org/growing\\_wind\\_-\\_final\\_report\\_of\\_the\\_nyiso\\_2010\\_wind\\_generation\\_study.pdf](http://www.uwig.org/growing_wind_-_final_report_of_the_nyiso_2010_wind_generation_study.pdf).

Study should be constructed based on a review of the status of the development of the wind projects in the three upstate areas identified in that study. This would lead to greatly improved deliverability of wind resources and reduced emissions.”<sup>12</sup>

## Conclusion

The construction of new transmission is necessary to achieve the State’s Public Policy Requirements set forth in the NYPSC orders and other initiatives described above, including in particular additional transmission to permit an increased development and utilization of renewable resources and the preservation of the upstate zero emission nuclear plants to meet New York State’s identified clean energy goals. AVANGRID accordingly recommends that as part of NYISO’s 2018-2019 Public Policy Transmission Planning Process the NYISO and the NYPSC identify Public Policy Transmission Needs to address these Public Policy Requirements. In doing so, NYISO should invite proposals for feasible, efficient, cost effective and environmentally sensitive transmission solutions, both AC and DC, that will support and achieve the identified Public Policy Transmission Needs and evaluate those proposals in a manner that promotes creativity and competition consistent with the NYISO tariff and the FERC Order No. 1000. As a general recommendation, the NYISO and NYPSC should not pre-define solutions in their needs statement and a need should not prescribe a narrow solution.

Sincerely,



-----  
Thorn C. Dickinson  
Vice President – Business Development  
AVANGRID Networks

---

<sup>12</sup> New York State Transmission Assessment and Reliability Study at 7 (Apr. 2012), available at [http://www.nyiso.com/public/webdocs/markets\\_operations/services/planning/Documents\\_and\\_Resources/Special Studies/STARS/Phase 2 Final Report 4 30 2012.pdf](http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Special_Studies/STARS/Phase_2_Final_Report_4_30_2012.pdf)





September 30, 2018

New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

Via email: [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

In response to the Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle issued by the New York Independent System Operator (NYISO) on August 1, 2018, H.Q. Energy Services (U.S.) Inc. (“HQUS”) the U.S. subsidiary of Hydro-Québec (“HQ”) proposes NYISO identify three transmission needs in the state of New York necessary to meet public policy requirements.

Hydro-Québec is one of the largest suppliers of clean energy in North America, operating a system of over 99% renewable resources, comprised primarily of hydroelectric generation (hydropower developed in Québec has a GHG emission profile similar to wind and less than solar on a lifecycle basis).<sup>1</sup> In New York, the Public Service Commission’s 2016 Order implementing a Clean Energy Standard (CES)<sup>2</sup> identified energy from HQ’s large-scale hydropower fleet as approximately 17% of the state’s existing renewable baseline. Additional deliveries from HQUS into New York above historical levels could further contribute to New York’s public policy objectives. However, insufficient transmission capability both between Québec and New York and within New York create physical and economic barriers which prevent such sales from occurring and HQ resources are excluded from receiving credit as a CES Tier 1 eligible resource.

To eliminate these barriers, HQUS recommends the following transmission needs, driven by public policy requirements, be identified and pursued; positioning New York to achieve the objectives stated in the CES most efficiently:<sup>3</sup>

**1. A need for new transmission to reliably deliver renewable energy in Northern New York to downstate load centers, and to enhance integration of renewables**

---

<sup>1</sup> Hydro-Québec, Environnement et développement durable; CIRAIG; Tirado-Seco, 2014, Comparaison des filières de production d’électricité et des bouquets d’énergie électrique, 50 p., annexes. (Study comparing electricity generation options and electricity mixes, available on Hydro-Québec’s website <http://www.hydroquebec.com/sustainable-development/documentation-center/lca-comparing-power-generation-options.html>).

<sup>2</sup> Case 15-E-0302: Order Adopting a Clean Energy Standard (issued August 1, 2016)

<sup>3</sup> Case 15-E-0302: Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard.

- 2. A need for new transmission to replace the retiring Indian Point nuclear facility and balance new intermittent generation downstate**
- 3. A need for new transmission to increase New York's access to large quantities of cost competitive low carbon and renewable energy**

By addressing these transmission needs, New York will gain access to much greater quantities of new cost effective renewable supply, along with unlocking the clean and flexible resources necessary to ensure this energy can be reliably delivered and integrated in the state's bulk electricity system. These are fundamental elements in advancing New York's progress towards achieving the goals mandated in the CES and outlined in the 2014 State Energy Plan,<sup>4</sup> in particular, to meet 50% of the state's energy consumption using renewable resources, and reduce GHG emissions 40% by 2030.

New York's Public Policy Transmission Planning Process represents a unique opportunity to enable these transmission solutions, by providing the necessary funding to facilitate projects which otherwise are unlikely to be developed.

- 1. A need for new transmission to reliably deliver renewable energy in Northern New York to downstate load centers, and to enhance integration of renewables*

New York is currently facing a challenge, as the vast majority of its renewable resources are located in the upstate and Northern region, while the bulk of the load is located downstate near New York City (where renewable generation has traditionally been expensive and difficult to develop). Persistent transmission congestion on the New York grid prevents these upstate resources from being reliably delivered to downstate customers, and in some circumstances, even leads to curtailment of clean resources as wind and hydro generation compete against one another to serve declining load and access limited transmission capability. Given that a considerable portion of the new renewable resources New York will need to achieve the 50% by 2030 target are expected to be developed in the upstate region, this congestion creates a significant risk to achieving the objectives in the CES and State Energy Plan.<sup>5</sup>

Building out the transmission infrastructure in Northern New York, especially on the Moses South corridor, presents an obvious opportunity for New York to develop a coordinated transmission development strategy that maximizes overall customer value. This can be accomplished by taking advantage of past and current transmission investment and achieving the full potential of New York's upstate renewable resources. Transmission investment to unbundle Northern New York will leverage recent investments in the transmission system from NYPA's Smart Path project<sup>6</sup>, and provide for a significant increase in electricity flows. This infrastructure investment will also improve the economics for existing and future renewable development upstate, and when combined with ongoing efforts to relieve congestion within New York through

---

<sup>4</sup> New York State energy Planning Bd., The Energy to Lead: 2015 New York State Energy Plan, pg. 111-112

<sup>5</sup> Integrating Public Policy: A Wholesale Market Assessment of the Impact of 50% Renewable Generation; A Report by the New York Independent System Operator; 2017, pg. 30

<sup>6</sup> The NYPA Smart Path project could enable the Moses to Adirondack line, the main transmission corridor in Northern New York, to operate at an upgraded 345 kV.

the AC upgrades proceeding<sup>7</sup>, will improve the economics of new projects to significantly increase the interconnection capability between New York and clean energy supply from Québec.

Incremental transfer capability between Québec and New York could be utilized in several ways to better enable New York to meet its CES goals. A new or expanded transmission interconnection can be used to deliver additional cost effective baseload renewable supply for New York, or to provide firming or storage services in support of increasing quantities of intermittent renewable generation in upstate New York.

With the development of new transmission capability into New York, HQUS would be uniquely positioned to provide firming service to New York given it has significant quantities of clean, flexible generation in service and available today. Firming service would allow for integration of more renewables in New York because HQ energy deliveries can be increased into the state when intermittent production is low, and ramped down when renewable production increases<sup>8</sup>. In this way, HQ's hydropower fleet can be utilized to ensure new transmission investments both into and in New York are maximized and deliver clean energy in all hours throughout the year.

New transmission capability between Québec and New York could also provide storage services. Use of Hydro-Québec's reservoir system to store excess renewable energy production during low or negative pricing periods in New York, and return the energy to the grid when it is needed would optimize the value of renewable energy investments in New York. Storing excess renewable production from New York generators will not only prevent this renewable energy from being curtailed or exported outside the state, but could also provide supplemental benefits by arranging clean energy deliveries to time periods when it has a greater impact on emission reductions and price stability.<sup>9 10</sup>

## *2. A need for new transmission to replace the retiring Indian Point nuclear facility and balance new intermittent generation downstate*

Retirement of the 2,311 MW Indian Point nuclear energy facility in 2021 will reduce New York's supply of low carbon energy by over 15 TWh per year,<sup>11</sup> in a constrained region where the remaining energy production is expected be comprised of over 90% fossil fuel generation.<sup>12</sup> Remaining fossil units will also need to be replaced in coming years, as over 75% of New York City's power generation facilities are over 40 years old.<sup>13</sup> While the NYISO does not anticipate a

---

<sup>7</sup> NYISO, AC Transmission Public Policy Transmission Planning Report, June 2018

<sup>8</sup> The existing major interface between NYISO and HQ allows deliveries to be scheduled in 15 minute increments. This inter-regional transaction coordination could be enhanced to provide for 5 minute dispatch in the future.

<sup>9</sup> HQ's storage capability of 176 TWh currently exceeds New York's total annual load of 156 TWh in 2017

<sup>10</sup> A study by the NYISO from July 2018<sup>10</sup> further identifies the need for additional transmission infrastructure in the upstate region, by concluding that "the addition of significant amounts of renewable generation causes stress and certain violations on the NY transmission system at both the backbone (>200 kV) as well as the underlying (100-200 kV) system." And a recent report from the NYISO Market Monitoring Unit describes how frequent congestion is leading to negative price spikes in the North Zone.

<sup>11</sup> 2018 NY Gold Book

<sup>12</sup> NYISO 2018 Power Trends, *Fuel Mix in New York State*, pg. 25.

<sup>13</sup> NYISO 2018 Power Trends, *Resource Trends*, pg. 15-16.

reliability issue from the retirement of Indian Point, a significant portion of the energy replacing Indian Point's production is expected to come from new natural gas plants in the Lower Hudson Valley,<sup>14</sup> and will create challenges for New York to achieve the GHG emission reduction goals in the CES.

The Public Policy Transmission Process provides an opportunity for New York to replace Indian Point's low carbon electricity by connecting remote low carbon resources directly to the New York City region using new dedicated transmission infrastructure. Given the historic challenge to develop renewable generation in downstate New York cost competitively, new interconnecting transmission projects may be the most economical way to deliver low carbon replacement energy to the region. And because several transmission projects have been identified, some in advanced stages of development, to deliver low carbon energy from either upstate New York or directly from Québec, low carbon replacement supply could be available for New York City in a timeframe which coincides with the retirement of Indian Point.

Due to the short-term nature of deregulated electricity markets, and a number of other risk factors, it is extremely challenging to develop major transmission projects on a merchant basis without either a long-term offtake agreement or direct compensation for factors such as fuel diversity, increased reliability, wholesale cost reduction, and other value streams not currently captured in the wholesale market. The Public Policy Transmission Planning Process provides an opportunity to overcome this challenge, by facilitating the development of transmission projects which provide substantial contribution to achieving the policy objectives in the state, but cannot advance under a market structure which fails to recognize these benefits.

Lastly, new Direct Current transmission between controllable clean energy and the downstate region can help support parallel policy initiatives in New York, namely the Reforming the Energy Vision ("REV")<sup>15</sup> and the goal to develop 2.4 GW of offshore Wind by 2030<sup>16</sup>. By connecting low carbon dispatchable energy supply with a region seeking to integrate large volumes of both distributed resources and offshore wind generation, New York can help ensure these new resources are integrated reliably, and backed with low carbon and renewable supply that will further advance New York's CES goals.

*3. A need for new transmission to increase New York's access to greater quantities of cost competitive low carbon and renewable energy*

Ultimately, to meet the 2030 goals outlined in the CES, New York will require a substantial volume of renewable and low carbon energy deliverable to the state.

The CES Order estimates that an additional 29 TWh<sup>17</sup> of renewable energy will be needed by 2030 in order to achieve the 50% goal (this 29 TWh estimate will increase if aggressive assumptions on energy efficiency growth do not materialize and existing renewable supplies are not preserved at historic levels). Given this immense need for renewable energy, New York

---

<sup>14</sup>NYISO, Generator Deactivation Assessment Indian Point Energy Center, December 13, 2017

<sup>15</sup> Public Service Commission of New York, Case 14-M-0101 – Reforming the Energy Vision (REV).

<sup>16</sup> Public Service Commission of New York, Case 18-E-0071 – In the Matter of Offshore Wind Energy.

<sup>17</sup> Order Adopting A Clean Energy Standard, August 1, 2016, Page 85

should leverage the expertise of private developers by broadly soliciting for the most effective means of delivering new renewable supplies to New York, from both inside and outside the state. Identifying a public policy need which allows New York to broadly solicit for transmission solutions to access large volumes of clean and renewable energy supply will not only reveal the landscape of available projects, but also better allow New York to make informed decisions on which projects will best enable the state to meet a range of current and future energy needs.

A similar approach to the actions recently undertaken by Massachusetts in their Clean Energy RFP,<sup>18</sup> which was successful in financing a new 1,200 MW DC transmission project between Quebec and New England and delivering over 9.5 TWh of new clean energy supply annually for 20 years, should be considered by New York. For example, an RFP process for transmission could be expanded to include the purchase of a large quantity of energy on a long term basis. This would need to be coupled with CES resource eligibility changes to ensure that all clean energy purchased under such an RFP would be credited towards CES compliance requirements. If New York pursued a similar quantity of clean energy, approximately 9 TWh annually, it would represent over one third of the incremental renewable energy needed to meet the 50% CES goal, and nearly twice the volume of renewable energy New York has contracted over the past 10 years.<sup>19</sup>

#### *Evaluation*

In establishing evaluation criteria for transmission solutions for the Public Policy Requirements, HQUS recommends that any solicitation be designed to compare the ratio of total benefits and total costs of any and all proposals. Evaluation factors to be considered in this approach should contain all measurable and relevant impacts on the New York electricity system, including total GHG emission reductions, resiliency and flexibility, wholesale price impacts (energy, capacity and ancillary services), required transmission upgrades, cost of generation re-dispatch (including imports) and the total cost impact of achieving environmental policy objectives in New York.

#### *Conclusion*

In Conclusion, New York's ability to cost effectively achieve the goals identified in the CES will be largely dependent on the state's ability to access and integrate large volumes of additional clean and renewable energy. HQ recommends that New York identify the policy driven initiatives listed above in the 2018-2019 Transmission Planning Cycle. These solutions will help improve the economics and operation of existing resources, enable access to a more diverse set of generation sources, and will accelerate New York's clean energy evolution.

Respectfully submitted,



Stephen Molodetz  
Vice President- Business Development

---

<sup>18</sup> 220 CMR 24.00: Competitively solicited long-term contracts for clean energy; Massachusetts St. 2016, c. 188, §12 *An Act to Promote Energy Diversity*

<sup>19</sup> [Policies to Cost-effectively retain existing renewables in New York, Prepared for the Alliance for Clean Energy New York, December 22, 2017, pg. 2-4.](#)





One South Wacker Drive | Suite 1800 | Chicago, Illinois 60606  
T 312-224-1400 | F 312-224-1444

## **Comments on NYISO’s Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle**

Pursuant to Section 31.4.2 of the New York Independent System Operator (NYISO) Open Access Transmission Tariff (OATT), NYISO requests “any stakeholder or interested party to submit proposed transmission needs being driven by public policy requirements and for which the NYISO should solicit and evaluate transmission solutions”. Invenergy appreciates the opportunity to comment on transmission needs driven by public policy requirements in New York State. Invenergy is North America’s largest privately held independent power producer. Since 2001, Invenergy has developed over 127 clean energy generation and storage facilities totaling more than 20,200 megawatts (MW), including four operating wind and solar projects in New York.

As stated in the NYISO’s 2018 Power Trends report, the NYISO views open markets as an essential, effective platform for pursuing public policy goals. The mission of NYISO is to maintain and enhance regional reliability, operate fair and competitive wholesale electricity markets, and to plan for the power system of the future. Invenergy agrees that open markets and long-term transmission planning are essential to allowing New York to reach clean energy mandates and goals.

### Public Policies

The key public policy driving the need for new and upgraded transmission in New York is the Clean Energy Standard (CES). The CES was adopted by the New York Public Service Commission (PSC) in 2016, and mandates 50 percent of New York’s electricity is generated from renewable sources by 2030 (“50 by 30”). The CES represents the electric power sector’s contribution to the larger New York greenhouse gas (GHG) emission reduction target – a 40 percent reduction in GHG emissions by 2030 and 80 percent reduction in GHG emissions by 2050 both from 1990 levels. NYSERDA is also studying the most rapid, cost-effective, and responsible pathway to reach 100 percent renewable energy statewide.

Another public policy driving the need for new and upgraded transmission is Governor Cuomo’s Reforming the Energy Vision (REV) initiative. In the REV process, the PSC identified six policy objectives: 1) fuel and resource diversity; 2) system reliability and resiliency; 3) reduction of carbon emissions; 4) system wide efficiency; 5) enhanced customer engagement; and 6) market animation. Fuel and resource diversity, system

reliability and resilience, system efficiency, and carbon emission reduction are all outcomes of expanding and upgrading transmission near existing and planned renewable resources.

## Transmission Needs

To ensure achievement of the CES and other New York policy goals, adequate upgrades to the transmission grid must be put in place to enable clean energy supply to reach end users without significant curtailment due to system congestion. Curtailment of clean energy supplies stifles progress towards both the 50 by 30 energy supply and GHG emission goals by effectively wasting the energy generating potential of existing, planned, and future carbon free resources.

Prior to the PPTN solicitation, at the request of the New York DPS, NYISO released *Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets* (“*Transmission Needs Study*”) on July 27, 2018 to provide insight on possible public policy-related transmission needs. To conduct the analysis, NYISO projected renewable resource additions to satisfy the CES 50 by 30 goal. For the purposes of the *Transmission Needs Study* analysis, NYISO projected almost 4,000 MW of additional land based wind and almost 3,000 MW of additional solar to reach the 50 percent CES by 2030. NYISO’s assessment allocated the majority of the new renewable additions to Zones A, C, and E, consistent with the proposed 5,322 MW of new wind and solar developments in Zones A-E listed in NYISO’s Power Trends Report. Invenergy supports NYISO’s additional resource projections. These Zones have the best combined project fundamentals, based on a combination of land availability, cost, and resource level. This is illustrated by the magnitude of existing and planned projects in these Zones. Furthermore, together these fundamentals serve as rational predictors of siting decisions for future developments needed to fulfill the 50 by 30 goal.

Given these assumptions, NYISO modeled system operation and identified where renewable curtailment was needed to relieve thermal violations in the system. NYISO identified “pockets”, created by anticipated network constraints, where significant curtailment would occur during periods of high renewable generation. NYISO’s study found that additional transmission in Pocket X in northern New York would unbundle up to 1,050 MW of renewable generation, enabling it to reach end users. The analysis also identified significant unbottling potential of up to 925 MW in Pocket Z in the Southern Tier. Combined, new and upgraded transmission in these areas would maximize the unbottling potential of existing, planned, and future projects and best support





achievement of public policy goals. Invenergy supports NYISO's findings and encourages transmission development in the X and Z Pockets.

Conclusion

In conclusion, we support NYISO's study results and believe transmission expansion in Pockets X and Z will result in increased bulk electric system flexibility and reliability, carbon emission reductions, and will enable a more efficient dispatch of bulk electric system renewable resources. New and upgraded transmission unbottling Pockets X and Z likely present an optimal pathway towards enabling New York State to meet the CES and GHG emission reduction goals. Thank you for the opportunity to comment. Please feel free to reach out with questions or comments.

Sincerely,

Kaley Bangston  
Senior Associate, Government and Regulatory Affairs  
Invenergy LLC



September 27, 2018

Zachary G Smith  
Vice President, System and Resource Planning  
New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

Via email: [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

Re: NYISO Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle

Dear Mr. Smith:

ITC New York Development, LLC (“ITC”) appreciates the opportunity to participate in the 2018-2019 Public Policy Transmission Planning Process and submits the following proposed transmission need driven by Public Policy Requirements (“PRR”).

#### **1. PPR Driving Transmission Need**

The New York Clean Energy Standard (“CES”) establishes a clear PPR that impacts the NYISO bulk electric system. Specifically the 50% renewable goal by 2030 will require a major shift in generation with new renewable generation being deployed and fossil generation being retired. Many US states and regions have undertaken and completed similar efforts with a very high degree of success. The challenge for public policy objectives in other regions, as well as those presented in New York, is “how to implement the grid of the future in a reliable and economically efficient way?” As we have seen since the dawn of electricity usage, and time and time again, the transmission system holds the key to unlock renewable rich areas and deliver these clean sources to load. However, the transmission system must be adapted and augmented to achieve that success.

The NYISO PPTN study, “Transmission Constrained Renewable Generation Pockets”, was a solid first step in qualifying the CES as a PPR driving transmission needs. The higher capacity factors of intermittent resources in Upstate New York (Zone A-E), and majority of the demand located in Downstate New York (Zone F-K), maintains the prevailing transfers experienced on the system today. The study results show that the significant injection of renewable generation resources into targeted locations in the New York Control Area (“NYCA”) causes violations across New York.



Further still the assessment did not evaluate the full range of contingencies (i.e. N-1-1), nor did it consider voltage and stability impacts, which will reveal further stress on the existing grid. It should be expected that the NYISO transmission needs are substantially greater than those preliminarily identified in the NYISO study.

The study scope also did not include assessment of generator deactivations. Generator deactivations can impact transfer capability between zones and/or cause reliability violations that must be resolved. New system violations could be significant as fossil fuel generation retires thereby increasing the cost of the overall implementation. However, a holistic approach could be taken to identify potential violations and encourage the siting of renewables and new transmission to best counteract the impacts of retired generation. Additional studies would be required to understand the impact.

## 2. Criteria for Evaluation of Transmission Solutions

ITC recommends NYISO evaluate transmission projects based on least-cost implementation of the PPR. ITC encourages NYISO to continue including the following fundamental criteria reflecting market efficiency benefits for evaluation of transmission solutions as included in the AC Transmission PPTN study:

- a) Production (or Adjusted Production Cost) Savings
- b) Load Payment Savings
- c) System CO<sub>2</sub> Emission Reduction Savings
- d) Operability/Reliability

Moreover, ITC proposes the following additional criteria to align the transmission solution selection process with Public Policy Goals:

- a) **Efficient Renewable Systems (Wind and Solar) Investment:** Wind resources sited in the strongest wind zones require few turbines than wind resources sited in poor wind zones to maintain an identical energy output. The same is true for solar panels being sited in the optimum locations. Both the location and relative cost of renewable investment are driving factors in determining the most effective plan to achieve the 50% renewable energy goal of the CES. The present NYISO queue is based on perceived generation opportunities in the near term for economic and reliable interconnections. A successful transmission solution or portfolio offers lower cost renewable implementation opportunities for developers that can drive down renewable procurement costs. A forward thinking transmission plan will create new opportunities in the richest renewable zones. Generation developers do respond as evidenced by the MISO Multi-Value Projects in Iowa, Minnesota and Michigan along with the CREZ projects in Texas. The lowest cost option to achieve the 50% renewable goal of the CES is a mix of renewable generation



investment plus transmission investment to collect and deliver the most economically efficient energy.

- b) **Enabling Renewables - Curtailment Relief:** The ability of proposed transmission lines to accommodate a substantial amount of renewable generation in various generation siting scenarios is needed to satisfy the CES policy goal. This includes minimal curtailment of existing and planned renewable generation. The transmission plan should consider flexibility to accommodate further renewable development beyond the 50% CES.
- c) **Future Generation Expansion:** The ability of proposed transmission lines to expand and accommodate future generation growth will provide enhanced generation planning flexibility. The renewable goals throughout the country has shown an increasing trend. A goal of 50% by 2030 today may be followed by a more aggressive goal in upcoming years. Also, there is uncertainty with respect to the feasibility of siting renewable resources. The new transmission facilities must be able to meet near term renewable targets and also have the ability to expand and accommodate more, thereby attracting additional renewable developers.
- d) **Resource Adequacy:** The ability of the transmission system to provide capacity market savings such as deferred generation capacity investment (e.g. peaker units), reduced zonal capacity price separation and reduced reserve margin requirements.
- e) **Efficient Transmission Investment:** The ability of proposed transmission facilities to defer future baseline reliability upgrades such as network upgrades needed to facilitate generator deactivations.

### 3. How Construction of Transmission Will Fulfill PPR

ITC believes that construction of effectively-placed transmission will be key in achieving Public Policy Goals and providing low-cost energy to ratepayers of New York. A successful transmission plan may be a portfolio of smaller projects to collect and deliver the renewable energy to load centers. This approach was deployed in MISO with the Multi-Value Projects to enable each MISO state to effectively achieve policy goals or targets. A successful plan for New York will also have the flexibility for future expansion to accommodate renewables beyond 50%. The construction of effective transmission will:

- a) Enable renewable generation penetration; transmission access will attract renewable developers to build new generation in New York



- b) Decrease congestion and increase transfer capability across New York; alleviate high power prices in New York City and Long Island
- c) Reduce cost of meeting CES and emission reduction goals; lower total cost of implementation by reducing generator interconnection and deactivation costs
- d) Enable most economic dispatch of generators to serve load
- e) Increase fuel mix diversity and generation planning flexibility
- f) Enable offshore wind development
- g) Reduce expensive generation investment

ITC appreciates NYISO's consideration of the transmission needs that it believes are being driven by Public Policy Requirements. ITC looks forward to next steps and stakeholder discussions regarding this effort.

Sincerely,

A handwritten signature in black ink, appearing to read 'T. Harvill', is written above a horizontal line.

---

Terry Harvill  
VP, ITC Holdings Corp.  
President, ITC Grid Development, LLC

September 28, 2018

Public Policy Transmission Planning  
New York Independent System Operator, Inc.  
10 Krey Boulevard  
Rensselaer, NY 12144  
By e-mail to PublicPolicyPlanningMailbox@nyiso.com

### Proposed Transmission Needs Driven by Public Policy Requirements

LS Power Grid New York, LLC (“LS Power”, formerly known as North America Transmission, LLC) is pleased to provide these comments in response to the August 1, 2018 Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle.

New York State is experiencing tremendous change in how electricity is generated, transmitted and consumed. The Public Policy Transmission Need process is a critical tool to aid in planning a transmission grid that will keep up with these changes, and ensure safe, reliable, and economic service. In the comments below, LS Power identifies certain Public Policy Requirements driving the need for transmission, and proposes criteria for the evaluation of solutions.

Each of the identified Public Policy Transmission Needs arise from the Clean Energy Standard (“CES”):<sup>1</sup> delivery of Tier 1 renewable resources; offshore wind interconnection; and retirement of nuclear facilities.

### **Tier 1 Renewable Resources**

NYISO presented results of an analysis of Tier 1 renewable resources at the July 27, 2018 joint meeting of the Electric System Planning Working Group and Transmission Planning Advisor Subcommittee (“ESPWG/TPAS”). This analysis assumed a balanced set of renewable resources suggested by the Department of Public Service shown on the following page, with 45% by energy delivered in Zones J-K, 30% in Zones A-C, and 26% in Zones D-G.

---

<sup>1</sup>The NYPSC Order Adopting a Clean Energy Standard in Case 15-E-0302 and Case 16-E-0270 issued and effective as of August 1, 2016 (“CES Order”) qualifies as a Public Policy Requirement under Attachment Y of the NYISO Open Access Transmission Tariff.

Zone	Capacity			Equivalent Energy*			Total (GWh)	Energy
	Land based wind (MW)	Solar (MW)	Off-shore Wind (MW)	Land based wind (GWh)	Solar (GWh)	Off-shore Wind (GWh)		
A	1,645	213		3,747	261	-	4,008	30%
B		102		-	125	-	125	
C	958	186		2,182	228	-	2,410	
D	325	170		740	208	-	949	26%
E	835	700		1,902	858	-	2,760	
F	120	1,000		273	1,226	-	1,500	
G		400		-	491	-	491	
H		6		-	7	-	7	
I		0		-	-	-	-	45%
J/K			2,400	-	-	9,461	9,461	
K		328		-	402	-	402	
Total	3,883	3,105	2,400				22,113	

\* Capacity factor of 26% for land based wind, and 15% solar (Source: NYISO's Power Trends 2018) and 45% for off-shore wind (Source: NYSERDA Off-Shore Wind Study)

Based on this assumed set of representative Tier 1 resources, load-flow cases were run which identified several transmission system constraints:

- 230 kV system in St. Lawrence, Franklin and Clinton Counties; and
- 230 kV lines between Adirondack and Marcy.

In addition, NYISO performed an analysis of potential renewable energy bottling and found that generation in four renewable energy zones would be bottled to some extent without transmission upgrades. Some bottling occurred on the 115 kV system and some was present on the 230 kV or 345 kV system. Regardless of the voltage level where bottling occurs, it is possible that upgrades to the bulk power system may best resolve the issue. The NYISO analysis suggests the following potential transmission system limits could constrain over 1,000 MW of resources:

- Northern New York 230 kV and 115 kV; and
- Western + Southern Tier 345 kV and 115 kV.

One approach to resolving the constraints would be to address individual generator issues in the NYISO interconnection Class Year process. However, the Tier 1 generation will not necessarily be interconnected in a single Class Year, but may be staggered over a series of many renewable procurements. This could result in multiple piecemeal upgrades which would be more expensive than a single set of optimized upgrades. Or, it could be that upgrades are not triggered until a certain level of generation interconnection is established in an area. It would be unfair for certain generators in a single Class Year to be saddled with all upgrades triggered by that class, when earlier Class Years may have taken up all of the available head room on the transmission system and would also benefit from the new transmission capacity. The result of this inefficiency could be the elimination of potentially more economic resources due to the emergence of transmission constraints. Instead, it would be

more efficient to plan the transmission system to accommodate the expected set of least cost resources to avoid the constraints and bottling discussed above.

Tier 1 Renewable Resources represent a Public Policy Requirement that could create a Public Policy Transmission Need. NYISO should release a transmission system model that includes an indicative set of renewable resources, such as used in the analysis presented at the July ESPWG/TPAS meeting. Proposals would be evaluated based a number of metrics, including the lowest cost per MWh of expected additional renewable energy to be delivered.

The need to establish a Public Policy Transmission Need related to Tier 1 Renewable Resources is urgent due to the long lead-time required for transmission planning and development. For example, the NYISO portion of the AC Transmission process was initiated with the August 1, 2014 Request for Proposed Transmission Needs Being Driven by Public Policy Requirements, with transmission facilities currently estimated to be placed in service nine years later, in 2023. Assuming a similar lead-time, a Public Policy Transmission Need arising from the August 1, 2018 notice would be placed in service in 2027, toward the end of CES procurement. It is likely that any latent transmission system capacity will be taken by the earlier stage resources, and there may be a relatively high level of curtailment for resources, without transmission upgrades. Delaying the necessary transmission planning will result in much higher costs for customers, with more expensive resource selection, transmission system congestion, and curtailment of low-cost, low-emission renewable energy.

Waiting until the next cycle under the NYISO tariff, beginning August 1, 2020, will be too late to contribute to a least-cost plan during procurement of Tier 1 Renewable Resources prior to 2030. New York State must move forward now to ensure implementation of the CES in a coordinated, least-cost manner.

## **Offshore Wind**

New York State is establishing an offshore wind industry. The PSC issued the Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement on July 12, 2018 (“Offshore Wind Phase 1 Order”). The Offshore Wind Phase 1 Order adopted an approach that Phase 1 Offshore Wind procurement require generators to be responsible for transmission interconnection, with a recommendation of continued study of transmission options for Phase 2 procurement.

There are many benefits of having competitive transmission for Phase 2 of offshore wind procurement. First, there will be cost savings from regulated ownership of offshore transmission facilities due to lower financing and other costs. In addition, there will be cost savings from sharing of offshore transmission facilities between multiple generators. There could be additional ratepayer benefits from integrated offshore transmission facilities with multiple interconnection points, compared to radial interconnections dedicated to a single resource area. There will be synergies from integrated facilities, with lower losses and higher overall deliverability than multiple radial lines. In addition, competitive procurement would be the best method to apply competitive pressure on cost and also the best method to identify innovative approaches that could result in the lowest net cost to ratepayers. For



these reasons, the best path forward for offshore wind transmission facilities for Phase 2 would be competitive procurement of offshore transmission. Competitive procurement of offshore transmission should be conducted under the NYISO Public Policy Transmission Need process.

The evaluation criteria for an offshore transmission Public Policy Transmission Need would include a number of metrics, including the most efficient and cost-effective proposal to deliver a threshold amount of offshore wind, and the least cost per MWh of delivered offshore wind.

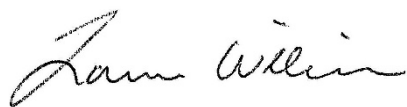
### **Nuclear Retirements**

The Zero-Emissions Credit (“ZEC”) established in the CES Order expires in 2029. The ZEC is described in the CES Order as a bridge to the clean energy future, and the final ZEC tranche runs through March 31, 2029. As part of the 2016 Reliability Needs Assessment, NYISO studied a scenario with No Nuclear generation in New York State, which resulted in a Loss of Load Expectancy (“LOLE”) 10 times greater than in the base case, and three times higher than the standard of 0.10. This provides an indication that if all existing nuclear units retire at the expiration of the ZEC program on March 31, 2029, there could be a significant reliability need. While there is sufficient time to begin planning for this need in 2029, there is also a chance that units may become uneconomic prior to March 31, 2029, even with the ZEC program. At a minimum, NYISO should perform further study of the possibility of nuclear unit retirements and the implication for reliability in New York. In the event such studies identify a need for new transmission prior to 2027, a Public Policy Transmission Need should be established. The evaluation criteria for such a Public Policy Transmission Need would be the resolution of identified reliability violations at the least cost.

### **Summary**

North America Transmission respectfully requests that the NYISO include these identified Public Policy Requirements in its submittal to the New York Public Service Commission.

Sincerely,

A handwritten signature in cursive script that reads "Lawrence Willick".

Lawrence Willick

Senior Vice President



October 1, 2018

Mr. Zachary G. Smith, Vice President, System and Resource Planning  
New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, NY 12144

*Sent Via Email*

RE: NextEra Energy New York Comments Regarding Needs Required for the 2018-2019  
Transmission Planning Cycle

Dear Mr. Smith:

NextEra Energy Transmission New York (“NEETNY”) is pleased to offer these comments in response to the New York Independent System Operator’s (“NYISO”) August 1, 2018 Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle pursuant to Section 31.4.2 of Attachment Y to the NYISO’s Open Access Transmission Tariff (“OATT”). NEETNY respectfully requests that NYISO consider Public Policy Transmission Needs (“PPTN”) to facilitate renewable generation required for New York to meet the Clean Energy Standard (“CES”).

On August 1, 2016, the New York Public Service Commission (“PSC”) issued an Order adopting the CES, New York’s primary policy initiative to promote the development of new renewable energy resources in New York.<sup>1</sup> The CES has established a goal whereby 50 percent of New York’s electricity consumption is to be generated by renewable resources by 2030. According to NYISO, this will require the addition of nearly 9,400 MW of new renewable capacity. Based on NEETNY’s analyses, New York will need to develop substantial new bulk power transmission to reliably and efficiently enable renewable generation to meet the CES.

**I. Analyses Studying the Impacts of New Renewable Generation Resources**

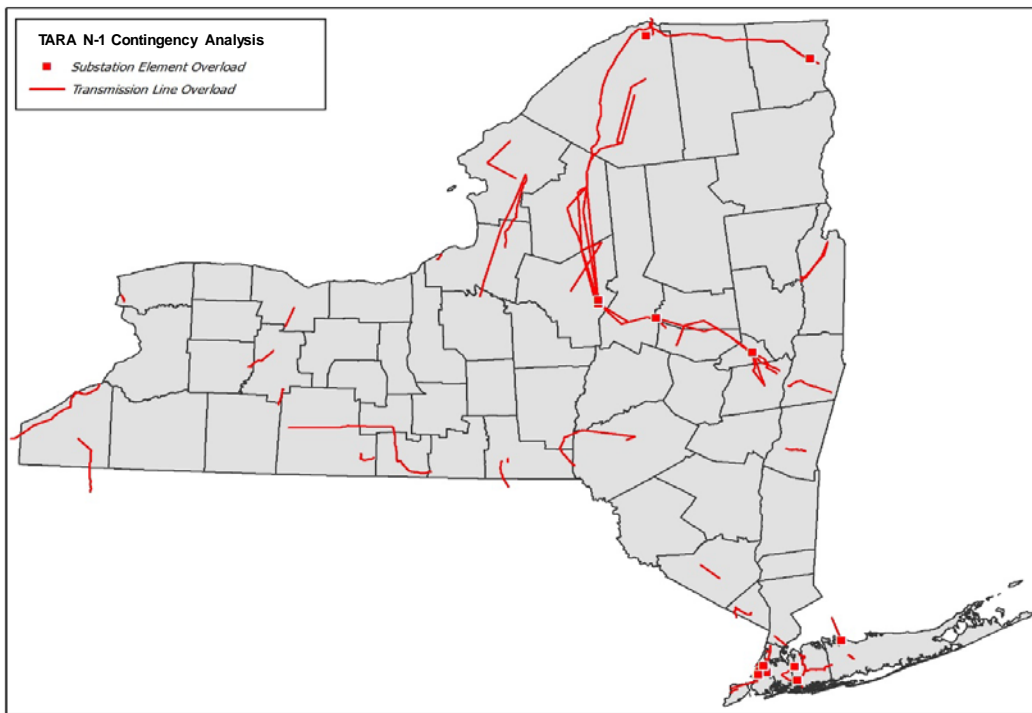
On July 27<sup>th</sup>, NYISO presented the results of an N-1 contingency analysis (“the NYISO Analysis”) to stakeholders, identifying potential transmission needs to enable renewable resources required by the CES. The analysis identified numerous transmission lines that would be thermally overloaded, as well as identified significant loop flows through the PJM system. However, the NYISO Analysis did not take into account any impacts to interface limits, market congestion, and challenges to system and market operations. Therefore, NEETNY has conducted studies to determine the impact CES-driven renewables will have on interface limits and market congestion.

---

<sup>1</sup>Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard; Case 16-E-0270, Petition of Constellation Energy Nuclear Group LLC; R.E. Ginna Nuclear Power Plant, LLC; and Nine Mile Point Nuclear Station, LLC to Initiate a Proceeding to Establish the Facility Costs for the R.E. Ginna and Nine Mile Point Nuclear Power Plants, August 1, 2016 Decision.

NEETNY studied the powerflow impacts that new CES-driven renewable resources will have on the grid using PowerGEM's TARA software ("TARA Analysis").<sup>2</sup> The reliability analysis was broken into two phases, with phase one running an N-1 contingency analysis for 2030 summer peak and light load conditions. The generation and load assumptions were based on the same assumptions used in the NYISO Analysis. The TARA Analysis showed that interconnecting large amounts of renewable generation resources will result in a large number of thermal overloads. While NYISO's Large Facility Interconnection Process ("LFIP") will address system upgrades required of new generators connecting to the grid, it will only address system upgrades in incremental steps when generators reach the latter stages of the LFIP. The end result of such a "piece-meal" approach would discourage the development of new renewable generation and result in higher overall transmission costs. Therefore, the PSC and NYISO should consider several PPTNs to effectively address thermal issues associated with the interconnection of significant amounts of new renewable generation. Figure 1 provides an overview of the thermal overloads identified.

**Figure 1: Thermal Overloads**



The second phase of the reliability analysis studied the impact new renewables would have on existing interface limits. Using the same cases created for the contingency analysis, NEETNY found that, in many instances, the integration of new renewables would decrease existing interface limits. NYISO's LFIP may address reliability issues, but it does not adequately address impacts to NYISO

---

<sup>2</sup> The TARA Analysis used generation and load level assumptions provided in the NYISO Analysis, using a 2028 model. In addition to that, the Empire State Line project was assumed in-service, an AC Transmission PPTN project was assumed in-service for both Segments A and B, as well as NYPA's Moses-Adirondack 230 kV rebuild, and Indian Point assumed to be retired.

interface limits.<sup>3</sup> If the reduction of interface limits is not addressed through a PPTN, the grid will have less operational flexibility and experience significant amounts of congestion. Table 1 shows the impacts new renewable generation will have on existing interface limits.

**Table 1: Impacts to Interface Limits**

Interface	Change in Interface Limit (MW) <sup>4</sup>	% Change <sup>5</sup>
Dysinger East (Open)	-919	-37%
Volney East (Open)	-165	-4%
West Central (Open)	-884	-81%
Moses South (Open)	-783	-31%
Central East	220	6%
UPNY-SENY (Open)	-490	-9%
UPNY-ConEd (Open)	374	7%
Dunwoodie South (Open)	-289	-8%

NEETNY also studied wholesale market impacts that new renewable generation resources required by CES will have on the grid using General Electric’s Multi Area Production Simulation software (“MAPS Analysis”).<sup>6</sup> The MAPS Analysis studied impacts for a 2030 study year, used the same transmission topology as the TARA Analysis, applied 2017 CARIS assumptions, and modified generation and load assumptions according to the NYISO Analysis. Demand Congestion<sup>7</sup> values were monitored to determine which constraints were congested. These constraints were then grouped into corridors, and different analyses looked at the impacts of relaxing the constraints so that they were no longer congested.<sup>8</sup> By relaxing different corridors at a time, NEETNY was able to confirm that addressing one or two corridors will simply push the congestion to a different point on the system, and that it will ultimately be necessary to address all major corridors to fully integrate renewable generation required by the CES.

The MAPS Analysis also confirms significant congestion is expected when interface limits are decreased. The MAPS Analysis also shows that, even if interface limits did not decrease due to the addition of new renewable generation resources, significant congestion is still anticipated. In other words, there is a need to address degradation of existing interface limits and a need to further increase the existing interface limits to adequately address congestion to accommodate the new renewable generation. The Demand Congestion values shown in Tables 2 and 3 below extrapolated

<sup>3</sup> According to NYISO’s LFIP, generators participating in the energy market are only required generators to maintain external interface limits (i.e. interfaces with PJM, ISO-NE, etc) and not internal interface limits such as Central East or UPNY-SENY.

<sup>4</sup> A negative value means that the interconnection of new renewable generation lowers the interface limit.

<sup>5</sup> Ibid.

<sup>6</sup> The MAPS Analysis used generation and load level assumptions provided in the NYISO Analysis, using a 2028 model. In addition to that, the Empire State Line project was assumed in-service, an AC Transmission PPTN project was assumed in-service for both Segments A and B, as well as NYPA’s Moses-Adirondack 230 kV rebuild. 2017 CARIS assumptions were utilized, with Indian Point assumed to be retired.

<sup>7</sup> Per NYISO, Demand Congestion is a measure of the congestion component of the LBMP and its impact on New York Control Area loads.

<sup>8</sup> Relaxing the constraint was achieved by increasing the limits of the constraints.

over 20 years to match the same timeframe analyzed in NYISO’s Public Policy Transmission Planning Process (“PPTPP”).<sup>9</sup>

**Table 2: Demand Congestion due to a decrease in Interface Limits<sup>10</sup>**

<b>Interface</b>	<b>Single year Demand Congestion (\$MM)</b>	<b>20 Year Demand Congestion (\$MM)</b>
Dysinger East (Open)	\$27	\$329
Moses South (Open)	\$355	\$4,378
Central East <sup>11</sup>	\$1,346	\$16,577
UPNY-SENY (Open) <sup>12</sup>	\$61	\$751
UPNY-ConEd (Open) <sup>13</sup>	\$54	\$664
Dunwoodie South (Open) <sup>14</sup>	\$25	\$313

**Table 3: Demand Congestion using Interface Limits defined in 2017 CARIS Study**

<b>Interface</b>	<b>Single year Demand Congestion (\$MM)</b>	<b>20 Year Demand Congestion (\$MM)</b>
Dysinger East (Open)	\$12	\$144
Moses South (Open)	\$147	\$1,812
Central East <sup>15</sup>	\$1,347	\$16,601
UPNY-SENY (Open) <sup>16</sup>	\$13	\$163
UPNY-ConEd (Open) <sup>17</sup>	\$62	\$769
Dunwoodie South (Open) <sup>18</sup>	\$14	\$175

## **II. Public Policy Transmission Needs**

A PPTN is necessary to facilitate the efficient, reliable, and cost-effective connection and operation of renewable resources on the grid. Based on the results of the NYISO Analysis, TARA Analysis, and MAPS Analysis, NEETNY has identified five key corridors that will have reliability, operability, and congestion issues: The Dysinger East Corridor, the Northern New York Corridor, the West Central New York Corridor, the Central East Corridor, and the Southern New York Corridor. The PSC should consider identifying PPTNs that will address the reliability, operability, and congestion issues in each of these corridors.

<sup>9</sup> A 20-year net present value was calculated assuming 2% escalation and 7% discount factor.

<sup>10</sup> Interface limits were decreased from the 2017 CARIS limits by applying the % change calculated through the TARA Analysis.

<sup>11</sup> Assumes that the Dysinger East and Moses South interfaces and related constraints are relaxed.

<sup>12</sup> Assumes that the Dysinger East, Moses South, Central East interfaces and related constraints are relaxed.

<sup>13</sup> Ibid.

<sup>14</sup> Ibid.

<sup>15</sup> Assumes that the Dysinger East and Moses South interfaces and related constraints are relaxed.

<sup>16</sup> Assumes that the Dysinger East, Moses South, Central East interfaces and related constraints are relaxed.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

### **A. Dysinger East Corridor**

New transmission is needed to increase the Dysinger East interface by 900 MW to offset the decrease in interface limits resulting from the interconnection of new renewable resources. In addition to restoring the interface to its original capabilities, an incremental 900 MW of transfer capability above the original limits for the Dysinger East interface is necessary to adequately address Demand Congestion. In addition, thermal overloads identified by the NYISO Analysis and TARA Analysis can also be addressed as part of the same PPTN. In order to assist the state in achieving the CES renewable energy goals, new transmission is needed to address the following issues:

- Based on the TARA Analysis and MAPS Analysis, Dysinger East interface limits will decrease by 36% resulting in \$329 million of Demand Congestion over 20 years.
- Based on the MAPS Analysis, even after restoring the interface to its original limits, Dysinger East will experience \$144 million of Demand Congestion over 20 years.
- Based on the NYISO Analysis, more than 600 MW of renewable capacity will be curtailed in Zone A during summer peak conditions.<sup>19</sup>
- Based on the NYISO Analysis and TARA Analysis, thermal overloads appear on 115 kV lines that will limit both existing and new renewable capacity.
- Based on NYISO's and NEETNY's analysis, there will be increased loop flows into PJM which will reduce operational flexibility.

### **B. West Central New York Corridor**

New transmission is needed to increase the West Central interface by 900 MW to offset the decrease in interface limits resulting from the interconnection of new renewable resources. In addition, thermal overloads identified by the NYISO Analysis and TARA Analysis can also be addressed as part of the same PPTN. In order to assist the state in achieving the CES renewable energy goals, new transmission is needed to address the following issues:

- Based on the TARA Analysis, the West Central interface limits will decrease by 81%, resulting in decreased operability of the transmission system.
- Based on the NYISO Analysis, more than 1100 MW of renewable capacity will be curtailed in Zones B and C during light load conditions.<sup>20</sup>
- Based on the NYISO Analysis and TARA Analysis, thermal overloads appear on the 115 kV lines that will limit both existing and new renewable capacity.
- Based on NYISO's and NEETNY's analysis, there will be increased loop flows into PJM which will reduce operational flexibility.

### **C. Northern New York Corridor**

New transmission is needed to increase the Moses South interface by 900 MW to offset the decrease in interface limits resulting from the interconnection of new renewable resources. In addition to restoring the interface to its original capabilities, an incremental 900 MW of transfer capability above the original limits for the Moses South interface is necessary to adequately address Demand

---

<sup>19</sup> NYISO ESPWG/TPAS July 27<sup>th</sup> Presentation, pg. 28.

<sup>20</sup> NYISO ESPWG/TPAS July 27<sup>th</sup> Presentation, pg. 28.

Congestion. In addition, thermal overloads and operability identified by the NYISO Analysis and TARA Analysis can also be addressed as part of the same PPTN. In order to assist the state in achieving the CES renewable energy goals, new transmission is needed to address the following issues:

- Based on the TARA Analysis and MAPS Analysis, Moses South interface limits will decrease by 31%, resulting in \$4.3 billion of Demand Congestion on the Moses South interface over 20 years.
- Based on the MAPS Analysis, even after restoring the Moses South interface to its original limits, approximately \$1.8 billion of Demand Congestion will remain on the Moses South interface over 20 years.
- Based on the NYISO Analysis, more than 800 MW of renewable capacity would be curtailed in Zone D during summer peak and light load conditions.<sup>21</sup>
- Based on the NYISO Analysis and TARA Analysis, thermal overloads appear on 115 kV and 230 kV lines that will limit both existing and new renewable capacity.

#### **D. Central East Corridor**

New transmission is needed to increase the Total East and Central East interface limits by at least 3000 MW to adequately address Demand Congestion. In addition, thermal overloads identified by the NYISO Analysis and TARA Analysis should also be addressed as part of the PPTN. In order to assist the state in achieving the CES renewable energy goals, new transmission is needed to address the following issues:

- Based on the MAPS Analysis, even with the selection of a transmission solution for the AC Transmission PPTN, approximately \$16.6 billion of Demand Congestion will remain on the Central East and Total East interfaces over 20 years<sup>22</sup>.
- Based on the NYISO Analysis, more than 800 MW of renewable capacity would be curtailed in Zones E and F combined during summer peak and light load conditions.<sup>23</sup>
- Based on the NYISO Analysis and TARA Analysis, thermal overloads appear on 115 kV lines that will limit both existing and new renewable capacity.<sup>24</sup>

Although NYISO is still in the process of selecting a project for the AC Transmission PPTN, the project ultimately selected will only be capable of providing up to 800 MW of incremental transfer capability across the Central East Interface. The assumptions used in the NYISO Analysis shows that nearly 5000 MW of new renewable generation is expected in upstate New York<sup>25</sup>. As a result, even with the selection of a solution for the AC Transmission PPTN, additional transmission is necessary to relieve congestion across the Central East Interface.

---

<sup>21</sup> NYISO ESPWG/TPAS July 27<sup>th</sup> Presentation, pg. 28.

<sup>22</sup> Demand Congestion values assumes that the Dysinger East and Moses South interfaces and related constraints are relaxed. This causes power to flow more freely to the next major constraint, Central East Interface.

<sup>23</sup> NYISO ESPWG/TPAS July 27<sup>th</sup> Presentation, pg. 28.

<sup>24</sup> Ibid.

<sup>25</sup> NYISO's July 27<sup>th</sup> Presentation, page 12, for Zones A-E.

## **E. Southern New York Corridor**

New transmission is also needed to increase the UPNY-SENY and Dunwoodie South interfaces by 500 MW to offset the decrease in interface limits due to the interconnection of new renewable resources upstate. In addition to restoring the interface to its original limits, an incremental 1000 MW of transfer capability above the original limits across the UPNY-SENY, UPNY-CONED, and Dunwoodie South interfaces is necessary to adequately address Demand Congestion. In addition, thermal overloads identified by NYISO in their analysis should also be addressed as part of the PPTN. In order to assist the state in achieving the CES renewable energy goals, new transmission is needed to address the following issues:

- Based on TARA Analysis and MAPS Analysis, UPNY-SENY and Dunwoodie South interface limits will decrease by 9% and 8%, respectively, resulting in \$1.7 billion of demand congestion over 20 years.<sup>26</sup>
- Based on the MAPS Analysis, even after restoring the UPNY-SENY and Dunwoodie South interfaces to their original limits, approximately \$1.1 billion of demand congestion will remain across the UPNY-SENY, UPNY-CONED, and Dunwoodie South interfaces over 20 years<sup>27</sup>.
- Based on NYISO's analysis, more than 400 MW of renewable capacity would be curtailed in Zone F during summer peak and light load conditions.<sup>28</sup>

As congestion is relieved upstate, renewable energy will flow downstate where the majority of New York's load resides. Without transmission expansion along the UPNY-SENY, UPNY-CONED, and Dunwoodie South interfaces, the "last mile" transmission constraints can impede New York's ability to meet its CES goal.

## **III. Evaluation Criteria**

NEETNY continues to believe that cost containment will provide significant benefits for New York customers. The PSC should require the NYISO to evaluate voluntary cost contained proposals, which should include developing a defined methodology for evaluating cost contained proposals, as a key evaluation criterion in any future Public Policy Transmission Need.

## **IV. Conclusion**

There will be significant reliability, operability and congestion issues caused by the interconnection of new renewable generation resources to meet the CES. Based on the MAPS Analysis, the most heavily constrained corridors are the Central East and the Northern New York corridors with Demand Congestion measuring in the billions. Addressing both of these corridors is necessary to enable renewable generation resources. However, addressing only these two corridors will be insufficient to fully enable integration of new renewables because of remaining reliability, operational, and congestion issues in the Dysinger East, West Central, and Southern New York corridors. All five corridors should be addressed so that the required renewable generation resources

---

<sup>26</sup> Demand Congestion values assumes that the Dysinger East, Moses South, Central East interfaces and related constraints are relaxed. This causes power to flow more freely to the next major constraints at UPNY-SENY, UPNY-CONED and Dunwoodie South.

<sup>27</sup> Assumes a transmission solution for Segment B from the AC Transmission PPTN is in-service.

<sup>28</sup> NYISO ESPWG/TPAS July 27<sup>th</sup> Presentation, pg. 28.

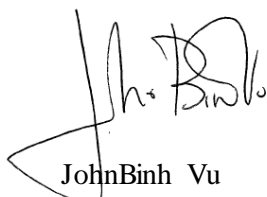


can interconnect to the grid reliably and efficiently by 2030. However, NEETNY understands there are limited resources to run multiple PPTPPs, and suggests the following prioritization to address the needs in a staged-approach:

1. The Northern New York Corridor and the Central East Corridor need should be addressed first due to the amount of congestion and reliability issues anticipated along those corridors. Since there may be interaction or synergies between a solution for the Northern New York Corridor and a solution for the Central East Corridor, there should be consideration for a multi-segment process similar to AC Transmission PPTN where there was a distinct Segment A and Segment B.
2. The Dysinger East Corridor and the Southern New York Corridor should be given the next priority since these corridors will have reliability concerns and lower interface limits that will result in operational and congestion issues. NEETNY suggests that NYISO could solicit a transmission solution for both corridors at the same time because a solution addressing the Dysinger East Corridor is less likely to impact a solution addressing the Southern New York Corridor, given the geographical and electrical separation.
3. Finally, the West Central New York Corridor should be given the lowest priority, but still considered a necessary PPTN. The reliability issues, potential for curtailment, operational issues and reduced interface limits make this need just as important as the other corridors to enable renewable generation to meet the CES.

Thank you for including the NEETNY identified public policy transmission needs in your submission to the PSC. Please feel free to contact me if you have any questions with respect to these recommendations. As a preeminent transmission developer in North America, we look forward to working with NYISO and other stakeholders in helping New York to achieve the CES goal.

Sincerely,



JohnBinh Vu  
Director Transmission Development  
NextEra Energy Transmission New York

Sent via e-mail to [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

October 1, 2018

**VIA ELECTRONIC MAIL:**

[PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

Mr. Zachary G. Smith  
Vice President of System & Resource Planning  
New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

**RE: New York Transco LLC's Response to the New York Independent System Operator's Request for Proposed Transmission Needs Driven by Public Policy Requirements**

Dear Mr. Smith:

New York Transco LLC ("Transco") respectfully submits this letter in response to the New York Independent System Operator, Inc.'s ("NYISO") August 1, 2018 "Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle" (the "Notice"). In response to the Notice and consistent with Section 31.4.2 of Attachment Y of the NYISO's Open Access Transmission Tariff ("OATT"), Transco has identified two transmission needs being driven by a Public Policy Requirement, which the NYISO shall file with the New York State Public Service Commission (the "Commission") for review.

**I. Overview**

As energy production within New York continues to evolve and diversify to include a higher level of renewable energy, it is widely acknowledged that the State's existing transmission system needs to be upgraded to achieve its public policy objectives.<sup>1</sup> One of the State's core energy-related public policy objectives is embodied in the Clean Energy Standard ("CES"). On August 1, 2016, the Commission issued its *Order Adopting a Clean Energy Standard* (the "CES Order") and adopted the goal set forth in the State Energy Plan that 50% of the electricity used in New York will be generated by renewable sources by 2030.<sup>2</sup> As a

---

<sup>1</sup> See e.g. New York State Independent System Operator, Inc., *Public Policy Needs Study: Transmission Constrained Renewable Generation Pockets* (dated July 27, 2018) (the "NYISO Constraint Assessment") (discussing the NYISO's transmission constraint assessment related "to the significant injection of renewable generation resources into various locations in the New York Control Area . . . to satisfy the 50-by-30 goal of the State's Clean Energy Standard" and the resulting transmission upgrades needed to facilitate achievement of this goal).

<sup>2</sup> Case 15-E-0302, *Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard*, Order Adopting a Clean Energy Standard (Issued Aug. 1, 2016).

consequence of this goal, renewable generation facilities are being—and will continue to be—constructed in New York.

As with current facilities, these future large-scale renewable resources, including solar and wind farms, will continue to be developed across the State. As evidenced by the NYISO’s interconnection queue, many of these renewable projects are intended to be sited in the North Country and the southern tier region (the “Southern Tier”) of New York. In an effort to anticipate transmission needs stemming from this potential future renewable generation, the NYISO studied the addition of these resources at their likely geographical locations to determine whether curtailments or increased curtailments are likely to occur due to congestion on the existing transmission system. Ultimately, the NYISO identified a risk of increased curtailments and congestion in the North Country and Southern Tier.<sup>3</sup>

After considering the CES Order and the NYISO Constraint Assessment, Transco has identified two transmission needs stemming from the CES-based Public Policy Requirement:

- (a) to address constraints on the existing transmission system in the North Country (also referred to by the NYISO as “Pocket X”) to afford the State with full access to existing clean, renewable generation resources already in that region, including hydroelectric generation, and to accommodate planned developments of new in-State renewable resources; and
- (b) to address constraints on the existing transmission system in the Southern Tier (also referred to by the NYISO as “Pocket Z”) to afford the State with full access to existing, planned, and prospective in-State clean, renewable generation resources located across the Finger Lakes region and throughout Steuben to Broome Counties, and to broaden access to qualified regional renewable resources toward Western areas of the State.

In response to these two transmission needs, Transco requests that the Commission identify the CES as the driver of a Public Policy Requirement that will allow for the unbottling of at least: (1) 400 megawatts (“MW”) of renewable generation resources across the North Country’s transmission corridor from North to South, and (2) 800 MW of renewable generation resources across the Southern Tier transmission corridor from West to East.

Additionally, Transco suggests below that the NYISO establish an equivalent “Energy Deliverability” (*i.e.*, North Country 35 terawatt hours (“TWh”) annually, and for the Southern Tier 57 TWh annually) selection metric, which will be described in the NYISO’s solicitation for projects to satisfy a Public Policy Transmission Need (“PPTN”). This selection metric will take into account peak and seasonal requirements with the objective to achieve optimal access to resources as needed to reduce costs to customers while enabling the State to achieve its CES goal. Transco suggests additional selection metrics to satisfy a CES-based Public Policy

---

<sup>3</sup> See NYISO Constraint Assessment, at 25 and 29.

Requirement below, including a focus on the expandability and flexibility of the proposed solutions to accommodate greater amounts of variable renewable energy in the future and the advantages the upgrades will have on future resiliency and operator flexibility.

## II. Discussion

### a. A CES-based Public Policy Requirement

Transco applauds the NYISO and the Commission for their efforts to-date in pursuing initial Public Policy Requirements driving certain identified transmission needs in Western New York and across the Central East and UPNY/SENY interfaces. However, as recognized through various NYISO assessments and operational reports, the evolving New York energy landscape indicates that there are Public Policy Requirements driving transmission needs that neither the NYISO nor the Commission have addressed in prior Public Policy Transmission Planning Processes. The most significant and pressing of the unaddressed Public Policy Requirements is the Commission-declared CES.<sup>4</sup> As a direct result of the CES, the State’s generation fleet is undergoing significant changes,<sup>5</sup> and, simply put, the State’s transmission system needs to be upgraded to accommodate these changes.<sup>6</sup>

For example, in 2017, to encourage new large-scale renewable energy projects in an effort to meet the CES, the New York State Energy and Resource Development Authority (“NYSERDA”) awarded \$1.4 billion for 26 renewable generation projects that will develop nearly 1,400 MW of new, clean energy capacity throughout New York State.<sup>7</sup> The make-up of these projects—which are expected to be operational by 2022—is: 22 solar farms (totaling 647 MW); 3 wind farms (totaling 734 MW), 1 of which will feature an energy storage component; and 1 hydroelectric facility (totaling 3 MW). These projects are expected to generate enough electricity to power more than 430,000 homes, reduce carbon emissions by 1.6 million metric tons, and create over 3,000 short- and long-term well-paying jobs. Figure 1 below illustrates the generation added under NYSERDA’s 2017 award in various New York Control Area (“NYCA”) zones:

---

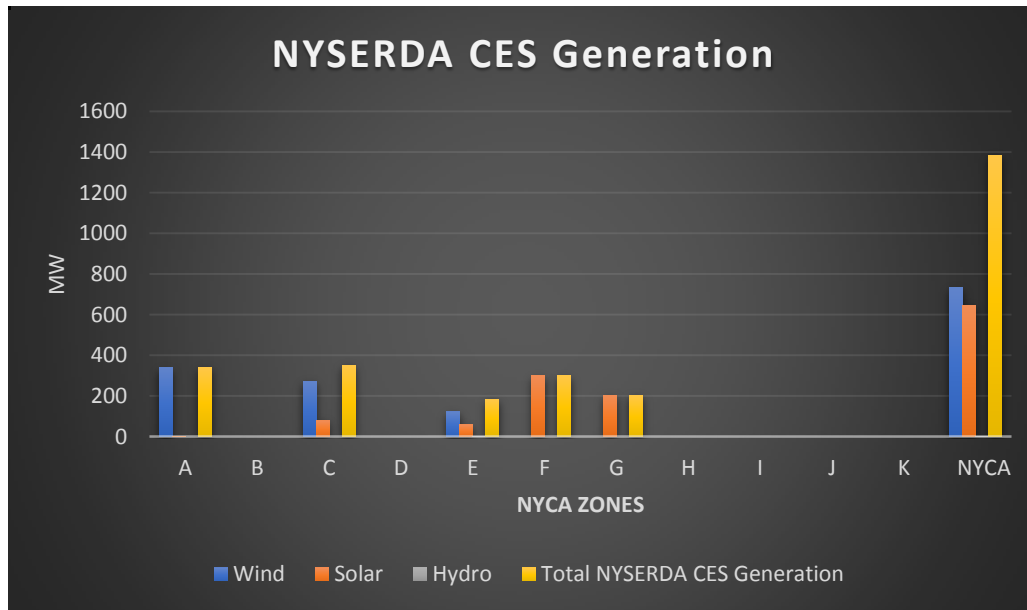
<sup>4</sup> See New York State Independent System Operator, Inc., Open Access Transmission Tariff, Attachment Y, § 31.1.1 (defining a Public Policy Requirement to include “[a] federal or New York State statute or regulation, including a [Commission] order adopting a rule or regulation subject to and in accordance with the State Administrative Procedure Act . . . that may relate to transmission planning on the [Bulk Power Transmission Facilities.]”).

<sup>5</sup> See e.g. Case 15-E-0302, *supra*, Staff White Paper on Clean Energy Standard (filed Jan. 25, 2016), at 7 (summarizing New York State Department of Public Service Staff’s [“DPS Staff”] determination that “slightly more than 33,700 GWh of incremental renewable generation must be added to the State’s fuel mix” in order to achieve the CES goal of 50% renewable by 2030).

<sup>6</sup> See e.g. Case 15-E-0302, *supra*, CES Order, at 75 (directing DPS Staff to “ensure that the bulk transmission system is sufficiently modernized such that it can fully support the State’s renewable goals”).

<sup>7</sup> NYSERDA, *Large-Scale Renewables Fact-Sheet*, 2017 Renewable Energy Standard Solicitation, available at <https://www.nyserd.ny.gov/-/media/Files/Programs/Clean-Energy-Standard/2017-RES-RFP-Results-Factsheet.pdf> (last accessed Sept. 24, 2018).

**Figure 1: NYISERDA Clean Energy Standard Generation by Regions**



To achieve New York State’s renewable energy goals as embodied in the CES Order, significant investment in new renewable resources is being, and will continue to be, made across the State. As the NYISO has acknowledged, and as is discussed in further detail below, this increase in generation drives corresponding transmission needs.<sup>8</sup> For these reasons, access and unbottling of existing, current, and prospective CES resources satisfies the definition of a Public Policy Requirement under Attachment Y of the NYISO’s OATT.

**b. Transmission Needs Driven By CES**

In order to allow this new injection of renewable generation to reach New York load centers, it is widely accepted that a similar investment needs to be made in New York’s transmission system.<sup>9</sup> While Transco appreciates the complexity of optimizing access to renewable resources while managing the cost to consumers and avoiding potential unnecessary upgrades to the existing transmission infrastructure, it believes that pursuing a properly defined PPTN in support of a Public Policy Requirement to access and consume renewable resources is critical to realize the CES benefits and goals by 2030.

This need for new transmission to support CES generation is confirmed by the NYISO’s recently-released presentation detailing the results of a transmission constraint assessment concerning the injection of renewable generation resources into New York’s generation fleet.

<sup>8</sup> See NYISO Constraint Assessment, at 29.

<sup>9</sup> See e.g. Case 15-E-0302, *supra*, NYISO Supplemental Comments on the Clean Energy Standard (filed July 8, 2016) (acknowledging that upgrades to New York’s existing bulk power system—particularly new transmission—will be required to satisfy the CES).

The NYISO’s Constraint Assessment revealed that under certain conditions—which assumed the successful construction and operation of NextEra’s Western New York transmission project, a “generic” AC Transmission project, and NYPA’s proposed rebuild of Moses-Adirondack 230 kV circuits—the “addition of significant amounts of renewable generation to achieve CES goals will cause stress and certain violations on the NY transmission system at both the backbone (>200) as well as the underlying (100-200 kV) system.”<sup>10</sup> More specifically, the NYISO’s Constraint Assessment revealed “pockets” of overloads as follows:

**Groups of overloads (“pockets”) were found from study scenarios with renewable generation turned on at their maximum outputs. These overloads were organized into groups:**

- **Pocket W: Western NY Overloads**
  - Niagara – Rochester (115 kV)
  - PJM-NY AC Ties (115 kV)
  - Niagara – Gardenville – Stolle Rd (115 kV)
- **Pocket X: Northern NY Overloads**
  - Zone D Wind Generation Corridor (230 & 115 kV)
  - North to South Moses South Transfer path (230 & 115 kV)
  - Jefferson & Lewis Counties (115 kV)
- **Pocket Y: Eastern NY Overloads**
  - Mohawk Valley Corridor (115 kV)
  - Hudson Valley Corridor (115 kV)
- **Pocket Z: Southern Tier Overloads**
  - Finger Lakes Region Wind & Solar (115 kV)
  - Southern Tier Transmission Corridor (345 & 115 kV)

As a result of this study, the NYISO concluded that there is “*a need for transmission upgrades in order to transmit the full power from the renewable generation pockets to NYCA load to achieve the CES.*”

Based on the NYISO’s Constraint Assessment and other publically-available information about the location of proposed renewable generation facilities in New York, Transco has identified the following transmission needs driven by a CES-based Public Policy Requirement: (1) the North Country (“Pocket X”), and (2) the Southern Tier (“Pocket Z”). In light of these two transmission needs, which the NYISO will file with the Commission, the Commission should, in turn, identify a Public Policy Requirement to allow for the unbottling of at least: (1) 400 MW of renewable generation resources across the North Country’s transmission corridor from North to South, and (2) 800 MW of renewable generation resources across the Southern Tier transmission corridor from West to East.

### c. Benefits of Identifying Transmission Needs Driven by CES

New transmission in the North Country and Southern Tier will provide greater certainty to developers that their future renewable generators will be able to provide electricity into the system in order to maximize the renewable energy production and consumption in the State. Greater certainty should increase production revenues from the market while lowering production risks, which, in turn, should lower the requested subsidies that generators bid to cover

---

<sup>10</sup> NYISO Constraint Assessment, at 29.

their risks. In contrast, the absence of such transmission upgrades will, as the NYISO Constraint Assessment demonstrates, continue to result in, or increase, curtailments and the inability to rely on available renewable resources, which could prevent developers of renewable generation from even entering the market.<sup>11</sup>

Moreover, the proposed upgrades position the State's bulk power system to: (1) afford full access to existing clean, renewable generation resources located in the North Country and Southern Tier, including wind, solar, and hydro generation; (2) accommodate planned and prospective future developments of incremental new in-State renewable resources; and (3) broaden the potential access to qualified regional renewable resources toward the Western parts of the State.

Transmission upgrades in the constrained North Country and the Southern Tier regions may provide other benefits as well. For example, these upgrades may provide the following environmental benefits:

- Reduced greenhouse gas emissions,
- Potentially, the need for fewer fossil fuel generators,
- Support more cost-effective implementation of carbon pricing in the NYISO wholesale market,
- Increased production cost savings, and
- Enhanced fuel diversity.

Additionally, these upgrades may have other system benefits, including:

- Increased operational flexibility,
- Ability to expand for future growth needs , which is critical to ensure flexible systems designed to accommodate the variability of renewable energy,
- Increased system resiliency, which addresses system needs due to increased extreme weather conditions, and
- Fuel security and diversity.

#### d. Evaluation Criteria

The NYISO's August 1, 2018 solicitation requires that parties identifying a proposed transmission need(s) also provide suggested evaluation criteria. Accordingly, Transco proposes the following overarching criteria to be used in evaluating projects proposed to satisfy the North Country/Pocket X transmission need and the Southern Tier/Pocket Z transmission need that Transco has identified: the ability to increase the development of renewable resources that would not otherwise be available to load centers.

---

<sup>11</sup> NYISO Constraint Assessment, at 29 (stating "a substantial amount of additional renewable generation in these zones may need to be curtailed to prevent overloading transmission facilities.").

Further, Transco proposes that the following additional criterion be used to specifically evaluate each of the transmission needs that Transco has identified:

- Reduced system constraints in both summer and winter periods,
- Resiliency benefits with additional transmission pathways using existing rights-of-ways,
- Expandability to allow for the phasing of transmission development to meet continuing future needs,
- Use of existing rights-of-way and infrastructure corridors,
- Economic benefits, including reduction in system-wide production costs, and
- Ability to unbundle existing and expected renewable and carbon-free generation resources as follows:
  - North Country/Pocket X: Access to a total of at least 4,000 MW of renewable resources in NYISO Zones D and E or the equivalent of at least 35 TWh annually, and
  - Southern Tier/Pocket Z: Access to a total of 6,500 MW of renewable resources in NYISO Zones A, B, and C or the equivalent of 57 TWh annually.

### **III. Conclusion**

In sum, consistent with the NYISO's Constraint Assessment and the Commission's CES Order, Transco has identified two transmission needs being driven by a Public Policy Requirement, which the NYISO shall file with the Commission for review.

Please contact me with any questions about Transco's response to the Notice. Thank you for your consideration in this matter.

Sincerely,

*/s/ Kathleen Carrigan*

Kathleen Carrigan  
General Counsel & Corporate Secretary  
New York Transco LLC  
617-455-5329



**Susanne DesRoches**

Deputy Director, Infrastructure and Energy  
Mayor's Office of Recovery and Resiliency  
Mayor's Office of Sustainability

(212) 788-7554  
sdesroches@cityhall.nyc.gov

October 1, 2018

**VIA EMAIL**

Mr. Zachary Smith  
Vice President, System & Resource Planning  
New York Independent System Operator, Inc.  
10 Krey Boulevard  
Rensselaer, New York 12144

Re: NYISO Solicitation of Transmission Needs Driven by Public Policy  
Requirements

Dear Mr. Smith:

The City of New York ("City") respectfully submits this letter in response to the New York Independent System Operator, Inc.'s ("NYISO") August 1, 2018 "Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle" ("Notice"). The City requests that the proposals set forth below be considered in accordance with the process described in Section 31.4 of the NYISO's Open Access Transmission Tariff ("OATT").

**New York State and New York City Public Policy Goals  
to be Achieved through Additional Transmission**

New York State and New York City have a clear set of energy, climate change and air quality public policy positions and goals. Increased transmission and other upgrades to the Bulk Power System will play a necessary and fundamental role in facilitating the achievement of these goals.

First, the 2015 New York State Energy Plan ("2015 SEP"), which was prepared pursuant to Section 6-104 of the New York Energy Law, contains a summary of the State's energy-related public policies and provides a plan for achievement of the associated policy goals. The 2015 SEP highlights expanding reliance on renewable resources as a public policy goal.<sup>1</sup> As discussed below, the City has identified transmission needs specifically to expand reliance on such resources.

---

<sup>1</sup> 2015 New York State Energy Plan, Volume 1, issued by the New York State Energy Planning Board, pp. 26-29.

Mr. Zachary Smith  
October 1, 2018  
Page 2

The Plan also establishes three clean energy goals: (1) 40% reduction of greenhouse gas emissions by 2030, as compared to 1990 levels; (2) reliance on renewable resources for 50% of the State's electric generation by 2030; and (3) 600 trillion British Thermal Units (BTU) increase in energy efficiency by 2030.<sup>2</sup> The City's proposed transmission needs are also intended to help achieve the first and second of these goals.

Second, on August 1, 2016, the New York Public Service Commission ("NYPSC") adopted a Clean Energy Standard ("CES") for New York. Meeting the goals of the CES will require a substantial investment in new renewable resources. This investment will require expanding the transmission system to allow all regions of the State, in particular downstate load centers, to supplant fossil fueled generating facilities with renewable resources. Looking beyond 2030, the State has committed to reducing its overall greenhouse gas ("GHG") emissions 80 percent by 2050 ("80x50").<sup>3</sup> To achieve these long-term objectives, substantial investments in new transmission will be needed, as was noted by the NYISO in its Supplemental Comments on the CES.<sup>4</sup>

Third, the New York State Department of Environmental Conservation ("NYSDEC") has adopted State Implementation Plans related to compliance with the Clean Air Act and U.S. Environmental Protection Agency's National Ambient Air Quality Standards ("NAAQS") for ozone, particulate matter, SO<sub>2</sub>, NO<sub>x</sub>, CO, and lead.<sup>5</sup> The NYSDEC is considering adopting a series of regulations affecting the operation and emissions of electric generating facilities located specifically in New York City and Long Island, which are intended to help meet the applicable NAAQS.<sup>6</sup> Decreasing reliance on fossil fueled generating facilities and increasing reliance on renewable resources that do not have harmful air emissions will improve local and regional air quality, improve public health outcomes and contribute to compliance with the NAAQS.

The City is taking similar actions as the State. In 2014, the City committed to reducing its GHG emissions 80% by 2050, and more recently, adopted the principles of the Paris Agreement in 2017. The City is spending billions of dollars to take proactive steps to address climate change

---

<sup>2</sup> *Id.* at pp. 44-45.

<sup>3</sup> See Press Release: <https://www.governor.ny.gov/news/governor-cuomo-joined-vice-president-gore-announces-new-actions-reduce-greenhouse-gas-emissions>, dated October 8, 2015.

<sup>4</sup> NYPSC Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Supplemental Comments of the NYISO, dated July 8, 2016.

<sup>5</sup> See <http://www.dec.ny.gov/chemical/8403.html>.

<sup>6</sup> These proposals pertain to reducing emissions from small generators that participate in electric demand response programs and peaking generating units (mostly in New York City).

Mr. Zachary Smith  
October 1, 2018  
Page 3

and improve the health and welfare of its millions of residents and businesses. To achieve the public policy goals of reducing GHG emissions and improving air quality, the City is increasing access to renewables through solar and storage deployment and community distributed generation projects for low-income households. The City is also developing policies to increase adoption of electric vehicles and evaluating opportunities to access large-scale renewables. In the energy efficiency and buildings sector, the City is working to reduce energy use intensity in buildings, providing technical assistance to building owners to help reduce their energy usage and supporting creative financing opportunities for energy efficiency and emissions reduction investments. To improve air quality, the City has mandated the elimination of the use of heavy fuel oil for heating and generation purposes.

In 2016, the City released its Roadmap to 80x50, a comprehensive report based on the best available science and state-of-the-art GHG emissions modeling to identify and assess the measures and actions necessary to achieve the 80x50 goal.<sup>7</sup> In order to achieve this goal, one key finding is that over 70 percent of the electricity consumed within New York City will need to come from carbon-free power. This carbon-free power is the backbone to achieving deep decarbonization among many sectors, including buildings and transportation. Without predominant reliance on renewable resources, electrification of heating (such as with heat pumps) and transportation (through significant adoption of electric vehicles), the City and the State will fail to obtain the GHG reductions necessary to achieve the 80x50 goal. If significant amounts of beneficial electrification occur without decarbonizing the electricity supply, there potentially could be an increase in GHG and criterion pollutant emissions. Inasmuch as New York City comprises 35% to 40% of the power consumed within New York State, the State's ability to achieve its 80x50 goal is dependent on substantially reducing the carbon intensity of New York City's energy supply.

In addition, increasing transmission capacity to deliver renewable power into Zone J will lessen reliance on the fleet of inefficient and old generating facilities within New York City, approximately 70% of which will be over 50 years old when the Indian Point Energy Center ("IPEC") fully retires in 2021. With close to 45% of households living near or below the poverty line in New York City, poor air quality can disproportionately affect vulnerable New York City residents, who, because of income restrictions and living in a dense urban environment, may be less able to manage the negative impacts associated with poor air quality than residents in other parts of New York State. Further reductions in operations of the in-city fleet will improve local and regional air quality and contribute to compliance with the NAAQS.

Given this critical need to access additional renewable power to meet relevant State and City public policy goals, the City regularly evaluates different options for increasing New York City's reliance on renewable resources to meet demand. Part of this work has focused on the

---

<sup>7</sup> See "New York City's Roadmap to 80x50" ("Roadmap"); available at <http://www1.nyc.gov/site/sustainability/codes/80x50.page>.

Mr. Zachary Smith  
October 1, 2018  
Page 4

State's Bulk Power System and the role it can play in increasing access to renewable resources constructed in upstate areas and adjoining regions.

Indeed, the NYISO's July 27, 2018 presentation at the Electric System Planning Working Group ("ESPWG"), entitled "Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation" demonstrates that implementation of the CES will result in widespread transmission needs across New York. This presentation showed that overloads could occur throughout vast portions of the State, and thousands of MW of renewable generation could be prevented from serving consumer demand.<sup>8</sup> Further reductions in GHG emissions beyond 2030 will likely require additional upgrades to the Bulk Power System to meet downstate demand.

In response to the 2016 public policy needs solicitation process, the City and eleven other market participants identified mostly overlapping public policy needs. Most of the proposals advocated for a holistic approach that addresses the transmission needs arising from the CES and the increasing demand for renewable resources. After considering these proposals, the NYPSC decided "that further work is needed before determining that a Public Policy Requirement should be identified."<sup>9</sup> In making this decision, the NYPSC acknowledged that a holistic approach, which considers "possible changes in resources, including centralized generation and local resources" is needed.<sup>10</sup> The City respectfully urges the NYISO and NYPSC to take immediate and appropriate action to foster and facilitate compliance with the State's public policies and the ability of consumers in downstate areas and across the State to access the onshore and offshore renewable power that is being and may be constructed.

To provide some concrete recommendations for the public policy transmission needs process, and informed by the NYISO's July 27, 2018 presentation at the ESPWG meeting, the City performed an analysis of the Bulk Power System to understand the nature of the constraints that prevent New York City from fully accessing upstate renewable resources. Based on this analysis, the City offers the following recommendations.

1. Reducing Voltage Limitations Across The Central East And Total East Interfaces Will Facilitate Achievement Of Multiple Public Policies

The City's analysis revealed that the AC Transmission Project should alleviate most, if not all, of the thermal limitations that limit power flows across the UPNY-SENY interface. While that

---

<sup>8</sup> See NYISO ESPWG Meeting July 27, 2018 Presentation, slides 26 and 27.

<sup>9</sup> NYPSC Case 16-E-0558, In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2016, Order Addressing Public Policy Requirements for Transmission Planning Purposes (issued March 16, 2018) at p. 24.

<sup>10</sup> *Id.* at p. 25.

Mr. Zachary Smith  
October 1, 2018  
Page 5

project will improve many of the most significant constraints today, the “next line” of constraints will become binding, which will continue to limit power flows from upstate to downstate.<sup>11</sup>

Specifically, even with the inclusion of 1,200 MW of offshore wind directly interconnected into New York City and significant amounts of storage, the City’s analysis showed that Zone J would continue to rely on fossil fuel generated power for over 75% of its energy needs, and that there would be limited ability for resources from Zones A-F (which are predominantly non-carbon based) to contribute to serving New York City demand.

The City’s analysis determined that with the inclusion of the AC Transmission Project, other constraints become consequential. Most notably, both Central East and Total East continue to be among the primary constrained interfaces, with the constraints consisting of voltage rather than thermal limitations. The constraints are driven by the lack of reactive support, which will be exacerbated when IPEC closes. Most of the reactive support on the Bulk Power System historically has been provided by large baseload generating facilities. As these facilities retire, they no longer provide any reactive support. At the same time, although there are many important positive attributes of renewable resources, they do not provide adequate levels of reactive support and are not capable of replacing the MVARs that are lost with the retiring units. Unless more reactive support is added to the Bulk Power System, especially at the Central East and Total East interfaces, the constraints that restrict power flows to downstate load centers will persist. This is a critical first step, but other upgrades will be necessary (discussed below in point 2).

There are multiple methods of providing reactive power to the Bulk Power System. Capacitors can be added directly to the transmission system and are commonly used. Synchronous condensers are a second proven option. The City is not advocating for any specific technology. Rather, the NYISO should conduct a broad solicitation that allows for developers to propose any type of reliable, proven technology. Doing so should result in a robust set of responses and the ability to select the most cost-effective option for alleviating the voltage constraints.

The Notice requests that for each proposed public policy need identified, the proponent provide criteria for evaluation of solutions. To resolve the issue of voltage constraints at Central

---

<sup>11</sup> The City recognizes that some new transmission work has begun and supports the implementation of these projects. The AC Transmission Project will strengthen the transmission system from the Utica area to the Capital Region and then into the Lower Hudson Valley. However, the City’s modeling shows that this project by itself will not significantly increase the ability of upstate renewable power to be delivered to the more than nine million residents in and around New York City, particularly when accounting for the retirement of IPEC.

Mr. Zachary Smith  
October 1, 2018  
Page 6

East/Total East, the City proposes that the NYISO and NYPSC apply the following criteria to proposed projects:

- measure the amount of reactive power the project provides;
- assess the location of the reactive power source – to be effective, the source needs to be close to the critical location of the relevant voltage constraint (*e.g.*, providing reactive power in Albany would not suitably relieve a voltage constraint in Westchester County);
- evaluate the extent to which the project will minimize or eliminate the Central East/Total East voltage limitations;
- cost; and
- community and environmental impacts (*e.g.*, while a conventional generating facility could provide reactive power, it could have greater societal and environmental impacts than installing capacitors at one or more substations).

To be clear, all of these criteria should be applied to each proposal, and the selection of one or more projects should be based on a balancing of all of the criteria rather than a project's suitability under any single criterion.

The Notice further requests that proponents discuss how their proposals would fulfill the identified public policy need. The City believes that its proposal will meet two main public policy needs – the State's energy-related public policy goals, as set out in the 2015 SEP, and the State's goals to improve air quality, including compliance with the NAAQS.

First, expanding and strengthening the Bulk Power System, and in particular, the ability to deliver renewable power from renewable resources predominantly located in upstate New York to downstate load centers, will be necessary for the State to achieve the greenhouse gas reduction and clean energy goals discussed above. This is necessary because the City constitutes over one third of total energy consumed in New York State and is responsible for approximately 40% of the State's GHG emissions. Ensuring that the City can effectively decarbonize its electricity supply as it pursues beneficial electrification in the heating and transportation sectors will be crucial to supporting the attainment of the State's policy goals in 2030 and 2050.

Second, increasing access to renewable resources and reducing reliance on fossil-fueled generation, particularly in downstate air quality non-attainment zones (*e.g.*, ozone), will help the State improve air quality and contribute to compliance with the NAAQS, while reducing the negative health outcomes associated with criteria pollutant impacts.

Mr. Zachary Smith  
October 1, 2018  
Page 7

2. Additional Transmission Is Needed To Connect Renewable Resources To Downstate Load Centers

While addressing the constraints at Central East and Total East are a critical step to improving access by downstate load centers to the renewable-rich regions in the Western and Northern parts of New York State, other upgrades to the Bulk Power System also will be necessary to meet the full set of New York State and New York City public policy goals discussed above.

The sheer magnitude of the challenge is well demonstrated by figures from the NYISO's 2018 Power Trends report, which note that 64.8% of the upstate summer installed capacity is comprised of carbon-free resources, while only 15.5% of the downstate summer installed capacity is carbon-free.<sup>12</sup> If the numbers are recalculated as of 2021, when the upstate coal plants and IPEC are expected to be retired, the difference is further amplified. Upstate, the percentage of the generation mix comprised of carbon-free resources increases to 70.0%. Downstate, the percentage decreases to 7.5%.<sup>13</sup>

From an energy perspective, the differences are more glaring: 91.1% of the energy produced upstate in 2017 came from carbon-free resources, while only 30% of the energy produced downstate came from carbon-free resources.<sup>14</sup> Of this amount, 77% of the energy was from IPEC. Only 44 MW of renewable resources are expected to be added downstate by 2021, so the percentage of the energy from carbon-free resources at that time will be minimal – likely less than 5% of the total amount of energy produced.

Given the above statistics about the State's current and projected resource mix and energy production, it is clear that downstate load centers have inadequate access to renewable resources, which based upon the assumptions used in the NYISO's public policy based transmission needs analysis, are almost entirely being added to Zones A-F (the exception is offshore wind).

As discussed above, the City's analysis demonstrated that reducing the voltage constraints at Central East/Total East will provide material benefits and should be pursued to facilitate achievement of the State's public policy goals. However, reducing the voltage constraints at Central East/Total East will not be enough – once those constraints are alleviated and additional renewable generation is added, other constraints on the uninterrupted flow of renewable power will emerge. There is significant value in doing a more holistic examination of the entire

---

<sup>12</sup> "Power Trends 2018," issued May 3, 2018, at p. 24, Figure 14.

<sup>13</sup> The 2021 information is based on Figures 14 and 15 from Power Trends 2018, adjusted by the data in Figures 11 and 12 of the "2018 Reliability Needs Assessment Report," dated September 26, 2018.

<sup>14</sup> Power Trends 2018, at p. 25, Figure 15.

Mr. Zachary Smith  
October 1, 2018  
Page 8

transmission system to understand how constraints will change and to prioritize what investments are needed to ameliorate or minimize the constraints.

The City's analysis assumed 1,200 MW of offshore wind interconnecting into New York City, which will provide an incremental but insufficient increase to the ability of the City to access renewables. However if there are challenges to interconnecting currently planned and potential future expansion of offshore wind into Zone J, then the inequity of renewables access (and its concomitant air quality benefits) by downstate load centers relative to upstate New York would be further exacerbated.<sup>15</sup> Accordingly, in addition to looking at how to improve the flow of renewable energy from upstate to downstate, the NYISO and the NYPSC should conduct a comprehensive analysis of the onshore transmission needed to allow at least 2,400 MW of offshore wind to interconnect into downstate load centers. Even if all proposed 2,400 MW is connected to downstate load centers, this would amount to only about 10% of the total downstate capacity, with current working assumptions of offshore wind's capacity factor at around 40%. In order to achieve 2030 and 2050 goals, both offshore wind and significant access to upstate renewables by downstate load centers will be necessary.

Adding the AC Transmission Project, ameliorating the voltage constraints at Central East/Total East, understanding what is needed to interconnect significant and growing amounts of offshore wind to downstate load centers, and potentially strengthening some existing paths while exploring the development of additional paths will be necessary to support the achievement of the CES in 2030 and the City's and State's air quality goals, but also to provide a foundation for successful achievement of more challenging deep decarbonization goals that have been set for 2050 by both the City and the State. Such a multi-faceted approach to increasing power flows from upstate renewable resource generation sites to downstate load centers is consistent with the holistic approach discussed by the NYPSC in its Order on the 2016 public policy transmission needs proposals. Moreover, the City's analysis established that a multi-faceted approach would best help to achieve the State's public policy goals as it could result in a reduction in reliance on in-city fossil generation and reduce GHG, SO<sub>2</sub>, NO<sub>x</sub> and PM<sub>2.5</sub> emissions within New York City.

Conversely, the analysis also revealed that fossil generation would continue to comprise a majority of the supply resources needed to meet New York City demand. These results underscore the overall magnitude of the challenge in achieving successful decarbonization of the downstate electric supply and achieving the City's and State's 80x50 public policy goals. They also

---

<sup>15</sup> As envisioned in the draft request for proposals released by the New York State Energy Research and Development Authority (September 20, 2018), offshore wind projects will not be required to interconnect to Zones J and/or K. The draft solicitation allows developers to connect to other regions provided they have transmission paths into the New York Control Area.



Mr. Zachary Smith  
October 1, 2018  
Page 9

demonstrate that an aggressive and broad long-term incremental transmission strategy is needed to achieve these goals.

For the foregoing reasons, the City respectfully requests that adding additional transmission from the locations of current and future large-scale renewable resources (upstate and offshore) to downstate load centers be identified as a transmission need driven by public policy requirements pursuant to Section 31.4 of the OATT.

With respect to the criteria to be applied to evaluate solutions for this public policy driven transmission need, the City proposes the following:

- the extent to which the project increases overall power flows from upstate and/or offshore renewable resources to downstate load centers and increases downstate access to renewable resources (e.g., potentially measured by the growth in the share of renewables as part of the resource mix supplying downstate load centers);
- the extent to which the project provides resiliency and/or reliability benefits to downstate load centers;
- the costs of the project and impact to consumer prices as compared to other options to provide a similar amount of renewable capacity to downstate load centers (simply looking at cost-effectiveness of the project may not be appropriate as the projects are not necessarily intended to lower downstate energy prices); and
- the magnitude of air quality benefits associated with reducing reliance on in-city fossil generating facilities.

The Notice further requests that proponents discuss how their proposals would fulfill the identified public policy need. The analyses conducted by the NYPSC in support of the CES, as well as the NYISO's recent analysis discussed at the ESPWG meeting on July 27 and the City's own analysis demonstrate that there is a need for more transmission from upstate generation areas to downstate load areas. The State's overall energy public policy is focused on reducing reliance on fossil fuels and increasing reliance on renewable resources. This objective is amply demonstrated by the State Energy Plan, the CES, and the NYPSC's Reforming the Energy Vision Initiative. Increasing downstate consumers' access to renewable resources and addressing environmental justice concerns is unquestionably consistent with and in furtherance of this policy objective. Finally, improving air quality in New York is a separate public policy objective of the State, and this project would aid the State in reducing harmful air emissions in New York City and lessen the incidence of respiratory ailments and criterion-pollutant-induced emergency room visits.

Mr. Zachary Smith  
October 1, 2018  
Page 10

For all of the foregoing reasons, and consistent with the NYISO's own studies, the 2015 New York State Energy Plan, and the CES, the City respectfully requests that the NYISO submit the above two proposals to the NYPSC pursuant to Section 31.4.2 of the OATT.

Respectfully Submitted,

A handwritten signature in black ink, appearing to read "Susanne DesRoches", with a long horizontal flourish extending to the right.

Susanne DesRoches  
Deputy Director, Infrastructure + Energy

## New York Power Authority Response

### to NYISO Solicitation of Transmission Needs Driven by Public Policy Requirements

#### **1. Introduction**

The New York Power Authority (“NYPA”) submits this filing in response to the New York Independent System Operator’s (“NYISO”) August 1, 2018 solicitation of transmission needs driven by Public Policy Requirements (“PPRs”).<sup>1</sup> NYPA identifies a number of PPRs driving the need for transmission upgrades (“Transmission Needs”) and requests that NYISO forward to the New York State Public Service Commission (“PSC”) the Transmission Needs identified below.

#### **2. Executive Summary**

Transmission Needs are being driven primarily by a combination of public policies, including: a) PSC initiatives established in the Clean Energy Standard (“CES”) Order<sup>2</sup> and the Reforming the Energy Vision (“REV”) Order;<sup>34</sup> b) the City of New York’s 80 x 50 goal; c) the New York Department of Environmental Conservation’s (“DEC”) implementation of the Regional Greenhouse Gas Initiative (“RGGI”); and d) the DEC’s draft regulations that will require a substantial reduction in NOx emissions from peaking electric generators (“Peaker Regulations”). All these PPRs and draft PPRs drive the Transmission Needs identified below. Furthermore, the Power Authority Act<sup>5</sup> is an additional driver for the Northern Transmission Need, as discussed below. The PSC’s offshore wind (“OSW”) Order<sup>6</sup> drives a need to build transmission

---

<sup>1</sup> Capitalized terms used and not otherwise defined herein shall have the meaning ascribed to those terms in NYISO’s Open Access Transmission Tariff (“OATT”) or NYISO’s Market Administration and Control Area Services Tariff (“Services Tariff”), as context requires. The reference to “Transmission” in the context of this submission shall mean “Bulk Power Transmission Facilities” (“BPTF”) as defined in the NYISO tariffs.

<sup>2</sup> Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, Order Adopting a Clean Energy Standard (issued August 1, 2016) (“CES Order”).

<sup>3</sup> Case 14-M-0101, Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision, Order Instituting Proceeding (issued April 25, 2014)(“REV Order”)

<sup>4</sup> NYPA is not subject to the CES or REV Orders, but is voluntarily working in coordination with our customers to meet the requirements laid out by the Orders

<sup>5</sup> Chapter 772 Laws of New York Section 1, 1931

<sup>6</sup> Case 18-E-0071, In the Matter of Offshore Wind Energy, Order Establishing Offshore Wind Standard and Framework for Phase 1 Procurement (issued July 12, 2018)(“OSW Order”).

in southeast New York to efficiently interconnect and deliver the output from new offshore wind generation resources (“OSW Transmission Need”).

The most immediate Transmission Need is in northern New York (“Northern Transmission Need”). Today, nearly 1,600 MW of local renewable generation, along with additional imports of Canadian hydropower, is bottled in NYISO Zone D and is frequently subject to negative pricing during periods of transmission congestion. Renewable generation continues to grow in the northern New York region as well, with over 2,100 MW of renewable projects currently in the queue to interconnect in northern New York.<sup>7</sup> Without upgrades to increase transmission capacity into and through northern New York, this renewable power growth may be at risk, and the renewable power that is built will be unable to fully serve downstate consumers. Upgrading the key transmission corridors to facilitate the deliverability of existing and future northern New York generation is essential to achieving the goals of the CES and REV. NYPA along with other stakeholders identified the Northern Transmission Need in 2016, and since then market experience has confirmed and sharpened this need.

NYPA also believes that as renewable growth accelerates across the State to meet CES and REV goals similar bottling and transmission constraints will arise in other areas of the State. Consistent with that expectation, NYISO has identified other areas of the State that will experience renewable generation bottling in a 2030 environment in which the CES renewable goals are achieved. NYPA believes that the PPRs identified in these comments drive additional Transmission Needs and should be addressed by the PSC and NYISO in the PPTN process.

The PSC should also consider that the NYISO stakeholders are developing a groundbreaking market enhancement to price carbon into the NYISO energy markets. This is a welcome improvement for market efficiency, but will only be fully effective if the transmission

---

<sup>7</sup> NYISO Interconnection queue, as of 9/19/2018, wind (“W”) and solar (“S”) resources located in the 7 counties located in Northern NY (within zones D and E): Clinton, Essex, Franklin, Hamilton, Jefferson, Lewis and St. Lawrence counties.

system is operating efficiently. In order to allow competitive carbon pricing to work effectively to incentivize a shift of environmentally friendly generation, transmission constraints like those identified in these comments should be promptly addressed. In doing so, New York's electricity markets can serve as an example for the rest of the country.

Additionally, proactively addressing transmission constraints to meet the goals of the CES and REV will also help to address transmission limitations that may arise with the DEC's draft NOx limitations, which could impact a large number of peaking units in the State. In general, a more robust transmission system will help ensure an efficient shift in the generation mix and avoid inefficient market outcomes such as the need for reliability-must-run contracts and increasing occurrences of very high (or very highly negative) energy prices.

Given the time required to design, permit and construct transmission enhancements, and the aggressive schedule driven by the CES, it is important that the PSC move as expeditiously as possible in identifying Transmission Needs. Thus, NYPA encourages the PSC to establish or declare Transmission Needs driven by PPRs in specific region(s) of the State.

### **3. Public Policy Requirements**

#### **a. Clean Energy Standard**

The CES mandates "that 50% of electricity consumed in New York by 2030 will be generated from renewable resources."<sup>8</sup> In addition, among other objectives, the CES Order endorses the following mechanism of relevance to Respondents' proffered Transmission Needs:

- Jurisdictional obligations on load serving entities to ensure the procurement of renewable credits generated in New York or delivered into New York;
- Jurisdictional maintenance obligations on distribution utilities to maintain the contributions of older, small, renewable facilities; and
- Continued participation and leadership in [RGGI].<sup>9</sup>

---

<sup>8</sup> CES Order at p.12.

<sup>9</sup> Id. at 13.

In particular, the CES Order requires all New York load-serving entities (“LSEs”) “to serve their retail customers by procuring new renewable resources, evidenced by the procurement of qualifying [Renewable Energy Credits].”<sup>10</sup>

Staff of the New York State Department of Public Service (“DPS Staff”) has determined that “slightly more than 33,700 GWh of incremental renewable generation must be added to the State’s fuel mix” in order to achieve the CES goal of 50% renewable by 2030 (“50 x 30”).<sup>11</sup> NYISO estimated that in order to meet this target, the CES will require: 1) approximately 25,000 MW of solar capacity, to meet the targets solely with solar resources; 2) approximately 15,000 MW of wind capacity, to meet the targets solely with wind resources; or 3) approximately 4,000 MW of hydroelectric capacity, to meet the targets solely with high availability hydroelectric resources.<sup>12</sup> This expected proliferation of renewable resources throughout the State is virtually certain to require increased transmission capacity throughout certain regions of the State. Those constraints have already been identified by the NYISO and other stakeholders in northern New York, western New York and the southern tier.

Historically, New York has relied on large-scale hydropower as the backbone of the State’s renewable supply portfolio, with hydro representing over 86% of the State’s renewable baseline.<sup>13</sup> In order to effectively leverage the use of this existing hydroelectric power in conjunction with incremental non-hydro renewable resources to meet these targets, new transmission connecting these resources (particularly those in northern New York) to load centers will be required.

---

<sup>10</sup> Id. at 14.

<sup>11</sup> Staff White Paper on Clean Energy Standard, Department of Public Service, Case 15-E-0302, Jan. 25, 2016 (“CES White Paper”), p. 7.

<sup>12</sup> These estimates of new renewable megawatts in New York are calculated based on the historic demonstrated capacity factors for these categories of generators. From NYISO Comments on Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, April 22, 2016.

<sup>13</sup> CES White Paper, Appendix B.

The targets outlined in the CES Order will require significant quantities of incremental renewable energy to be delivered to all the load centers in New York, supplied from resources within the State and imported from external control areas. While near-term goals may be met with existing infrastructure, existing intrastate transmission and interties between New York and adjacent regions likely will not be sufficient to physically deliver cost competitive renewable energy supplies at the levels needed to meet more aggressive goals in future years. Indeed, the PSC has directed DPS Staff to work with stakeholders “to ensure that the bulk transmission system is sufficiently modernized such that it can fully support the State’s renewable goals.”<sup>14</sup>

b. Reforming the Energy Vision

The PSC has identified six policy objectives for REV: 1) fuel and resource diversity, 2) system reliability and resiliency, 3) reduction of carbon emissions, 4) system wide efficiency, 5) enhanced customer engagement, and 6) market animation.<sup>15</sup> Transmission expansion in Northern New York and other parts of the State will result in increased bulk electric system flexibility and reliability, and will enable a more efficient dispatch of bulk electric system renewable resources. These outcomes complement the PSC’s efforts under the CES and at the distribution level, and support achieving the REV objectives of carbon emission reduction, fuel diversity, system reliability and system efficiency.

c. New York City’s 80 x 50 Goal

The City of New York has committed to an environmental goal of reducing greenhouse gas emissions by at least 80 percent by 2050 (“80 x 50”), with an interim goal of reducing emissions 40 percent by 2030.<sup>16</sup> The City has taken a number of steps in support of the goal, although the 80 x 50 goal has not yet been codified. It is expected that the 80 x 50 goal will

---

<sup>14</sup> CES Order at p.75.

<sup>15</sup> REV Order at p. 2.

<sup>16</sup> <https://www1.nyc.gov/site/sustainability/codes/80x50.page>

drive development of renewable resources throughout the State, leading to the need for transmission to move the power to downstate load centers.

d. Regional Greenhouse Gas Initiative

RGGI is a cooperative effort among nine states – Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont – which seeks to “stabilize and then reduce anthropogenic emissions of CO<sub>2</sub>, a greenhouse gas, from CO<sub>2</sub> budget sources in an economically efficient manner.”<sup>17</sup> When renewable assets such as NYPA’s St. Lawrence Facility, upstate wind, or Canadian hydropower are constrained and their output is limited, fossil fuel generation must be dispatched, which not only increases carbon and other air emissions, but also drives up the price of RGGI allowances and consumer costs.

e. DEC Draft “Peaker Rule”

The DEC has begun discussing with stakeholders a rule to apply new, more stringent limits to NO<sub>x</sub> emissions on Simple Cycle Combustion Turbines, typically peaking units. The rule is proposed to be phased in between 2023 and 2025 and may impact a large amount of peaking generation in the State. The DEC is expected to move its draft regulation through its stakeholder process later this year.

f. Power Authority Act

Relieving transmission constraints in Northern New York will effectuate the objective of the Power Authority Act.<sup>18</sup> The Power Authority Act directs NYPA, among other things, to develop, maintain, manage and operate the St. Lawrence Facility “for the creation and development of hydroelectric power in the interest of the people of this state.”<sup>19</sup> Expanded transmission in Northern New York will allow NYPA to more fully utilize the St. Lawrence Facility to generate clean and low cost power in the interest of the people of New York.

---

<sup>17</sup> 6 NYCRR § 242-1.1.

<sup>18</sup> Chapter 772 Laws of New York Section 1, 1931

<sup>19</sup> N.Y. Public Authorities Law, Article 5, Section 1001.



g. OSW Order

In its recently issued OSW Order, the PSC adopted an offshore wind requirement (“OSW Standard”) with a goal of obtaining 2.4 GW of OSW generation delivering power to New York by 2030, to help achieve the 50 x 30 CES goal. It is likely that the continued build out of OSW generation will necessitate transmission enhancements onshore and offshore to support a robust, competitive offshore wind market and to ensure the renewable power is deliverable to load centers.

**4. Transmission Needs**

a. Northern Transmission Need

The bulk-power transmission system in northern New York is currently constrained under certain system configurations and cannot support the simultaneous deliverability of the full output of NYPA’s St. Lawrence Facility, local wind resources and renewable imports from Canada, much less future wind and solar generation from projects across the St. Lawrence valley. This situation has been and may continue to be exacerbated by a reduction in industrial load in the region and increased penetration of renewable resources, including renewable imports, needed to satisfy the CES and other PPRs. Expanding the transmission system will be essential to increasing the deliverability of new and existing renewable resources, both within and outside of New York State, and will ensure that all regions of the State receive the benefits of cleaner generation and reduced air pollution resulting from the CES and the REV initiatives. If transmission upgrades remain unaddressed, renewable development in the region may be inhibited, threatening progress on the CES, NYC’s 80 x 50 goal, and other PPRs.

In response to a DPS request, NYISO recently conducted a study, called the Renewable Constraints Assessment, to identify areas in which transmission constraints currently exist or are likely to occur as a result of new or existing bottled renewable resources.<sup>20</sup>

---

<sup>20</sup> See, Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets, ESPWG/TPAS meeting material, July 27, 2018:

The Renewable Constraints Assessment confirmed the Northern Transmission Need, finding that in both the Summer peak and Summer light load scenarios with baseline renewable additions transmission overloads occurred on the 230 kV system in zone D and in some cases zone E, which “is consistent with NYISO’s current operating experience.”<sup>21</sup> In this study, the NYISO found that in 2030 with a full build-out of renewables to achieve the 2030 CES goal, over 1,000 MW of renewable generation will be bottled in the northern New York region.

Even the current level of renewable penetration in the region has created inefficiencies and system conditions that limit renewable output. At times the constrained transmission system in the region necessitates the spilling of water at the St. Lawrence Facility and other inefficiencies, including market prices that have frequently reached negative values at an increasing rate over the past few years. In 2017 (continuing through August of 2018), negative energy pricing occurred in around 7% of real-time intervals and reached extreme levels below negative \$500/MWh (see *Figure 1*).<sup>22</sup> In 2017, negative pricing was present even in the day-ahead market. Curtailment of wind generation in the North region is the highest of any region in the State (see *Figure 2*). Negative pricing and ultimately curtailments are detrimental to renewable projects and if left unaddressed may persuade renewable developers to not build their projects in New York.

---

[http://www.nyiso.com/public/webdocs/markets\\_operations/committees/bic\\_espwg/meeting\\_materials/2018-07-27/PPTN\\_genpockets\\_ESPWG\\_20180727.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2018-07-27/PPTN_genpockets_ESPWG_20180727.pdf) (“Renewable Constraints Study”).

<sup>21</sup> Id. at 20.

<sup>22</sup> Based on real-time pricing at the St Lawrence generator bus for 2017 (Source: NYISO)

Figure 1: Frequency of negative energy prices at the St. Lawrence generator bus<sup>23</sup>

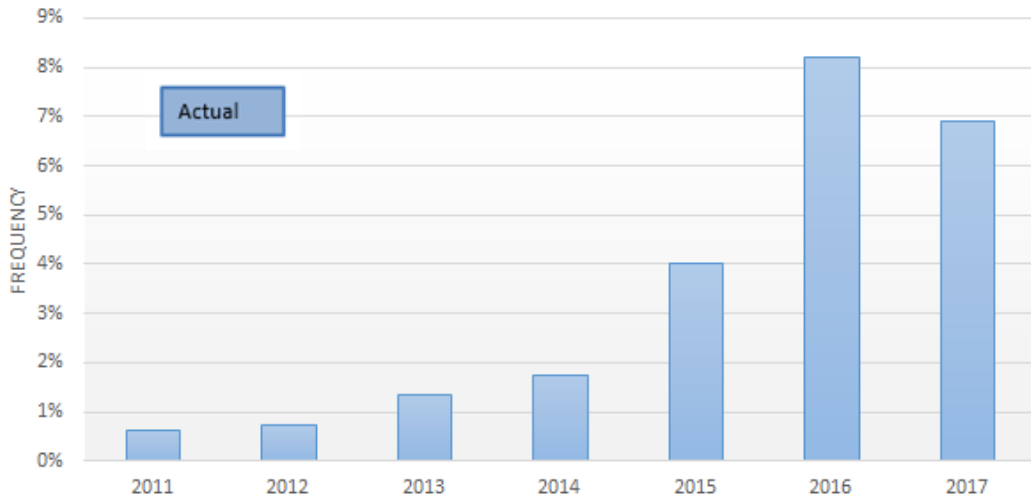
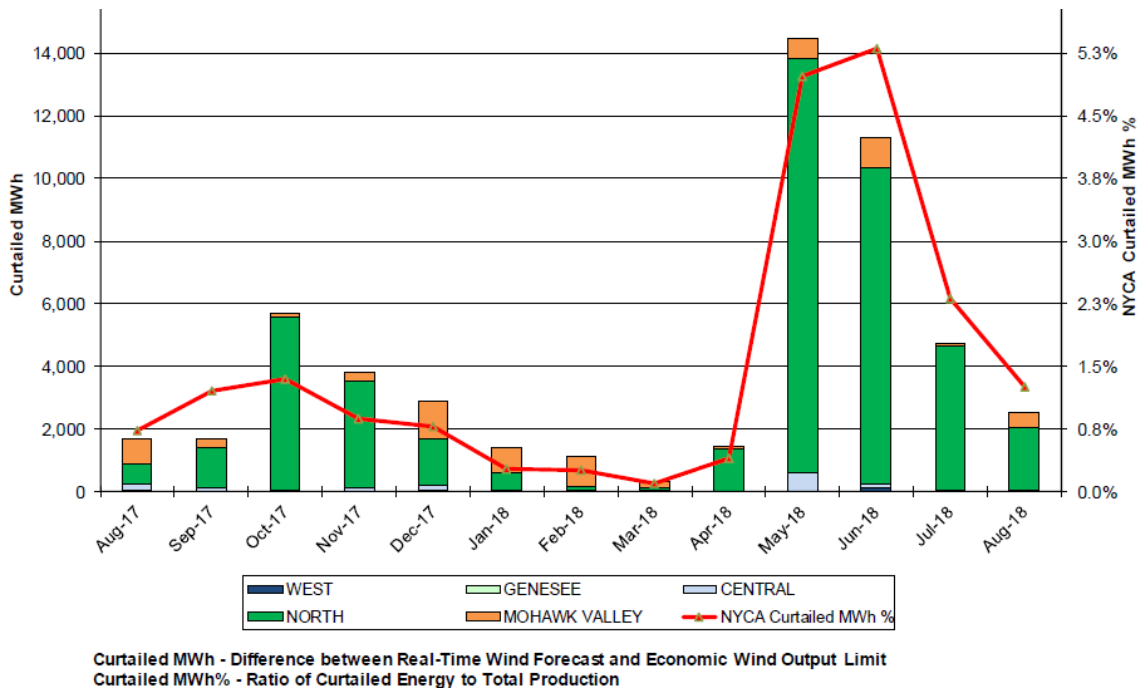


Figure 2: Wind performance: Monthly energy curtailment (wind capacity 1809MW)<sup>24</sup>



The NYISO Independent Market Monitor (“IMM”) has also pointed out these inefficiencies in multiple reports. Most recently, the IMM’s Quarterly Report from Q2 2018,

<sup>23</sup> Based on real-time pricing at the St Lawrence generator bus between 2011 and 2017 (Source: NYISO)

<sup>24</sup> Operations Performance Metrics, Monthly Report, August 2018, Operations & Reliability Department, NYISO, p. 10: [http://www.nyiso.com/public/webdocs/markets\\_operations/committees/mc/meeting\\_materials/2018-09-26/03%20Operations\\_Report.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/mc/meeting_materials/2018-09-26/03%20Operations_Report.pdf)

negative price spikes in the North Zone”.<sup>25</sup> The IMM Q2 2017 report also notes that “Flows from the North Zone accounted for 21 percent of real-time congestion as transmission outages and derates and hydroelectric output both increased, and led to several extreme negative pricing events.”<sup>26</sup> Additionally, the IMM 2017 State of the Market Report notes that: “Load was under-scheduled most in the North Zone where real-time prices can fall to very low (negative) levels when transmission bottlenecks limit the amount of renewable generation and imports from Ontario and Quebec that can be delivered south towards central New York.”<sup>27</sup> The market signal that these negative pricing events sends runs counter to the State’s renewable goals and discourages renewable energy development in the region. The possible addition of over 2,100 MW of new wind and solar projects in northern New York, as reflected in the NYISO interconnection queue,<sup>28</sup> potential increased renewable imports from Canada, and possible additional load reductions upstate could exacerbate transmission constraints and further inhibit the delivery of clean, renewable energy and its environmental benefits to the State’s consumers.

A transmission need to increase the interface capacity between New York and adjacent control areas will improve system reliability in both regions, by allowing more energy to flow across the borders when needed and enabling increased emergency assistance between the neighboring systems. In the case of Quebec, there is a natural complement between the two markets, since the Hydro Quebec (“HQ”) system is winter peaking and New York’s system is summer peaking. When renewable assets such as HQ hydropower are constrained and their

---

<sup>25</sup> Quarterly Report on the New York ISO Electricity Markets Second Quarter of 2018, August 2018. [https://www.potomaceconomics.com/wp-content/uploads/2018/08/NYISO\\_Quarterly-Report\\_2018-Q2.pdf](https://www.potomaceconomics.com/wp-content/uploads/2018/08/NYISO_Quarterly-Report_2018-Q2.pdf)

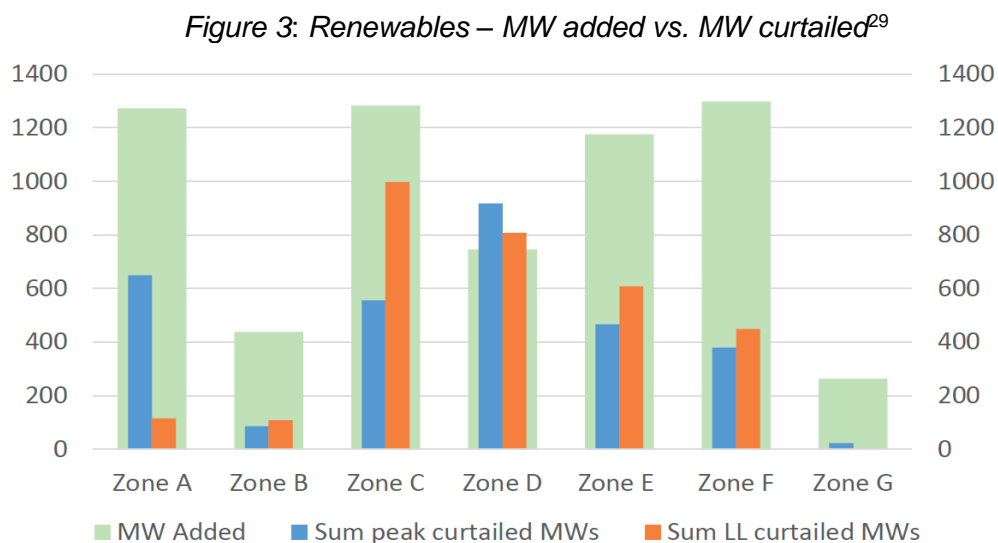
<sup>26</sup> Quarterly Report on the New York ISO Electricity Markets Third Quarter of 2017, November 2017. [https://www.potomaceconomics.com/wp-content/uploads/2018/03/NYISO-Quarterly-Report\\_2017-Q3\\_\\_11-22-2017\\_Final.pdf](https://www.potomaceconomics.com/wp-content/uploads/2018/03/NYISO-Quarterly-Report_2017-Q3__11-22-2017_Final.pdf)

<sup>27</sup> 2017 State of the Market Report for the New York ISO Markets, Potomac Economics, May 2018. [https://www.potomaceconomics.com/wp-content/uploads/2018/06/NYISO-2017-SOM-Report-5-07-2018\\_final.pdf](https://www.potomaceconomics.com/wp-content/uploads/2018/06/NYISO-2017-SOM-Report-5-07-2018_final.pdf)

<sup>28</sup> NYISO Interconnection queue, as of 9/19/2018, wind (“W”) and solar (“S”) resources located in the 7 counties located in Northern NY (within zones D and E): Clinton, Essex, Franklin, Hamilton, Jefferson, Lewis and St. Lawrence counties.

output is limited, fossil fuel generation must be dispatched, which not only increases carbon and other air emissions, but also drives up the price of RGGI allowances and consumer costs. Allowing additional imports from Canada would help support New York’s renewable growth by balancing intermittency and providing diversity of supply.

The importance of addressing the Northern Transmission Need expeditiously is graphically evidenced in *Figure 3* below, from the Renewable Constraints Assessment, showing the impact of renewable additions on the level of required curtailment under the current transmission system.



**b. Transmission Need(s) in Potentially Constrained Regions**

The circumstances facing new and existing renewable resources in certain other parts of the State (“Potentially Constrained Regions”) are likely to develop into similar conditions to those found today in northern New York. The Renewable Constraints Assessment showed that in addition to the Northern Transmission Need, Potentially Constrained Regions include the Southern Tier, Western and Capital regions of New York.

<sup>29</sup> Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets, Prepared by the NYISO, Presented by Yachi Lin at the July 27, 2018 ESPWG/TPAS working group meeting, p. 28

The NYISO interconnection queue reflects nearly 1,150 MW<sup>30</sup> of planned renewable resource (wind and solar) additions slated for the southern tier, over 1,400 MW<sup>31</sup> in western New York, and over 500 MW<sup>32</sup> in central New York. Wind and solar generation may face curtailment due to transmission constraints in these Potentially Constrained Regions as additional renewable resources are developed. Limited capacity to accommodate incremental wind and solar power additions represents a possible impediment to future renewable generation development in these Potentially Constrained Regions.

The deliverability of renewable power from these Potentially Constrained Regions throughout New York State, but especially to southeastern New York, in support of the City's 80 x 50 goal, will be important to ensure that all regions of the State receive the benefits of cleaner generation and reduced air pollution resulting from the CES and REV initiatives.<sup>33</sup> Expanding the transmission system will be essential to increasing the deliverability of new and existing renewable resources in one or more of these Potentially Constrained Regions.

Given the immediacy of the Northern Transmission Need, NYPA recommends that the NYISO prioritize it in this public policy planning cycle. The Southern Tier and other Potentially Constrained Regions should be monitored and addressed as a secondary priority, in a subsequent planning cycle.

c. OSW Transmission Need

The OSW Order clearly establishes a Transmission Need to build out the downstate (Long Island and NYC) transmission system to achieve the goals of the OSW Standard. Phase 1 of the OSW Standard calls for each developer to arrange its own interconnection to the

---

<sup>30</sup> NYISO Interconnection queue, as of 9/19/2018, wind ("W") and solar ("S") resources within the 8 counties located in the Southern Tier (within zones C and E): Broome, Chemung, Chenango, Delaware, Schuyler, Steuben, Tioga, and Tompkins counties.

<sup>31</sup> NYISO Interconnection queue, as of 9/19/2018, wind ("W") and solar ("S") resources located in the 5 counties located in Western NY (zone A): Allegany, Chautauqua, Cattaraugus, Erie, and Niagara counties.

<sup>32</sup> NYISO Interconnection queue, as of 9/19/2018, wind ("W") and solar ("S") resources located in the 5 counties located in Central NY (within zones C and E): Cayuga, Cortland, Madison, Oswego and Onondaga counties.

<sup>33</sup> See, City of New York comments, Case 15-E-0302 (April 22, 2016) p. 13-16.

transmission system. However for future phases, it will likely be more cost effective for consumers if an offshore network is constructed, to which the various OSW projects may interconnect, rather than having each developer make its own interconnection arrangement. Such a comprehensive approach would avoid the potential that an early stage OSW project “locks-up” an advantageous interconnection point thereby increasing the costs, or in the worst case foreclosing feasible interconnection opportunities, of other, potentially lower cost, later arriving resources. A comprehensive and integrated approach to interconnecting the potentially numerous OSW resources to the transmission grid can provide significant efficiencies that will benefit loads and LSEs and will support a competitive wholesale market which consumers will benefit from.

## **5. Benefits**

In its Western PPR Order, the PSC found that relieving persistent transmission constraints and increasing transmission capacity in the vicinity of NYPA’s Niagara Power Plant would increase the availability of generation from that facility as well as access to renewable generation via imports from Ontario, and explained that:

Increased dispatch of these renewable and economical resources could produce significant benefits to the State in terms of reduced air emissions and energy costs. Congestion relief may also have significant system reliability benefits, including increased operational flexibility, efficiency, and avoiding the need to maintain generation that would otherwise retire.<sup>34</sup>

Most of the benefits that the PSC found would inure to New Yorkers from increased access to renewable resources in the western part of the State are equally available via increasing access to the St. Lawrence facility and other renewable resources located in northern New York and the Potentially Constrained Regions. Transmission upgrades in northern New York, the Potentially

---

<sup>34</sup> Case 14-E-0454, In the Matter of New York Independent System Operator, Inc.’s Proposed Public Policy Transmission Needs Consideration, Order Addressing Public Policy Requirements for Transmission Planning Purposes (issued July 20, 2015)(the “Western PPR Order”), p. 26.

Constrained Regions and for OSW would provide many additional benefits, including the following:

a. Environmental Benefits

Emissions would fall with the introduction of additional wind and hydro resources, decreasing further as more renewable energy is able to flow downstate. As additional renewable generation is able to flow out of northern New York and the Potentially Constrained Regions, demand across the State can be met with fewer fossil fuel generators. NYISO modeling has shown that the inclusion of additional transmission in northern New York will decrease total carbon emissions statewide by approximately one million tons per year.<sup>35</sup> Transmission to enable OSW development will provide downstate load centers with direct access to renewable resources which will balance the build out of renewables across the state and help the State reach its environmental goals in an efficient and cost effective manner.

b. Production Cost Savings

Additional transmission capacity would enable renewable generators to run without threat of curtailment, avoiding the need to run costlier and less efficient fossil fuel plants. Savings are also realized through reduced cycling of plants and avoidance of reliability-must-run conditions. Production Cost Savings benefits should capture the benefits of wholesale market competition and the benefits from relieving congestion.

c. Fuel Diversity

New York State obtains electricity from a variety of sources including fossil fuel plants, nuclear, and renewable sources such as hydro, wind, and solar. Transmission expansion can provide increased access to power from this diverse portfolio of fuel sources, yielding increased reliability, reduced price volatility and enhanced market efficiency. As New York has become

---

<sup>35</sup> NYISO modeling as part of NYPA's Power Flow Improvement study: scenario 1) modeling an additional 230 kV Moses-Adirondack-Porter line and 700MW injection of hydro from HQ at Dennison, and the scenario 2) modeling an additional 230 kV Moses-Adirondack-Porter line and the AC Proceedings



increasingly dependent upon natural gas (in 2015 natural gas represented over 41% of the State's generation mix<sup>36</sup>), the State is investing in renewables as a way to mitigate the potential risks of over-dependence on natural gas generation. Ensuring complete access to the State's hydroelectric resources, such as the St. Lawrence facility, can play an integral role in improving fuel diversity in New York. By maximizing the hydro supply available to New York, the State can also leverage resources capable of providing the reliable and flexible characteristics that the New York power system currently depends on.

d. Infrastructure Investment Savings

Certain transmission facilities in northern New York and the Potentially Constrained Regions are at or near the end of their useful lives and will require life extension investments. The New York State Transmission Assessment and Reliability Study ("STARS"), Phase II Study Report identified a potential need to replace nearly 4,700 miles of transmission over the next 30 years.<sup>37</sup> Savings can be realized if these investments can be done as part of a comprehensive program that considers future growth of renewables in determining the most efficient approach to transmission system life extensions.

## 6. Evaluation Criteria

NYPA proposes the following criteria to be used in evaluating projects proffered to satisfy each of the proposed Transmission Needs:

- Ability to provide increased development of renewable resources and decreased renewable curtailment and negative pricing;
- Ability to enable complete utilization of existing and expected future renewable and carbon-free generation resources, including the St. Lawrence Facility, under an array of potential future system conditions (including possible regional industrial load reductions);
- Contribution toward enhancing and refurbishing transmission facilities that are nearing the end of their useful lives;
- Economic benefits, including reduction in Demand\$Congestion and system-wide production costs;
- The solution's contribution to meeting resource adequacy requirements with the lowest possible Installed Reserve Margin;

---

<sup>36</sup> 2016 Load & Capacity Data Report ("Goldbook"), NYISO, p. 61.

<sup>37</sup> New York State Transmission Assessment and Reliability Study ("STARS"), Phase II Study Report, April 30, 2012

- Especially for OSW, the ability to support open access to bulk-power transmission and facilitate wholesale market competition;
- Include allowance and possible preference for transmission solutions that incorporate energy storage applications that will provide wider benefits for the reliability and economics of the system with increased renewables.

## **7. Conclusion**

For the reasons set forth above, NYPA requests that NYISO submit to the PSC its proposal that the PSC establish the Northern Transmission Need, the OSW Transmission Need and one or more Transmission Needs addressing the Potentially Constrained Regions.

Respectfully submitted,

*Glenn D. Haake*

Glenn D. Haake  
Special Counsel  
New York Power Authority  
30 South Pearl Street, 10<sup>th</sup> Floor  
Albany, NY 12207  
[Glenn.Haake@nypa.gov](mailto:Glenn.Haake@nypa.gov)

Dated: October 1, 2018

**Stuart A. Caplan**  
stuart.caplan@troutman.com

October 1, 2018

Mr. Zachary Smith  
Vice President, System & Resource Planning  
New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

RE: Response to Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle

Dear Mr. Smith:

The Indicated New York Transmission Owners (“NYTOs”)<sup>1</sup> respectfully submit the following response to the New York Independent System Operator, Inc.’s (“NYISO”) August 1, 2018 “Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle.” The NYTOs request that the NYISO consider this submission and forward it to the New York Public Service Commission (“NYPSC”), pursuant to the NYISO’s Public Policy Planning Process.

## **Introduction**

The solicitation of transmission needs driven by Public Policy Requirements (“PPR”) represents the first step in NYISO’s Public Policy Transmission Planning Process (“PPTPP”). The current stage of the process is focused on identifying public policy transmission needs (“PPTNs” or “Needs”). The NYTOs believe there may be multiple PPTNs throughout New York (particularly in Northern New York and the Southern Tier) to alleviate bottled renewable generation, as supported by NYISO’s recent study. In addition, certain local upgrades to non-bulk facilities may be required to un-bottle renewable generation in these areas. The NYTOs ask that the NYISO and the NYPSC identify in their respective Needs identification documents and Orders those local facility upgrades that would be required and designate those upgrades to the local transmission owner.

---

<sup>1</sup> For purposes of these comments, the NYTOs include: Central Hudson Gas & Electric Corporation; Consolidated Edison Company of New York, Inc.; Niagara Mohawk Power Corporation d/b/a National Grid; New York Power Authority; New York State Electric & Gas Corporation; Orange & Rockland Utilities, Inc.; and Rochester Gas & Electric Corporation.

After NYISO submits proposed PPRs to the NYPSC and the NYPSC identifies one or more Needs, the NYISO will solicit solutions. To encourage innovative, efficient and cost effective solutions, NYISO's sponsorship model of transmission development allows developers to propose a range of solutions to meet the PPTN identified by the NYPSC, including transmission and non-transmission alternatives (such as other technologies). For example, a developer may propose energy storage as a solution to a PPTN, which could support the State's Energy Storage Roadmap. The NYTOs believe that the NYPSC should encourage the submission of new technologies and innovative solutions to satisfy a PPTN, and also direct the NYISO to consider resilience benefits and efficient use of right of ways among its selection criteria.

### **Public Policy Requirements Driving Growth in Renewables Upstate**

Both the State's Clean Energy Standard ("CES") and New York City's environmental goals will drive growth in renewables in New York. These policies, described below, set targets for reaching environmental goals.

#### *Clean Energy Standard*

On August 1, 2016, the NYPSC issued its Order Adopting a Clean Energy Standard ("CES"), embracing as its "foundational basis and essential component" a statewide goal that 50% of the electricity used in New York will be generated by renewable sources by 2030 (commonly referred to as "50-by-30"). The order also required every load serving entity in New York State to procure qualifying Renewable Energy Credits ("RECs") in minimum quantities established by the Order. Achieving the CES will require the addition of new renewable energy in New York State, much of which will occur in upstate New York.<sup>2</sup>

#### *New York City Objectives*

The City of New York has also released energy objectives: they call for an 80% reduction in the City's greenhouse gas emissions by 2050 and a 40% reduction in such emissions from the City government by 2030.<sup>3</sup> While these objectives have yet to be codified, statutory or regulatory changes could be adopted in the future and will similarly drive development of new renewable resources in New York State.

These policies, together, point to the need for transmission to bring upstate renewable generation to downstate loads.

---

<sup>2</sup> For more information, see <https://www.nyserda.ny.gov/All%20Programs/Programs/Clean%20Energy%20Standard>.

<sup>3</sup> For more information, see <https://www1.nyc.gov/site/sustainability/codes/80x50.page>.

---

## Transmission Needs driven by Upstate Wind and Solar

### *NYISO Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets*

In March 2018, the NYPSC directed further analyses to assist with the identification of Needs in the future.<sup>4</sup> Pursuant to that Order, the NYISO released, in July 2018, the results of its study, “Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets,” which it had conducted in consultation with New York Department of Public Service (“DPS”) Staff. The study’s results indicate a need for new transmission to integrate the renewables required to achieve the CES.<sup>5</sup>

In the study, the NYISO conducted a screening analysis on the system with the projected renewable resource additions required to satisfy the CES 50-by-30 goal. Based on input from DPS Staff, NYISO added 9,205 MW of renewables to the system, including 2,400 MW of offshore wind. The study sought to identify areas upstate where high renewable penetration could cause transmission security issues. NYISO found “a need for transmission upgrades in order to transmit the full power from the renewable generation pockets to NYCA load to achieve the CES.”

Specifically, the study found certain zones, highlighted in the map below, where overloads were present upon addition of the studied renewables. The zones identified by NYISO include Western NY (“Pocket W”), Northern NY (“Pocket X”), Eastern NY (“Pocket Y”), and the Southern Tier (“Pocket Z”). Renewable curtailments varied by area, reaching as much as 975-1,050 MW in Pocket W and 1,000-1,150 combined between Pockets W and Z (due to the combination of constraints in those areas).

---

<sup>4</sup> NYPSC, March 16, 2018. *Order Addressing Public Policy Requirements for Transmission Planning Purposes*. (Case 16-E-0558).

<sup>5</sup> Available at

[http://www.nyiso.com/public/webdocs/markets\\_operations/committees/bic\\_espwg/meeting\\_materials/2018-07-27/PPTN\\_genpockets\\_ESPWG\\_20180727.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2018-07-27/PPTN_genpockets_ESPWG_20180727.pdf).

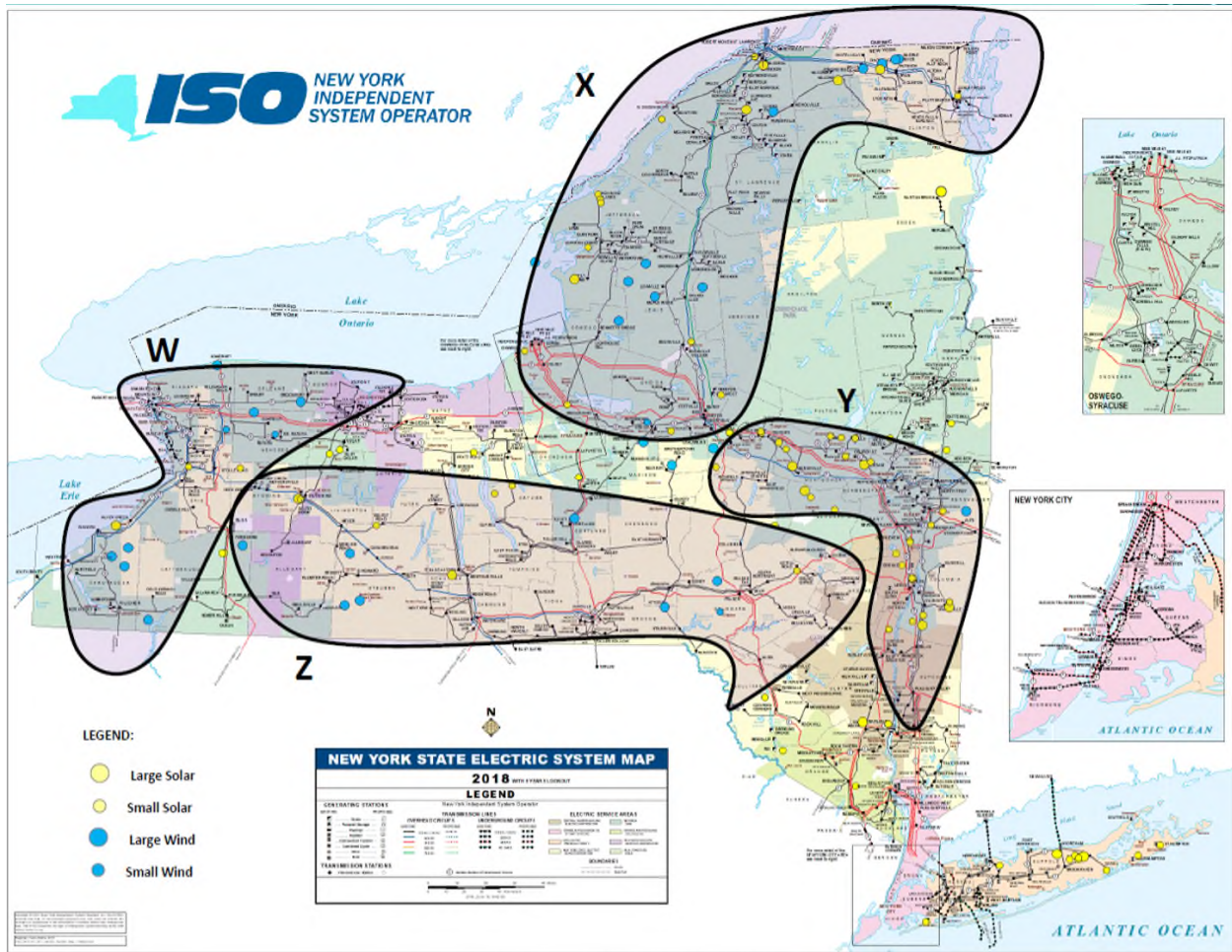


Image source: NYISO. July 27, 2018. “Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets.” Available at [http://www.nyiso.com/public/webdocs/markets\\_operations/committees/bic\\_espwg/meeting\\_materials/2018-07-27/PPTN\\_genpockets\\_ESPWG\\_20180727.pdf](http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2018-07-27/PPTN_genpockets_ESPWG_20180727.pdf).

### *Identification of Public Policy Transmission Needs*

The NYISO’s study provides the needed specificity for the NYPSC to declare a PPTN, and indicates that there may be multiple PPTNs associated with the need to integrate upstate renewables onto the grid. The NYTOs urge the NYPSC to consider declaring more than one Need, based on the results observed in different parts of the State.

NYISO, having performed this study, is in the best position to interpret its results. NYISO has the tariff authority to, “on its own initiative,” identify proposed transmission needs it believes are being driven by PPRs.<sup>6</sup> Therefore, the NYTOs believe that NYISO should act directly and identify Needs consistent with the results of its study.

<sup>6</sup> See OATT §31.4.2

---

### *Transmission Needs in Northern New York*

As noted, the NYISO study indicates a Need for new transmission to un-bottle renewables in Northern New York. Several of the NYTOs had submitted comments in the last public policy planning cycle urging the NYPSC to declare a PPTN to relieve constraints in Northern New York that impede renewable energy's movement to load,<sup>7</sup> and the NYTOs reiterate those comments here.

Indeed, there is already a bottling of renewable generation resources in Northern New York during certain system conditions. The addition of further renewables in the region will exacerbate the constraint and impair the State's ability to achieve the CES. NYISO's PPTN study shows that there will be overloads both on the Moses South transfer path and on the collector system in Northern NY. Specifically, NYISO found overloads in the Zone D wind generation corridor (230 & 115 kV), North to South Moses Transfer Path (230 & 115 kV), and in Jefferson and Lewis Counties (115 kV). These overloads were present both in the case with existing baseline renewables and in the case with added renewables to meet the CES.

As noted above, the study found that addressing overloads on the Northern NY 230 and 115 kV system could un-bottle between 975 and 1,050 MW of renewables. Even addressing the overloads on the 230 kV system alone could un-bottle between 400-425 MW of renewable generation. The NYPSC should therefore declare a Need to un-bottle 400 to 1,000 MW of renewables in Northern New York to facilitate the State's achievement of the CES.

### *Transmission Needs in the Southern Tier*

The NYISO study also indicates that relieving a number of overloads in the Southern Tier could un-bottle a similar amount of generation as in Northern NY. Specifically, alleviating overloads on the 345 kV and 115 kV systems in the Southern Tier Corridor and on the 115 kV system in the Finger Lakes region (which exist as a result of additions of wind and solar generation there) could un-bottle between 875 and 925 MW of renewables. The NYTOs thus urge the NYPSC to also declare a Need in the Southern Tier corridor and in the Finger Lakes region to un-bottle 800 to 900 MW of wind and solar generation and facilitate the State's achievement of the CES.

### **Treatment of Non-Bulk Upgrades**

The NYTOs urge NYISO and the NYPSC to be explicit in identifying common local upgrades for bulk transmission projects. With respect to Needs identified by the NYPSC on the bulk system, the NYPSC should contemporaneously identify, with assistance from NYISO, any

---

<sup>7</sup> Available at

[http://www.nyiso.com/public/webdocs/markets\\_operations/services/planning/Planning\\_Studies/Public\\_Policy\\_Documents/Proposed\\_Needs/2016/NYPA\\_NGrid\\_CHGE%20Proposed%20PPR%20Transmission%20Needs.pdf](http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Public_Policy_Documents/Proposed_Needs/2016/NYPA_NGrid_CHGE%20Proposed%20PPR%20Transmission%20Needs.pdf).

upgrades to local non-bulk facilities that would be required to satisfy the Need, regardless of the solution selected. Because the local transmission owner will construct these upgrades, their identification in the NYPSC Order declaring the PPTN will avoid confusion during the solutions solicitation stage. This will also provide clarity to both developers and transmission owners as to the identity of common local upgrades requiring construction as part of bulk PPTN solicitations as well as their modeling and consideration by NYISO in the solicitation process.

In addition, the NYTOs note that several of the Needs identified by the NYISO study are on the non-bulk (115 kV) system. Any non-bulk upgrades to the local system will be completed by the local transmission owner. Therefore, it is important that the NYISO and the NYPSC be clear upfront in identifying upgrades to the non-bulk system that would be required to address the identified overloads, and assign those upgrades to the local transmission owner.

### **Integrating Offshore Wind**

In addition to renewables being added upstate, the State also has an independent goal to develop 2,400 MW of offshore wind by 2030. NYSERDA has proposed a two-phase approach to achieve this goal. Phase 1 would procure at least 800 MW of offshore wind energy through two solicitations in 2018 and 2019, the first of which would commence in Q4 2018, with facilities expected to come online between 2024 and 2025. Phase 2 would procure the remaining 1,600 MW, with annual procurements of 400 MW, which would come online between 2027 and 2030.<sup>8</sup>

While NYISO's study included an assumed 2,400 MW of offshore wind consistent with the State's goal, it assumed the 2,400 MW of offshore wind was connected to the bulk power system and did not focus on the associated transmission and interconnection challenges that are critical to the goal's achievement. The construction of common backbone transmission and interconnection infrastructure for offshore wind is required to make the State's goal of 2,400 MW of offshore wind both cost effective and feasible. While the NYPSC's desired timing may preclude such infrastructure's construction during Phase 1, a common backbone transmission system should be identified as the preferred option for integrating Phase 2.

While the public policy transmission process is available to the NYPSC, using this process for offshore wind may introduce timing uncertainties, which could affect future offshore wind solicitations. The NYPSC should consider the use of the public policy transmission process as well as other options it may have available.

---

<sup>8</sup> New York State Offshore Wind Master Plan, available at <https://www.nysenda.ny.gov/All-Programs/Programs/Offshore-Wind/Offshore-Wind-in-New-York-State/New-York-Offshore-Wind-Master-Plan>.



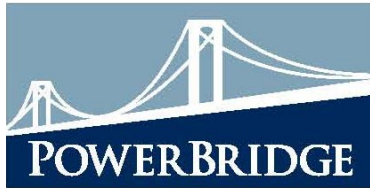
---

## Conclusion

The NYTOs believe there may be multiple transmission needs in upstate New York driven by the need to integrate renewables to meet the State's Clean Energy Standard. The NYTOs encourage NYISO to act directly to identify for the NYPSC the specific areas requiring new transmission that it identified in its PPTN Transmission-Constrained Renewable Bottlenecks study. In addition, the NYTOs recommend that the NYPSC recognize as a PPTN the relief of constraints that impede the movement of renewable energy from Northern NY to load, as well as the constraints in the Southern Tier corridor. The NYTOs also request that the NYPSC identify in its PPR Order, with assistance from NYISO, upgrades to local non-bulk facilities that will be completed by the local transmission owner. Finally, the PSC should recognize that there are several ways to reduce congestion and renewable curtailments, and seek to encourage new technologies and innovative solutions, while also considering whether the proposed solutions enhance the resiliency of the system and make efficient use of right of ways.

Sincerely,

/s/ Stuart A. Caplan  
Stuart A. Caplan  
Jessica M. Lynch  
*Counsel for the  
New York Transmission Owners*



September 28, 2018

New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, NY 12144  
ATT: Public Policy Planning Mailbox

RE: Proposed Transmission Needs Driven by Public Policy  
(NYISO Notice of August 1, 2018)

PowerBridge, LLC respectfully urges NYISO to solicit and evaluate transmission solutions in response to the New York State Clean Energy Standard (“CES”) as adopted by the New York Public Service Commission in its Order of August 1, 2016. Facilitating the development of high-capacity transmission in order to bring meaningful quantities of renewable energy in upstate New York to downstate load is certainly one of the most realistic and practical ways of assuring the achievement of the CES “50 by 30” goal within the desired time frame.

The amount of new renewable generation capacity in upstate New York needed to meet the CES mandate has been estimated to be more than 6,000 MW. The total need for renewables is far beyond concurrent (and laudable) efforts to promote small-scale and distributed energy resources, along with offshore wind.

Moreover, building significant new upstate renewable capacity by itself does not address the CES requirement in the absence of new transmission that can bring clean power to downstate load at a reasonable cost. The UPNY-SENY interface, already congested, will become much more so without new transmission. Even with the eventual completion of currently planned AC transmission upgrades – designed to address *current* levels of congestion – the addition of thousands of megawatts of new renewables will, at best, mean no net improvement in congestion or its associated costs.

Based on previous comments by other stakeholders in New York over the past two years, PowerBridge expects that we will not be alone in urging the NYISO to find the need for new transmission to address the CES. However, in doing so, we offer the unique perspective of an independent developer and owner of major transmission lines in New York with first-hand successful experience in the practical realities of permitting, obtaining necessary property rights, financing, engineering, constructing, and operating these facilities. Our first project, Neptune Regional Transmission System, is a High Voltage Direct Current (“HVDC”) 660-MW undersea/underground transmission cable that has supplied more than 20 percent of Long Island’s electricity needs for more than 11 years. Our second project, Hudson Transmission, is a similar 660-MW HVDC cable system, completed in 2013, that serves New York City customers of the New York Power Authority. Both projects were completed ahead of schedule and within budget for a combined cost of approximately \$1.5 billion.

More recently, through our affiliate West Point Partners, LLC, we have proposed a 1000-MW HVDC undersea and underground transmission cable – West Point Transmission -- that would run approximately 80 miles between a major substation south of Albany to Buchanan, New York in close proximity to the Indian Point Energy site that is scheduled for closure. Much of the key permit-related work for West Point has been completed. The West Point cable has the potential to be a major component in a comprehensive plan to meet the CES target while alleviating UPNY-SENY congestion.

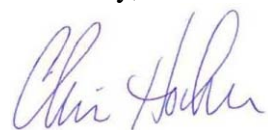
Previous comments by others on the subject of transmission needs to meet clean energy goals have urged the NYISO to adopt such evaluation criteria as: 1) Cost-effectiveness, including the benefits of bids that offer to cap or otherwise contain costs; 2) a level playing field for incumbent transmission owners and non-incumbent transmission developers that mitigates the inherent advantages that incumbents might enjoy; 3) ability to optimize and enhance both the short-term and long-term development of renewable generation. PowerBridge agrees with and urges the NYISO to include these criteria in its bid evaluations.

In addition, we urge the NYISO to consider solutions, such as High Voltage Direct Current (“HVDC”) transmission, that may offer important ancillary benefits to the grid. In recent years, HVDC technology has advanced significantly in terms of such features as controllability, voltage support, and black start capability. Such benefits traditionally can be difficult to quantify and value, and therefore may have been discounted. Yet they are widely recognized to be valuable, even if their precise value is elusive; to the extent a transmission solution offers such benefits, they should be assigned some form of credit in the evaluation.

Finally, our experience with Neptune and Hudson tells us that successfully developing major transmission infrastructure requires many years, many millions of dollars, and an abundance of patience and perseverance – and all of this is required before construction can even begin. It is perhaps tempting to think of the year 2030 as being in the far distant future, but in transmission development years, it is essentially equivalent to tomorrow. Achieving the goal of “50 by 30” in New York requires a clear and predictable process to be launched quickly, with little if any margin for further delay. Further, we would urge the NYISO to consider the practical feasibility of any proposed transmission solutions in terms of their realistic ability to obtain necessary approvals, minimize inevitable opposition, attract investors and debt providers on terms that are ultimately favorable to ratepayers, and actually construct the facilities on budget and on schedule.

PowerBridge appreciates the opportunity to offer these comments and would welcome the prospect of being part of the solution in the effort to meet New York’s clean energy goals.

Sincerely,



Christopher Hocker  
Vice President, Planning  
PowerBridge, LLC

**David Bonenberger**  
President – PPL Translink

**PPL Electric Utilities**  
Two North Ninth Street, GENN5  
Allentown, PA 18101-1179

[djbonenberger@pplweb.com](mailto:djbonenberger@pplweb.com)  
Tel: 610-774-6400



**Re: Request for Proposed Transmission Needs Driven by Public Policy Requirements for the 2018-2019 Planning Cycle**

**To: [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)**

**September 28, 2018**

New York Independent System Operator:

In response to your August 1, 2018 Request for Transmission Needs driven by Public Policy, PPL TransLink is pleased to submit our comments on a need statement supportive of NY Public Policy objectives.

When the New York Public Service Commission launched the Clean Energy Standard on August 1<sup>st</sup>, 2016 New York embarked on a comprehensive and proactive path to provide 50 percent of the state's electricity needs through renewable energy sources by 2030. As progress towards this goal is accomplished and viability towards the end goal is strategically focused, a need for additional transmission has been identified to transmit renewable resources to load centers within the state.

PPL TransLink proposes a multi-driver transmission need which supports New York's Clean Energy Standard and Reforming the Energy Vision. The proposed need will support transmission development that enables deployment of additional Tier 1 renewable resources and align with New York's proactive policies to improve the economic development and resiliency of the transmission system.

PPL TransLink's Need Statement

PPL TransLink's proposes a multi-driver transmission need that supports the following:

- **Clean Energy Standard:** Supports New York's 50 percent by 2030 goal through the building of transmission facilities that support additional renewable resources
- **Economic Development:** Alleviates economic congestion on the New York transmission system
- **Resiliency:** Contributes resiliency benefits to the vital NY transmission system

PPL TransLink feels this transmission need aligns strongly with New York's goals and the New York Independent System Operator's mission to reliably manage the power and energy markets. Thank you for the opportunity to propose our comments towards New York's next Public Policy Transmission Need.

Sincerely,

A handwritten signature in black ink, appearing to read "David Bonenberger", is written over a faint, light-colored background.

David Bonenberger



Robert Grassi  
Senior Regulatory Counsel  
Telephone: (516) 222-3579  
Robert.Grassit@pseg.com

October 1, 2018

Mr. Zachary Smith  
Vice President, System & Resource Planning  
New York Independent System Operator  
10 Krey Boulevard  
Rensselaer, New York 12144

RE: Response to Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle

Dear Mr. Smith:

In response to the NYISO's August 1, 2018 Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Solicitation, PSEG Long Island ("PSEG LI")<sup>1</sup> submits the following recommendation regarding transmission needs resulting from the forthcoming development of offshore wind resources driven by recent decisions and initiatives of the New York Public Service Commission ("Commission").

In summary, PSEG LI believes that the Phase I and Phase II Offshore Wind procurements give rise to the need to optimize transmission development and to create a "Transmission Backbone" structure in order to meet the State's ambitious goal of 2,400 MW of resources by 2030. It is recommended that the Commission consider extending the Public Policy Resource review cycle (as necessary) to account for additional information that will become available from pending studies and First Round Phase I developer proposals during the First Quarter of 2019 in order to reach a conclusion prior to the commencement of the Second Round of the Phase I solicitation process.

---

<sup>1</sup> PSEG Long Island is the Service Provider for the Long Island Power Authority's ("Authority") subsidiary Long Island Lighting Company d/b/a LIPA.

*i. **Background - CES Order and Offshore Wind Public Policy Requirements***

On August 1, 2016, the Commission issued an order establishing the Clean Energy Standard (“CES Order”).<sup>2</sup> The CES Order established, among other things, a Renewable Energy Standard with a goal of 50% of all energy generation coming from renewable resources by 2030. The CES Order set an objective “to maximize the potential for offshore wind,” and described a vision of “a future...where older, less efficient plants in New York are replaced exclusively with clean energy resources, including higher capacity factor offshore wind and renewable/storage combinations.”<sup>3</sup> In furtherance of this effort, the New York State Energy and Research Development Authority (“NYSERDA”) released a Blueprint for the New York State Offshore Wind Master Plan on September 15, 2016.<sup>4</sup> This Master Plan discussed the installation of 2,400 MW of offshore wind resources off the coast of New York City and Long Island by 2030.

During the 2016/2017 Public Policy Solicitation cycle, comments were submitted regarding the transmission build-out associated with the recommendations made by NYSERDA in its Master Plan to accommodate offshore wind suggesting that upgrades would be required on Long Island, as well as other surrounding areas in New York State.

In March 2018, the Commission issued an Order<sup>5</sup> ruling that none of the Proposed Public Policy (“PPR”) proposals it had received for the 2016/2017 solicitation cycle could be classified as Public Policy Requirements at the time. In addition, the Commission recognized that while

---

<sup>2</sup> Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, *Order Adopting a Clean Energy Standard* (Issued August 1, 2016).

<sup>3</sup> *Id.* at 18.

<sup>4</sup> New York State Energy Research and Development Authority, *Blueprint for the New York State Offshore Wind Master Plan* (Sept. 15, 2016) (hereinafter referred to as the “Blueprint”). In parallel to the efforts of New York State, the U.S. Bureau of Ocean Energy Management has acted under its authorities pursuant to the Outer Continental Shelf Lands Act to issue a Proposed Sale Notice covering a potential wind energy lease sale of 81,130 acres off the shores of New York for commercial wind energy development. *See* 81 Fed. Reg. 36336 (June 6, 2016).

<sup>5</sup> Case 16-E-0558, In the Matter of New York Independent System Operator, Inc.'s Proposed Public Policy Transmission Needs for Consideration for 2016, *Order Addressing Public Policy Requirements For Transmission Planning Purposes* (Issued and Effective March 16, 2018).

there are certain regions in the Northern and Southwestern areas of New York State where additional transmission facilities may support the development of renewable resources, the extent and magnitude of such needs requires further consideration. *Id.*, 2.

The Commission directed the NYISO, DPS Staff and market participants to continue to work towards identifying potential transmission constraints on both the bulk and non-bulk transmission systems that may warrant the future identification of a PPR, considering current and projected resources. *Id.*

In July 2018, the Commission issued an Order announcing plans to procure approximately 800 MW of offshore wind by 2019 through a solicitation to be issued in the fourth quarter of 2018.<sup>6</sup> This RFP is expected to be part of the first phase of NYSERDA's proposed two-phase approach to developing 2,400 MW of offshore wind by 2030. The first round of Phase 1 awards are expected to be announced during the second quarter of 2019 with plans for a second Phase 1 solicitation later in 2019 (if necessary) to procure any remaining resources not procured after the 2018 solicitation. Phase 2 of this process would involve the procurement of the remaining 1,600 MW of offshore wind resources which would enter service by 2030.<sup>7</sup>

***ii. Identification of Potential Transmission Needs for Future Evaluation***

PSEG LI believes that the goal to procure 2,400 MW of offshore wind generating facilities ("OSW") by 2030 will drive the need to construct transmission facilities in Zones J and K. While the specific interconnection points of these wind farms will not be known until specific projects are selected in the upcoming procurements, there is a growing consensus that OSW will

---

<sup>6</sup> Case 18-E-007, In the Matter of Offshore Wind Energy, Order Establishing Offshore Wind Standard And Framework For Phase 1 Procurement (Issued and Effective: July 12, 2018)

<sup>7</sup> <https://www.nyseda.ny.gov/About/Publications/Offshore-Wind-Plans-for-New-York-State>

drive the need for construction of “Transmission Backbone” facilities; *i.e.*, facilities that are likely to be required to deliver OSW from interconnection points to major 345 kV hubs on Long Island and in New York City, over a broad range of possible project configurations and interconnection points. As noted in the Commission’s March 2018 Order, additional studies will be needed to identify the specific components of the Transmission Backbone facilities. PSEG LI has already commenced one such study that is examining the impacts of integrating various amounts of offshore wind resources into LIPA’s transmission system and identifying preferable points of interconnection and necessary system upgrades. The initial results of this study are expected to be available in the first quarter of 2019.

NYSERDA’s Phase 1 and Phase 2 Offshore Wind procurements will also give rise to the need to optimize OSW-related transmission development by identifying specific common facilities that will support the full realization of the 2,400 MW of OSW goal. PSEG LI is prepared to work with LIPA, NYSERDA, Con Edison, NYPA and NYISO to conduct the necessary studies.

***iii. Recommendation - Offshore Wind as a Public Policy Requirement driving a Transmission Need on Long Island***

PSEG LI recommends that the Commission and the Authority, as applicable, take account of these pending studies during the 2018-2019 PPR planning cycle, including extending the cycle as necessary and appropriate to reach a conclusion prior to the completion of second round of the Phase 1 of NYSERDA’s OSW procurement. Waiting until the 2020/2021 Public Policy planning cycle may cause significant delays in the identification and construction of needed transmission facilities and ultimately impact the ability to achieve the State’s ambitious goal of 2,400 MW OSW by 2030. PSEG LI believes that sufficient information regarding the



need for a Transmission Backbone will be available to LIPA and the Commission once the NYSERDA Phase 1 selection process is completed.

As discussed above, PSEG LI respectfully requests that the NYISO consider these comments and recommendations during its 2018/2019 Public Policy planning process.

Respectfully,

A handwritten signature in black ink, appearing to read "Robert G. Grassi". The signature is written in a cursive style with a large initial "R".

Robert G. Grassi  
Senior Regulatory Counsel



Transource® Energy, LLC  
1 Riverside Plaza  
Columbus, OH 43215  
transourceenergy.com

September 28, 2018

VIA EMAIL – [PublicPolicyPlanningMailbox@nyiso.com](mailto:PublicPolicyPlanningMailbox@nyiso.com)

Mr. Zachary Smith  
Vice President, System & Resource Planning  
New York Independent System Operator, Inc.  
10 Krey Boulevard  
Rensselaer, New York 12144

Re: NYISO 2018-2019 Transmission Planning Cycle  
Transource New York Response to NYISO August 1, 2018 Request for  
Proposed Transmission Needs Driven by Public Policy Requirements

Dear Mr. Smith:

The NYISO's public policy planning process is composed of three stages – (i) the solicitation of public policy requirements ("PPRs"), (ii) the solicitation and evaluation of viable and sufficient transmission solutions if the New York Public Service Commission ("NYPSC") designates a PPR, and (iii) NYISO selection of the more efficient or cost effective solution if the NYPSC elects to continue the PPR following the NYISO's evaluation of project viability and sufficiency.<sup>1</sup> In accordance with NYISO's OATT, Attachment Y, Section 31.4.2, the NYISO began the first step of the public policy planning component of its 2018-2019 transmission planning cycle by issuing a notice on August 1, 2018 requesting that stakeholders or interested parties "...submit proposed transmission needs that it believes are being driven by Public Policy Requirements and for which the NYISO should solicit and evaluate transmission solutions."<sup>2</sup> Per the NYISO, submissions must: (i) identify a PPR that drives the need for transmission; (ii) propose evaluation criteria for transmission solutions to address the identified need; and (iii) describe how the construction of transmission will fulfill the identified PPR.<sup>3</sup> In accordance with the PPR Notice, Transource New York ("Transource") hereby submits

---

<sup>1</sup> See NYISO Open Access Transmission Tariff ("OATT"), Attachment Y, Section 31.4.1.

<sup>2</sup> See New York Independent System Operator, Inc., "Notice – Request for Proposed Transmission Needs Being Driven by Public Policy Requirements for the 2018-2019 Transmission Planning Cycle" (dated August 1, 2018) (hereinafter, "PPR Notice").

<sup>3</sup> *Id.* at 1.

this response demonstrating that the NYPSC's recently implemented Clean Energy Standard ("CES") is a PPR that drives the need for transmission in New York.<sup>4</sup>

1. The CES Should Be Identified as a PPR in the NYISO's 2018-2019 Transmission Planning Cycle

To comply with FERC Order 1000, the NYISO incorporated public policy planning definitions and added Section 31.4 to Attachment Y of its OATT to implement the public policy planning process as the third leg of its comprehensive planning process. Attachment Y, Section 31.1 of the NYISO OATT defines a PPR, in pertinent part, as "A federal or New York State statute or regulation, including a NYPSC order adopting a rule or regulation subject to and in accordance with the State Administrative Procedure Act..." Likewise, a Public Policy Transmission Need is defined as "[a] transmission need identified by the NYPSC that is driven by a [PPR]." On August 1, 2016, the NYPSC issued an order implementing the CES program.<sup>5</sup> As demonstrated herein, the NYISO has issued a number of reports establishing that insufficient transfer capability under certain existing system conditions currently causes wind power curtailments. The NYISO also has recently issued a thermal study establishing the need for significant transmission capability to unbundle existing and new renewable resources added to the system pursuant to the CES program. Thus, the NYPSC has sufficient information to designate the CES as a PPR thereby allowing the NYISO to advance the CES PPR to the next stage of its 2018 PPR process.

The CES program mandates, *inter alia*, that 50% of the energy consumed in New York State by the year 2030 must be generated by renewable resources to combat climate change by "... transform[ing] the way energy is produced, delivered and consumed" in New York State ("50x30 Mandate").<sup>6</sup> Meeting the 50x30 Mandate indisputably will require the construction of a significant amount of incremental renewable generation over the next decade, a substantial majority of which is expected to be built in areas remote from the major load centers in Southeastern New York. Indeed, establishing the CES was "...painstakingly designed to produce needed reforms and carbon reductions while protecting utility customers and maintaining an effective wholesale market and ensuring

---

<sup>4</sup> Transource is a partnership between American Electric Power (AEP) (86.5%) and Evergy, Inc. (parent company of Kansas City Power & Light Company and Westar Energy, Inc.) (13.5%) focused on the development and investment in competitive electric transmission projects across the United States. Transource directly owns transmission facilities in Missouri and is developing PJM-approved projects in West Virginia, Pennsylvania and Maryland. Transource's parent companies combine more than 100 years of expertise in the planning, design, engineering, construction and operation of transmission systems and collectively own and operate nearly 50,000 miles of transmission lines.

<sup>5</sup> See NYPSC Case 15-E-0302, Proceeding on Motion of the Commission to Implement a Large-Scale Renewable Program and a Clean Energy Standard, "Order Adopting a Clean Energy Standard" (issued and effective August 1, 2016) (hereinafter, "CES Order").

<sup>6</sup> *Id.* at 4, 78 (identifying the need to take steps to combat climate change as "immediate" in the face of New York's vulnerability to extreme weather events and threats of "massive economic and lifestyle disruption from damage to agriculture, water resources, public health, energy and communication systems and the natural ecosystems that define and support communities.") (citation omitted).

the continued bulk electric system reliability that New Yorkers expect and require,” the NYPSC acknowledged that the CES program had the potential to produce bottlenecks or the need for additional transmission lines and emphasized, “...it is important that the design and operation of the bulk electric system and wholesale markets be modernized, much like is being done at the distribution level.”<sup>7</sup>

While the CES Order established the policies and general parameters that would govern the new Renewable Energy Standard (“RES”) and the Zero Emissions Credit (“ZEC”) components of the CES program, the Commission acknowledged that implementation details remained to be developed.<sup>8</sup> The Commission thus called for full implementation through “various phases going forward” conducted in a “planned and deliberate manner to ensure that market participants receive timely guidance on matters that affect them.”<sup>9</sup> Critical to the issues being addressed by the PPR Notice, the NYPSC expressly directed DPS Staff to continue to work with stakeholders “...to ensure that the bulk transmission system is sufficiently modernized such that it can fully support the State’s renewable goals.”<sup>10</sup>

In response to the SAPA notice issued by the NYPSC to address the NYISO’s solicitation of PPRs in its 2016-2017 transmission planning cycle, a number of parties, including the NYISO, proposed to designate the CES as a PPR. For example, highlighting the fact that most renewable generation is located Upstate, the NYISO demonstrated, “[t]he resource mix and geographic distribution of the new renewable resources *will dramatically change power flows across the [bulk power transmission facilities]*” because “significant additional volumes of renewable energy will have to move east and south across the State to serve load.”<sup>11</sup> The NYISO established significant additional transmission capability must be developed to implement the CES program beyond the levels expected to be authorized in its two pending PPR efforts, the Western New York PPR process (“WNY PPR”) and the AC Transmission PPR process (“AC PPR”).<sup>12</sup> The NYISO’s concerns were echoed by New York transmission owners and

---

<sup>7</sup> *Id.* at 75 (noting that a working group had been formed in response to a request from the Staff of the Department of Public Service (“DPS Staff”) and the NYISO and transmission owners had been asked to identify and propose solutions for potential reliability concerns arising from the development of renewable resources).

<sup>8</sup> *Id.* at 13, 152.

<sup>9</sup> *Id.* at 152-53.

<sup>10</sup> *Id.* at 75-76 (further establishing its triennial review process would be used, *inter alia*, to review the “system impacts of the ever changing system topology” and consider actions “to protect the public interest in secure and cost effective electric service.”).

<sup>11</sup> See NYPSC Case 16-E-0558, In the Matter of New York Independent System Operator, Inc.’s Proposed Public Policy Transmission Needs for Consideration for 2016, “Comments of the New York Independent System Operator, Inc.” (dated December 5, 2016) at 7 (emphasis added).

<sup>12</sup> *Id.* at 8 (further noting curtailment of renewable generation due to limitations on the transmission system “... would jeopardize achievement of 50% by [20]30 because energy will not be deliverable from renewable resources to downstate load centers.”).

Downstate consumers alike.<sup>13</sup> A number of parties also cautioned that, due to the long lead time generally required for the siting and construction of transmission facilities, the NYPSC should designate the CES as a PPR in the 2016 PPR process notwithstanding the relatively long time table for the entry of new facilities under the program.<sup>14</sup>

Notwithstanding the fact that a number of parties, including the NYISO, established the CES was a PPR that would drive the need for significant additional transmission capability, timing considerations proved insurmountable. Problematically, the NYISO's 2016 PPR process roughly coincided with the issuance of the CES Order and the first few months of the program's implementation.<sup>15</sup> In its 2016 PPR Process Order, issued in March, 2018, the NYPSC noted the NYISO would soon be commencing its next PPR process which would give the NYPSC the opportunity to assess the latest information on transmission congestion in certain regions and identify the system benefits provided by the WNY PPR and AC PPR processes.<sup>16</sup> Finding further work was needed before any additional PPRs could be designated and conducting such groundwork before the next solicitation process would not unduly delay transmission needs, the NYPSC directed DPS Staff to work with the NYISO and the New York transmission owners to identify "the extent and magnitude of additional transmission needs" which the NYPSC found "require[d] ... a more holistic approach."<sup>17</sup> The NYPSC concluded, "This information should inform the Commission's subsequent review and determination as to

---

<sup>13</sup> See, e.g., NYPSC Case 16-E-0558, *supra*, "New York Power Authority, Niagara Mohawk Power Corporation d/b/a National Grid and Central Hudson Gas and Electric Corporation Response to NYISO Solicitation of Transmission Needs Driven by Public Policy Requirements" (dated September 30, 2018) at 6-8 (noting water is being spilled at the St. Lawrence Facility, wind energy is being curtailed in the North Country and the time required to design, permit and construct transmission enhancements warrants the NYPSC moving forward as expeditiously as possible); NYPSC Case 16-E-0558, *supra*, "New York Transco LLC Response to NYISO Solicitation of Transmission Needs Driven by Public Policy Requirements for the 2016-2017 Transmission Planning Cycle" (dated September 30, 2016) (hereinafter "Transco 2016 PPR Comments") at 2 (establishing, "Since the bulk of electricity generated by renewable resources, such as wind, solar, hydro and biomass resources will be generated in the western and northern regions of New York, and the major load centers are located in the southeastern region of the state, new bulk and non-bulk transmission facilities will be necessary to accomplish the state's goal."); NYPSC Case 16-E-0558, *supra*, "City of New York Response to NYISO Solicitation of Transmission Needs Driven by Public Policy Requirements" (dated September 30, 2016) (hereinafter, "NYC 2016 PPR Comments") at 2-3 (establishing some transmission enhancements are needed immediately and even those that have a five-year lead time require the planning process to begin now given the time needed to site and construct new transmission facilities).

<sup>14</sup> See, e.g., Transco 2016 PPR Comments at 2; NYC 2016 PPR Comments at 2.

<sup>15</sup> At the time responses were due to the SAPA notice for the solicitation of PPRs pursuant to the 2016 PPR process, DPS Staff had just issued its proposed Phase I Implementation Plan for the CES program which was under review by stakeholders with comments due a month later at the beginning of 2017. (See NYPSC Case 15-E-0302, *supra* "Notice Extending Comment Period" (issued December 29, 2016).)

<sup>16</sup> See NYPSC Case 16-E-0558, *supra*, "Order Addressing Public Policy Requirements For Transmission Planning Purposes" (issued and effective March 16, 2018) at 24 (hereinafter, "2016 PPR Process Order").

<sup>17</sup> *Id.* at 24-25 (further directing "[t]his effort should consider all relevant possible changes in resources, including centralized generation and local resources, and load" because the size and location of resources will affect the need for additional transmission facilities).

whether the public policies discussed herein, or others, may warrant designation as a Public Policy Requirement.”<sup>18</sup>

In the intervening period since the NYISO’s last PPR effort, the NYISO has issued a number of operations reports identifying significant wind power curtailments in the North Country under certain system conditions.<sup>19</sup> In addition, on July 27, 2018, the NYISO presented the findings of its thermal study assessing the impacts of the CES program to the Electric System Planning (“ESP”) Working Group.<sup>20</sup> As addressed in more detail, *infra*, in its CES Transmission Study Presentation, the NYISO, *inter alia*, revealed existing constraints on the transmission system and identified substantial additional generation bottling when new renewable resources are added to the system under the CES program unless major transmission upgrades are also made.<sup>21</sup> As the NYPSC correctly anticipated in the 2016 PPR Process Order,<sup>22</sup> this information, taken together, provides substantial further evidence confirming the fact that additional transmission will be required for the State to successfully achieve the 50x30 Mandate and satisfy the CES directives. No further delay is warranted. In fact, given the long lead time for transmission projects, further delay at this juncture would likely adversely impact the State’s progress in achieving its CES milestones.

At this juncture, PPRs that drive the need for transmission must be identified. The NYPSC now has substantial information demonstrating the need for significant transmission upgrades to implement the CES program. Thus, the NYPSC should designate the CES as a PPR thereby triggering the next step in the process pursuant to which the NYISO will solicit and evaluate the viability and sufficiency of solutions designed to ensure that the CES PPR will effectively be addressed.

## II. The Criteria Used To Evaluate Transmission Solutions Should Be Consistent With the CES Program Parameters and Should Include the Use of Advanced Technologies as a Selection Metric

Under Section 31.4.2.1 of Attachment Y to the NYISO OATT, the NYPSC is authorized to identify criteria that the NYISO must use to conduct its viability and sufficiency evaluation. To effectively develop the criteria for the evaluation of

---

<sup>18</sup> *Id.* at 26.

<sup>19</sup> *See, e.g.*, New York Independent System Operator, Inc., “Operations Performance Metrics Monthly Report – August 2018” (issued September 11, 2018) (hereinafter, “August 2018 Operations Report”) at 10; New York Independent System Operator, Inc., “Operations Performance Metrics Monthly Report – December 2017” (issued January 10, 2018) (hereinafter, “December 2017 Operations Report”) at 10.

<sup>20</sup> *See* New York Independent System Operator, Inc., “Public Policy Transmission Needs Study: Transmission Constrained Renewable Generation Pockets” (dated July 27, 2018) (hereinafter, “CES Transmission Study Presentation”).

<sup>21</sup> *Id.* at 21, 23.

<sup>22</sup> *See* 2016 PPR Process Order at 26.

transmission solutions to accommodate the CES PPR, the nature of the CES program must be taken into account. Specifically, the CES program anticipates certain levels of renewable energy will be added to the system on a year-by-year basis to achieve the 50x30 Mandate. To ensure adequate transmission has been built to effectively implement the program, the NYISO should be directed to develop a base case for its evaluation process that tracks the development of the MW levels by year delineated in the DPS Staff study underlying the CES program. To identify the location for new renewable resources, the NYISO should be directed to take the status of projects on its interconnection queue into account, obtain feedback from DPS Staff and NYSERDA, as the administrator of the RES component of the program, and discuss its assumptions with Market Participants at ESP Working Group meetings prior to finalizing its base case assumptions.<sup>23</sup> In addition, as the NYPSC established in the 2016 PPR Process Order,<sup>24</sup> the transmission solutions that are chosen must take into account the fact that the size and location of new renewable projects will dictate the nature and extent of system upgrades required to ensure renewable generation is not curtailed. Due to the dynamic nature of the system build-out called for under the CES program, evaluation criteria should account for the potential to stage the development of CES PPR projects to provide sufficient transfer capability for the dispatch of new generation facilities that complete construction and enter commercial operations.

Moreover, in its AC PPR Order, the NYPSC delineated specific evaluation criteria, *e.g.*, explicit proscriptions against the acquisition of new permanent transmission rights of way, credit for limiting new rights of way for substations and credit for upgrading aging infrastructure.<sup>25</sup> To most effectively determine the more efficient or cost effective solution for the CES PPR, the NYISO should be directed to identify the technology used to implement the transmission solution a selection metric when it issues its solicitation for solutions. As reflected in the resolutions adopted by a number of national and regional policymakers, advanced technologies can play a critical role in most effectively addressing the system issues that are likely to be in the forefront as the CES program proceeds, such as aged circuit rebuilds and the integration of new generation resources.<sup>26</sup> This selection metric should be designed to take into account a number of specific objectives, including:

---

<sup>23</sup> For the WNY PPR process, the development of the base case to conduct the evaluation took roughly three months. Transource supports NYISO efforts to make short term, PPR process improvements to its OATT for this PPR cycle and respectfully urges the NYISO to continue to finalize base case assumptions in a timely manner so that it may effectively proceed with its evaluation and complete the 2018 PPR process.

<sup>24</sup> See 2016 PPR Process Order at 25.

<sup>25</sup> See NYPSC Case 12-T-0502, *et al.*, Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades, “Order Finding Transmission Needs Driven By Public Policy Requirements” (issued and effective December 17, 2015) (hereinafter, “AC PPR Order”) at Appendix B.

<sup>26</sup> See, *e.g.*, National Association of Regulatory Utility Commissioners, Resolution Supporting Advanced Electric Transmission Technology (adopted by NARUC Board of Directors, February 17, 2016) (noting, *inter alia*, the aging transmission system, the need to replace it and the development of significant amounts of additional renewable resources in different areas on the system, and supporting the development of new,

- Significantly streamlining siting and construction activities.
- Substantially increasing system efficiency by reducing transmission line losses.
- Substantially reducing visual impacts by utilizing significantly shorter towers and ameliorating environmental impacts by providing avian-friendly transmission lines and structures.
- Substantially reducing electromagnetic field impacts.
- Avoiding costly series compensation equipment.
- Substantially reducing the turn-around time needed in the future for placing new and replacement circuits into service.

To most effectively quantify the value of utilizing advanced technologies, the NYISO should compare the incremental benefits afforded by these technologies with those of traditional technology solutions.

Additional specific evaluation criteria also should be considered. The NYISO should be directed to favor projects that greatly increase transfer capability or utilize higher voltage upgrades using existing rights of way. The NYISO also should be directed to quantify the cost effectiveness of projects on a per energy unit delivered (\$/MWh) basis. In addition, the NYISO should be required to confirm that selected transmission solutions capture all costs associated with the interconnection of renewable generation facilities. For example, the costs of complex transmission line reactive power compensation are often underestimated and can significantly increase the total cost of a renewable energy transmission solution as evidenced by the Electric Reliability Council of Texas (ERCOT) Competitive Renewable Energy Zone (CREZ) project.<sup>27</sup>

However, based on the lessons learned from the AC PPR process, Transource would urge the NYPSC to forego specifically prescribing how transmission should be built to accommodate new renewable facilities built pursuant to the CES program. As evidenced by the NYISO's first two PPR initiatives, entities responding to the NYISO's PPR solicitation process are sophisticated and technically savvy. By defining the specific

---

innovative, cost effective advanced transmission technologies to “increase grid capacity, improve energy transfers, promote greater stability and resiliency, make more efficient use of rights-of-way, reduce transmission line losses, and help to streamline siting and construction activities.”); Council of State Governments, Resolution Supporting State Policies for Advanced Transmission Lines (adopted by Council Executive Committee, December 11, 2016) (noting, *inter alia*, new, innovative, advanced transmission technologies are commercially available “with revolutionary, extraordinarily high performance levels compared to other technologies to address aged circuits and new generation issues” and urging State legislatures and public service commissions to adopt transmission policies “that promote revolutionary, rather than incremental, performance and the benefits of the appropriate use of cost-effective advanced electric transmission technologies in support of their interest in the continued, timely provision of affordable, reliable electricity to consumers.”).

<sup>27</sup> Competitive Renewable Energy Zone Program Oversight, CREZ Progress Report No. 4 (July Update), prepared by RS&H for Public Utility Commission of Texas (dated July 2011) at 4-5).



paths to upgrade the transmission system in the AC PPR Order,<sup>28</sup> it is likely that the NYPSC may inadvertently have stymied development of more efficient or less costly proposals. Competition breeds innovation. Transmission developers should thus be given the opportunity to assess specific system needs and define innovative transmission solutions to unbottle existing and new renewable resources in accordance with the selection metrics developed for the CES PPR.

### III. Increased Transfer Capability Will Provide the System Upgrades Necessary To Achieve the 50x30 Mandate Reliably and Cost Effectively

As established *supra*, the need to “combat climate change and modernize the electric system to improve the efficiency, affordability, resiliency and sustainability of the system” were major factors driving the implementation of the CES program.<sup>29</sup> To achieve this result, the Commission adopted the 50x30 Mandate and delineated certain anticipated and minimum procurement targets.<sup>30</sup> To fulfill the CES PPR, existing system deficiencies that have already been revealed in day-to-day operations and the projected bottlenecks identified in NYISO planning studies must both be resolved. Increased transfer capability will address energy curtailments and result in lower losses, and thus, will allow the State to achieve the 50x30 Mandate in a cost effective and reliable manner.

The NYISO and the independent market monitoring unit, Potomac Economics (“MMU”), have issued reports revealing the output of wind facilities is currently being significantly curtailed, predominantly in the North Country, under certain system conditions. For example, as part of its operations report provided to the Operating Committee each month, the NYISO tracks both wind production and curtailment levels. As reflected in these reports, under certain conditions on the transmission system, there have been significant wind curtailments in the North Country reaching levels as high as over 14,000 MWh in May, 2018 when, among other factors, the Adirondack-Moses line was out of service.<sup>31</sup> The NYISO’s CES Transmission Study Presentation also confirmed the current system issues in the North Country under peak summer operating conditions, finding, “Certain 230 kV lines in Zone D (North zone) were found to be overloaded in the vicinity of high wind generation” when baseline renewable resources are modeled at full output and no curtailments are permitted.<sup>32</sup> Likewise, the MMU has highlighted

---

<sup>28</sup> See AC PPR Order at Appendix A (defining specific transmission routes for Segment A and Segment B).

<sup>29</sup> See CES Order at 3.

<sup>30</sup> *Id.* at 13-20. These targets continue to be refined through the implementation phases as the program proceeds.

<sup>31</sup> See August 2018 Operations Report at 9-10. The level for June, 2018 was nearly as high at over 11,000 MWh. (*Id.*) The same issues arose in 2017 as well with wind curtailments reaching as high as over 8,000 MWh when the Adirondack-Moses line was out of service. (See December 2017 Operations Report at 9-10.)

<sup>32</sup> See NYISO CES Transmission Study Presentation at 20.

wind curtailments in its quarterly market reports.<sup>33</sup> A substantial number of renewable projects on the interconnection queue are proposing to interconnect to the transmission system in the North Country.<sup>34</sup> Given that the transmission system in this area is not sufficient to accommodate existing generation under certain system conditions, bringing new renewable resources on line in this area pursuant to the CES program will result in additional curtailments unless the transfer capability on this part of the bulk transmission system is augmented. The NYISO's CES Transmission Study Presentation confirms that fact.<sup>35</sup> These curtailments will senselessly erode progress in achieving the State's 50x30 Mandate to combat climate change.

The NYISO's CES Transmission Study Presentation also establishes that there will be substantial additional wind curtailments in a number of other locations throughout the State under both summer peak and light load conditions when new renewable resources are added to the system pursuant to the RES.<sup>36</sup> Specifically, in addition to exacerbated transmission deficiencies in the North Country, the NYISO identified significant wind curtailments in three other pockets across the State on both the bulk transmission and local systems – Pocket W (Western New York overloads on the Niagara-Rochester 115 kV line, the PJM-NY 115 kV ties and the Niagara-Gardenville-Stolle Road 115 kV line), Pocket Y (Eastern New York overloads in the Mohawk Valley Corridor and the Hudson Valley Corridor) and Pocket Z (Southern Tier overloads in the Finger Lakes region and the Southern Tier Transmission Corridor).<sup>37</sup> Taken together, the NYISO projects wind curtailment levels in these pockets could reach as high as nearly 2,400 MW under summer light load conditions and 2,700 MW under summer peak conditions.<sup>38</sup> Thousands of MWs of wind and solar facilities are proposed on the NYISO interconnection queue to be constructed in these four pockets. Based on its analysis, the NYISO expressly found there is “a need for transmission upgrades in order to transmit

---

<sup>33</sup> See, e.g., Potomac Economics, Quarterly Report on the New York ISO Electricity Markets – Second Quarter of 2017 (dated August, 2017) at 23 (addressing the real-time pricing event that took place on April 6, 2017 and reporting, “The Moses South transmission constraint limit was reduced at [sic] following the contingency, leading significant amounts of hydro and wind to be scheduled down.”).

<sup>34</sup> There are currently over 15 renewable projects in Zone D and the North Country portion of Zone E comprised primarily of wind facilities and a smaller number of solar facilities. (See NYISO Interconnection Requests and Transmission Projects (updated August 31, 2018) (hereinafter, “NYISO Queue”), *passim*.)

<sup>35</sup> See NYISO CES Transmission Study Presentation at 25-27. The NYISO found the North Country area, designated as Pocket X, will experience overloads in the Zone D wind generation corridor, the north to south Moses South transfer path and Jefferson and Lewis Counties.

<sup>36</sup> *Id.* at 23.

<sup>37</sup> *Id.* at 25. A substantial number of proposed wind and solar projects are seeking to be constructed in Western New York (Zone A) and in the Southern Tier (Zone C). (See NYISO Queue, *passim*.)

<sup>38</sup> *Id.* at 27.

the full power from the renewable generation pockets to NYCA load to achieve the CES.”<sup>39</sup>

Transource reached similar conclusions. Following the issuance of the CES Order, Transource conducted an analysis to identify transmission needs to achieve the 50x30 Mandate. Transource modeled the WNY PPR and AC PPR in service and, taking the NYISO interconnection queue into account, selected renewable resources to reach the CES prescribed MW levels by zone and based on projected facility economics. Consistent with the NYISO’s findings, Transource determined there were significant levels of bottled generation in Northern New York and Eastern New York that would be cut off from reaching the load centers in southeastern New York absent the construction of significant new backbone transmission facilities.

Since parties responded to the NYISO’s request for PPRs in its 2016 PPR process, the NYISO has tracked the level of wind curtailments on the existing system and has completed a transmission study focused specifically on whether the implementation of the CES program would require significant transmission upgrades. Its findings are clear. After taking into account the WNY and AC PPR transmission upgrades, the NYISO determined there will be substantial levels of renewable resource curtailments when additional renewable resources are added to the system under the CES program. Unless new transmission facilities are built, the State cannot and will not achieve its 50x30 Mandate to effectively combat climate change. Thus, transmission solutions in the four pockets identified by the NYISO are required to fulfill the CES PPR.

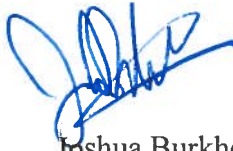
---

<sup>39</sup> *Id.* at 29 (establishing “...the addition of significant amounts of renewable generation causes stresses and certain violations on the [New York] transmission system at both the backbone (> 200 kV) as well as the underlying (100 – 200 kV) system.”).

IV. Conclusion

For the foregoing reasons, the NYPSC now has sufficient information in hand demonstrating the 50x30 Mandate cannot be reached absent the construction of significant additional transmission capability in New York State, and thus, the NYPSC should designate the CES as a PPR in the NYISO's 2018-2019 transmission planning cycle.

Very truly yours,



Joshua Burkholder  
Director of Transmission Business Development  
Transource New York, LLC