



AC Transmission Public Policy Transmission Need Viability & Sufficiency Assessment

A report from the New York Independent System Operator

DRAFT

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Executive Summary

The NYISO's Public Policy Transmission Planning Process implements the Federal Energy Regulatory Commission (FERC) Order No. 1000 directive requiring public utility transmission providers to consider in their planning processes transmission needs driven by Public Policy Requirements. The NYISO conducted this Viability and Sufficiency Assessment for the AC Transmission Public Policy Transmission Need to determine whether each proposal submitted by a Developer is complete, viable, and sufficient to satisfy the Public Policy Transmission Need.

The NYISO initiated its first Public Policy Transmission Planning Process by soliciting proposed transmission needs that stakeholders or interested parties believe are driven by Public Policy Requirements. The NYISO filed for consideration by the New York Public Service Commission (NYPSC) the proposed transmission needs and the NYPSC published the proposed needs for public comment pursuant to the State Administrative Procedure Act. NYISO Staff also provided technical support to the New York State Department of Public Service throughout 2014 and 2015, and appeared twice at technical conferences to present its power flow analyses to Developers and parties to the NYPSC AC Transmission proceedings. Upon considering the various comments submitted, the NYPSC issued an order that identified numerous public policies that together constitute Public Policy Requirements driving transmission needs associated with the Central East and UPNY/SENY sections of the New York State Transmission System (collectively named the "AC Transmission Public Policy Transmission Need").

The NYISO established sufficiency criteria in accordance with the criteria set forth by the NYPSC order. The NYISO created the baseline power flow study case and results used in the Trial Staff Final Report in the NYPSC's AC Transmission proceedings, and used that baseline powerflow to conduct its independent analysis of the viability and sufficiency of each proposed project.

The NYISO issued a solicitation for projects to address the AC Transmission Public Policy Transmission Need and received 16 proposals from six developers. The NYISO conducted a comparable analysis for each project in the same manner as it conducted the baseline analysis. Out of the 16 proposed projects, the NYISO identifies 13 viable and sufficient projects to address the AC Transmission Public Policy Transmission Need.

Under the PPTPP, the NYPSC reviews this Viability and Sufficiency Assessment and determines whether the NYISO should continue to evaluate and rank the viable and sufficient transmission solutions as part of the Public Policy Transmission Planning Report.

1. Introduction

The NYISO's regional planning process, known as the Comprehensive System Planning Process (CSPP), is comprised of four components: (1) the Local Transmission Owner Planning Process, (2) the Reliability Planning Process, (3) the Economic Planning Process, and (4) the Public Policy Transmission Planning Process (PPTPP).¹ The NYISO also conducts interregional planning with its neighboring control areas under the Northeast Coordinated System Planning Protocol. The PPTPP supports the FERC Order No. 1000 directive requiring public utility transmission providers to consider in their planning processes transmission needs driven by Public Policy Requirements ("Public Policy Transmission Needs"). Section 31.4 of Attachment Y of the NYISO Open Access Transmission Tariff (OATT, or the Tariff) describes the planning process that the NYISO, and all interested parties, shall follow to consider Public Policy Requirements² that drive the need for expansions or upgrades to Bulk Power Transmission Facilities (BPTFs).³ Pursuant to the Tariff, the NYISO conducted this Viability and Sufficiency Assessment for the AC Transmission Public Policy Transmission Need to determine whether each Developer-submitted proposal is complete, viable, and sufficient to satisfy the identified need.

The PPTPP consists of four main steps: (1) the identification of Public Policy Transmission Needs, (2) the proposal of solutions to identified Public Policy Transmission Needs, (3) the evaluation of the viability and sufficiency of proposed transmission and non-transmission solutions to a Public Policy Transmission Need, and (4) upon confirmation of the transmission need by the NYPSC, the evaluation and selection of the more efficient or cost effective Public Policy Transmission Project to satisfy a Public Policy Transmission Need.

For each two-year CSPP cycle, the NYISO initiates the first step of the PPTPP after the draft Reliability Needs Assessment (RNA) results are released in the Reliability Planning Process. In the identification step, the NYISO solicits proposals for transmission needs driven by Public Policy Requirements, and the NYPSC, or Long Island Power Authority (LIPA), as applicable, considers the proposals in order to identify Public Policy Transmission Needs, and the NYPSC determines for which of those the NYISO should solicit solutions. Subsequent to the identification of Public Policy Transmission Needs, the NYISO solicits proposed solutions, and Developers submit Public Policy Transmission Projects and Other Public Policy Projects to satisfy the identified Public Policy Transmission Needs. All submissions, regardless of project type, are evaluated for their viability and sufficiency to meet the Public Policy Transmission Needs.

¹ See OATT Attachment Y.

² A "Public Policy Requirement" is a federal or New York State statute or regulation, including a New York State Public Service Commission (NYPSC) order adopting a rule or regulation subject to and in accordance with the State Administrative Procedure Act, any successor statute, or any duly enacted law or regulation passed by a local governmental entity in New York State, that may relate to transmission planning on the BPTFs.

³ The BPTFs include all of the facilities designated by the NYISO as a Bulk Power System (BPS) element as defined by the NYSRC and NPCC, as well as other transmission facilities that are relevant to planning the New York State transmission system. The current BPTF list is provided in Appendix B of the 2015 NYISO Area Transmission Review, posted at: http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Documents_and_Resources/Reliability-Compliance/2015%20CATR%20Appendix%20Files_non-CEIL.zip

A Public Policy Transmission Project is a transmission project or a portfolio of transmission projects proposed by Developer(s) to satisfy an identified Public Policy Transmission Need and for which the Developer(s) seek to be selected by the NYISO for purposes of allocating and recovering the project's costs under the NYISO OATT.⁴ An Other Public Policy Project is a non-transmission project or a portfolio of transmission and non-transmission projects proposed by a Developer to satisfy an identified Public Policy Transmission Need. An Other Public Policy Project may consist of transmission, generation, and/or demand-side projects.⁵

Following the NYISO's presentation of the Viability and Sufficiency Assessment, the NYPSC reviews the Viability and Sufficiency Assessment and issues an order explaining whether there continues to be the same transmission need driven by a Public Policy Requirement and, if so, that the NYISO should continue to evaluate transmission solutions to a Public Policy Transmission Need.⁶ If the NYPSC concludes that non-transmission solutions should be pursued, the NYPSC will indicate in its order that either: (i) there is no longer a transmission need driven by a Public Policy Requirement that requires the NYISO's evaluation of potential transmission solutions, or (ii) the transmission need should be modified.

If the NYPSC concludes that there is no longer a transmission need driven by a Public Policy Requirement, the NYISO will not perform an evaluation, or make a selection of, a more efficient or cost-effective transmission solution for that planning cycle. If the NYPSC modifies the transmission need driven by a Public Policy Requirement, the NYISO will restart its Public Policy Transmission Planning Process as an out-of-cycle process. This out-of-cycle process will begin with the NYISO's solicitation of Public Policy Transmission Projects to address the modified Public Policy Transmission Need. The NYISO will evaluate the viability and sufficiency of the proposed Public Policy Transmission Projects. The NYISO will then proceed to evaluate the viable and sufficient Public Policy Transmission Projects for purposes of selecting the more efficient or cost-effective transmission solution to the modified Public Policy Transmission Need.

If the NYISO proceeds to the evaluation phase, the NYISO evaluates the proposed Public Policy Transmission Projects that have satisfied the viability and sufficiency requirements and ranks them based on the quality of their satisfaction of numerous metrics. Based on this evaluation, the NYISO may select the more efficient or cost-effective Public Policy Transmission Project to satisfy the Public Policy Transmission Need. A project selected as the more efficient or cost-effective solution is eligible for cost allocation and cost recovery under the NYISO OATT.⁷ The assumptions, inputs, methodologies, and results of the NYISO's analysis are published in the Public Policy Transmission Planning Report.

⁴ See OATT § 31.1.

⁵ See OATT § 31.1.

⁶ The focus of the NYPSC's review is upon whether there continues to be a need for transmission. Comments regarding the technical merits of this Viability and Sufficiency Assessment should be directed to the NYISO through its stakeholder process.

⁷ See OATT § 31.5.

2. Summary of the Public Policy Transmission Need

On August 1, 2014, the NYISO initiated its first Public Policy Transmission Planning Process by soliciting proposed transmission needs that stakeholders or interested parties believe are driven by Public Policy Requirements. On October 3, 2014, the NYISO filed for consideration by the NYPSC the proposed transmission needs it received from eight entities. On November 12, 2014, the NYPSC published the proposed needs in the State Register in accordance with the State Administrative Procedure Act (SAPA) for comments. Following its receipt and review of comments, the NYPSC continued its efforts in the Alternating Current Transmission Upgrades comparative proceedings (“AC Transmission proceedings”) that culminated in the issuance of the Trial Staff Final Report by the New York State Department of Public Service on September 22, 2015, along with a companion motion recommending that the NYPSC find that there are transmission needs driven by Public Policy Requirements. On October 7, 2015, the NYPSC published a SAPA notice of proposed rulemaking for public comment. Following the comment period, the NYPSC issued an order on December 17, 2015 (“NYPSC Order”)⁸ that identified numerous public policies that together constitute Public Policy Requirements driving transmission needs associated with the Central East and UPNY/SENY sections of the New York State Transmission System.⁹ The NYPSC referred the Central East (“Segment A”) and UPNY/SENY (“Segment B”) transmission needs (collectively named the “AC Transmission Public Policy Transmission Need”) to the NYISO for the solicitation and evaluation of potential solutions. Figure 1 depicts the two segments of the AC Transmission Public Policy Transmission Need. The NYPSC specifically described the two segments of the transmission need as follows:

SEGMENT A

Edic/Marcy to New Scotland; Princetown to Rotterdam

Construction of a new 345 kV line from Edic or Marcy to New Scotland on existing right-of-way (primarily using Edic to Rotterdam right-of-way west of Princetown); construction of two new 345 kV lines or two new 230 kV lines from Princetown to Rotterdam on existing Edic to Rotterdam right-of-way; decommissioning of two 230 kV lines from Edic to Rotterdam; related switching or substation work at Edic or Marcy, Princetown, Rotterdam and New Scotland.

SEGMENT B

Knickerbocker to Pleasant Valley

Construction of a new double circuit 345 kV/115 kV line from Knickerbocker to Churchtown on existing Greenbush to Pleasant Valley right-of-way; construction of a new double circuit 345 kV/115 kV line or triple circuit 345 kV/115 kV/115 kV line from Churchtown to Pleasant Valley on

⁸ NYPSC Case No. 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* (December 17, 2015).

⁹ *Id.* at 66-68.

existing Greenbush to Pleasant Valley right-of-way; decommissioning of a double-circuit 115 kV line from Knickerbocker to Churchtown; decommissioning of one or two double-circuit 115 kV lines from Knickerbocker to Pleasant Valley; construction of a new tap of the New Scotland-Alps 345 kV line and new Knickerbocker switching station; related switching or substation work at Greenbush, Knickerbocker, Churchtown and Pleasant Valley substations.

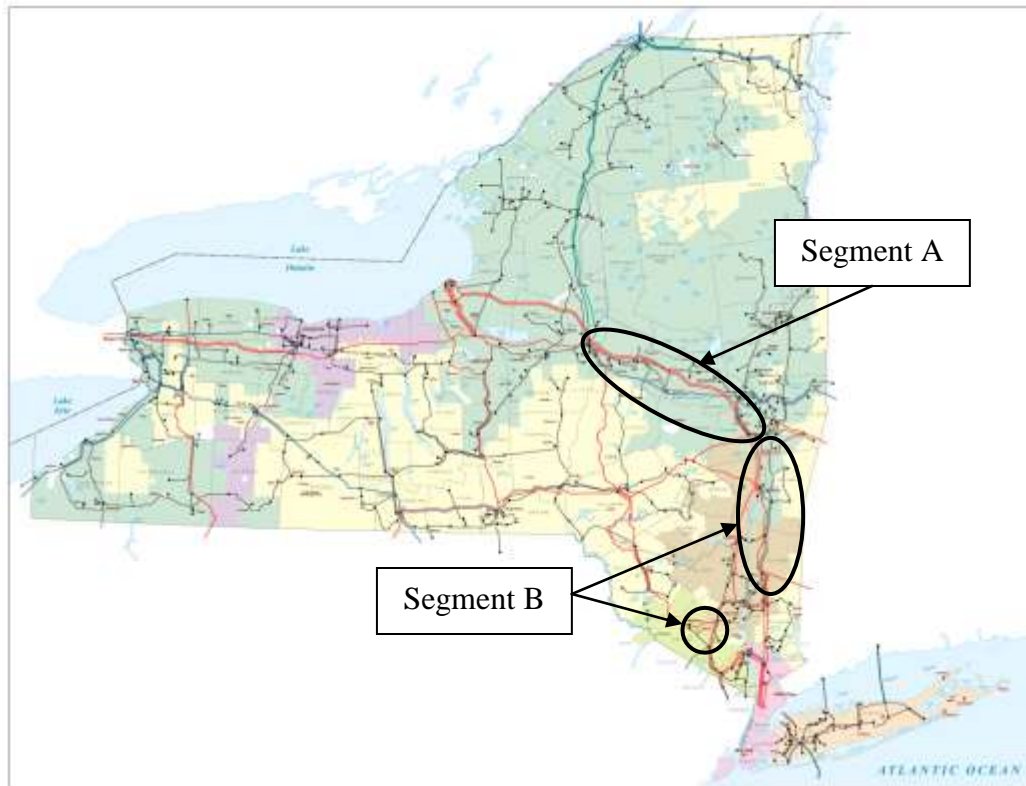
Upgrades to the Rock Tavern Substation

New line traps, relays, potential transformer upgrades, switch upgrades, system control upgrades and the installation of data acquisition measuring equipment and control wire needed to handle higher line currents that will result as a consequence of the new Edic/Marcy to New Scotland; Princetown to Rotterdam and Knickerbocker to Pleasant Valley lines.

Shoemaker to Sugarloaf

Construction of a new double circuit 138 kV line from Shoemaker to Sugarloaf on existing Shoemaker to Sugarloaf right-of-way; decommissioning of a double circuit 69 kV line from Shoemaker to Sugarloaf; related switching or substation work at Shoemaker, Hartley, South Goshen, Chester, and Sugarloaf.¹⁰

Figure 1: AC Transmission Public Policy Transmission Need



¹⁰ NYPSC Order, Appendix A.

2.1. Sufficiency Criteria

The NYISO established sufficiency criteria in accordance with the criteria set forth by the NYPSC Order. The NYISO made a presentation at a combined meeting of the Transmission Planning Advisory Subcommittee and Electric System Planning Working Group on February 5, 2016 to review the NYPSC's determination of Public Policy Requirements, the nature of the resulting AC Transmission Public Policy Transmission Need, and the associated models and assumptions to be used in NYISO's evaluations.¹¹

In order to address the AC Transmission Public Policy Transmission Need as identified by the NYPSC, a sufficient Public Policy Transmission Project or Other Public Policy Project shall meet, at a minimum, the following criteria:

- Proposed solutions to Segment A (Central East) must provide at least a 350 MW increase to the Central East interface transfer capability in accordance with Normal Transfer Criteria as defined by the New York State Reliability Council (NYSRC) Reliability Rules.
- Proposed solutions to Segment B (UPNY/SENY) must provide at least a 900 MW increase to the UPNY/SENY interface transfer capability in accordance with Normal Transfer Criteria as defined by the NYSRC Reliability Rules.

Additionally, a sufficient Public Policy Transmission Project shall meet, at a minimum, the following criteria stated in the NYPSC Order:

- Proposed solutions to Segment A (Central East) must include all project components included in Segment A as described in Appendix A of the NYPSC Order.
- Proposed solutions to Segment B (UPNY/SENY) must include all project components included in Segment B as described in Appendix A of the NYPSC Order.
- No acquisition of new permanent transmission rights-of-way, except for *de minimis* acquisitions that cannot be avoided due to unique circumstances. The transfer or lease of existing transmission rights-of-way property or access rights from a current utility company owner to a Developer shall not be considered such an acquisition.
- No crossing of the Hudson River, either overhead, underwater, in riverbed, or underground, or in any other way by any component of the transmission facility.
- For those Public Policy Transmission Projects that were also evaluated in the AC Transmission proceedings, the NYPSC Order states that the cost estimate must not exceed the level estimated by NYPSC Trial Staff for the project, unless the applicant can

¹¹ The NYISO presentation is posted on its website under meeting materials at the following link:
http://www.nyiso.com/public/markets_operations/committees/meeting_materials/index.jsp?com=bic_espwg.

demonstrate that upward estimates are necessary to correct errors or omissions made by NYPSC Trial Staff for the components that were added or adjusted by NYPSC Trial Staff.

Appendix A of this report provides the details of the criteria that the NYISO applied to determine the sufficiency of each proposed Public Policy Transmission Project and Other Public Policy Project to satisfy the AC Transmission Public Policy Transmission Need.

2.2. Sufficiency Assessment Methodology

The process for developing the study cases for the Viability and Sufficiency Assessment is set forth in Section 4 of the NYISO Public Policy Transmission Planning Process Manual. Based on the sufficiency criteria set forth by the NYPSC Order, the NYISO determined that a power flow model is necessary to evaluate the transfer limits of the Central East and UPNY/SENY interfaces. The baseline power flow study case for the AC Transmission Public Policy Transmission Need is the same system representation that the NYISO employed for the Trial Staff Final Report in the AC Transmission proceedings. The NYISO built that case from the NYISO 2014 Comprehensive Reliability Plan base case system representation of the 2019 summer peak load, modified to include the now-planned CPV Valley Energy Center generation plant and associated system deliverability upgrades. The NYISO used that baseline powerflow to conduct its independent analysis of the viability and sufficiency of each proposed project.

The Central East interface represents transmission lines from Utica to Albany and a line from northern New York to Vermont. Central East is typically a voltage-constrained interface; therefore, the NYISO performed a voltage transfer analysis using the PowerGEM TARA software and in accordance with the NYISO Guideline for Voltage Analysis and Determination of Voltage-Based Transfer Limits.¹² To determine the voltage transfer limits, the NYISO created a set of power flow cases with increasing transfer levels by increasing generation upstream of the interface and decreasing generation downstream of the interface. As the transfer level across the interface was increased, the voltage-constrained transfer limit was determined to be the lower of: (1) the pre-contingency power flow at which the pre/post-contingency voltage falls below the voltage limit criteria, or (2) 95% of the pre-contingency power flow at the voltage collapse point, also known as the “tip of the nose” of the post-contingency power-voltage (PV) curve.¹³

The UPNY-SENY interface represents a collection of transmission lines on which power flows from Upstate New York to Southeast New York. UPNY-SENY is historically limited by the thermal capability of the individual transmission lines; therefore, thermal transfer analysis was performed for the interface in accordance with the Normal Transfer Criteria as defined by the NYSRC Reliability Rules. The NYISO used the Siemens PTI PSS® MUST program to perform the thermal transfer

¹² NYISO Transmission Expansion and Interconnection Manual, Attachment G, NYISO Transmission Planning Guideline #2-1

¹³ The “tip of the nose” is the point of voltage collapse, which occurs when reactive capability supporting the transfer of real power is exhausted.

analysis. To determine the thermal transfer limits, the NYISO raised the power flow across the interface by uniformly increasing upstream generation and uniformly decreasing downstream generation. The thermal ratings of transmission lines were monitored while simulating design contingency events. This method provided a consistent measure of changes to interface transfer limits.

2.3. Baseline Results

The baseline power flow study case for the AC Transmission Public Policy Transmission Need used the same system representation as the NYISO employed for the Trial Staff Final Report in the AC Transmission proceedings. Accordingly, the baseline results are the same as those presented at the NYPSC's AC Transmission Technical Conference on October 8, 2015.¹⁴

The Central East baseline voltage transfer limit is 2,725 MW limited by voltage collapse for a common-tower loss of the Marcy – Coopers Corners and Edic – Fraser 345 kV lines (Lines 40 & 41).

The UPNY-SENY thermal transfer limit for the baseline is 5,113 MW limited by the post-contingency flow on the Leeds – Pleasant Valley 345 kV line reaching the long term emergency (LTE) rating for a common-tower loss of the CPV Valley – Rock Tavern and Coopers Corners – Rock Tavern 345 kV lines (Lines 34 & 42B). In the baseline, the Athens Special Protection System (SPS) is assumed to be in-service through June 2024 and out-of-service thereafter. The Athens SPS allows either of the Leeds – Pleasant Valley and Athens – Pleasant Valley 345 kV lines to be secured to its short term emergency (STE) rating following loss of the other parallel circuit if Athens generation can be dispatched down to reduce the flow to or below LTE ratings within 15 minutes. A 2013 agreement between National Grid and Athens states that the Athens SPS will remain in-service for ten years or until the construction of a permanent physical reinforcement is in place.¹⁵ Based on the foregoing, in NYISO's evaluation of the proposed transmission solutions to Segment B, the Athens SPS was assumed to be retired as of the in-service date of the proposed transmission solutions.

¹⁴ Power flow analysis for AC Transmission Proceedings is posted at http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Public_Policy_Documents/AC_Transmission_PP_TN/NYISO_AC_transmission_TechConf_2015-10-08v2.pdf

¹⁵ A National Grid presentation describing the agreement is posted at: https://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2013-01-09/Athens%20SPS%20Update.pdf

3. Proposed Projects and Findings

On February 29, 2016, the NYISO issued a solicitation for Public Policy Transmission Projects and Other Public Policy Projects to address the AC Transmission Public Policy Transmission Need. Project proposals were due on or before April 29, 2016.¹⁶ Following the issuance of the solicitation, the NYISO received numerous questions from interested Developers seeking clarification on the process and the AC Transmission Public Policy Transmission Need. The NYISO summarized the questions and provided responses in a public Frequently Asked Questions (FAQ) document first posted on March 30, 2016 and updated on April 13, 2016.¹⁷

As a result of the February 29, 2016 solicitation, the NYISO received 15 Public Policy Transmission Projects and one Other Public Policy Project. In accordance with Section 31.4.15 of the NYISO OATT, the NYISO maintains the confidentiality of each proposed solution except for certain basic information until the NYISO determines that the proposed solution is viable and sufficient and the Developer consents to the NYISO's inclusion of its proposed solution and disclosure of details of its project in the Public Policy Transmission Planning Report. Table 1 provides the publicly available information for each of the proposed projects considered.

Table 1: Proposed Projects

Developer	Project Name	Category	Type	Location	Size
National Grid / Transco	New York Energy Solution Seg. A	PPTP	AC Transmission	Segment A	N/A
National Grid / Transco	New York Energy Solution Seg. B	PPTP	AC Transmission	Segment B	N/A
NextEra Energy Transmission New York	Enterprise Line: Segment A	PPTP	AC Transmission	Segment A	N/A
NextEra Energy Transmission New York	Enterprise Line: Segment B	PPTP	AC Transmission	Segment B	N/A
NextEra Energy Transmission New York	Enterprise Line: Segment B-Alt	PPTP	AC Transmission	Segment B	N/A
North America Transmission / NYPA	Segment A +765 kV	PPTP	AC Transmission	Segment A	N/A
North America Transmission / NYPA	Segment A Base	PPTP	AC Transmission	Segment A	N/A
North America Transmission / NYPA	Segment A Double Circuit	PPTP	AC Transmission	Segment A	N/A
North America Transmission / NYPA	Segment A Enhanced	PPTP	AC Transmission	Segment A	N/A
North America Transmission / NYPA	Segment B Base	PPTP	AC Transmission	Segment B	N/A
North America Transmission / NYPA	Segment B Enhanced	PPTP	AC Transmission	Segment B	N/A
ITC New York Development	16NYPP1-1A AC Transmission	PPTP	AC Transmission	Segment A	N/A
ITC New York Development	16NYPP1-1B AC Transmission	PPTP	AC Transmission	Segment B	N/A
AvanGrid	Connect New York Recommended	PPTP	HVDC	Segments A and B	1000 MW
AvanGrid	Connect New York Alternative	PPTP	HVDC	Segments A and B	1000 MW
GlidePath	Distributed Generation Portfolio	OPPP	Generation	Orange, Ulster, Putnam, Greene, NY	112 MW

PPTP: Public Policy Transmission Project OPPP: Other Public Policy Project

The NYISO evaluated the viability and sufficiency of all 16 projects. A sufficient Public Policy Transmission Project or Other Public Policy Project shall increase Central East transfer limit by at least

¹⁶ The AC Transmission Public Policy Transmission Need Project Solicitation is posted at: http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Public_Policy_Documents/AC_Transmission_PP_TN/AC_Transmission_PPTN_Solution_Solicitation_2016-02-29.pdf

¹⁷ The AC Transmission Public Policy Transmission Need FAQ document is posted at: http://www.nyiso.com/public/webdocs/markets_operations/services/planning/Planning_Studies/Public_Policy_Documents/AC_Transmission_PP_TN/AC-Transmission_PPTN_FAQ_2016-04-13.pdf

350 MW if proposed for Segment A, or increase UPNY-SENY transfer limit by at least 900 MW if proposed for Segment B, in accordance with Normal Transfer Criteria as defined by the NYSRC Reliability Rules. The NYISO conducted a comparable transfer limit analysis of each project in the same manner as the baseline analysis. As required by the NYPSC Order, Segment A depends upon Segment B being in place, so Segment A would not be constructed without certainty that Segment B would be constructed.¹⁸ Therefore, to assess the sufficiency of Segment A proposals, the NYISO combined each Segment A project with each Developer's Segment B counterpart projects and performed transfer analysis for Central East on the combined cases.¹⁹ If there was at least one combined case which increases the Central East transfer limit by at least 350 MW, the Segment A project meets this Central East sufficiency criterion.

Additionally, a sufficient Public Policy Transmission Project shall include all the Segment A or Segment B components as applicable, and meet the rights-of-way, river-crossing, and cost-estimate requirements as described in Section 2.1 of this report. Table 2 lists the findings for each proposed solution. Detailed results have been provided individually to each Developer that proposed a Public Policy Transmission Project or Other Public Policy Project for the AC Transmission Public Policy Transmission Need.

¹⁸ NYPSC Order, Appendix A

¹⁹ The NYISO did not analyze the viability and sufficiency of each Segment A with each Segment B provided by all Developers.

Table 2: Project Findings

Developer Name	Project Name	Segment	Includes All Segment A Components?	Includes All Segment B Components?	Meets ROW Acquisition Criterion Except For de minimis?	Meets Hudson River Crossing Criterion?	Meets Cost Estimate Criterion?	Central East Limit Increases 350+ MW ?	UPNY-SENY Limit Increases 900+ MW ?	Sufficient?
National Grid / Transco	New York Energy Solution Seg. A	A	Yes	N/A	Yes	Yes	Yes	Yes	N/A	Yes
NextEra Energy Transmission New York	Enterprise Line: Segment A	A	Yes	N/A	Yes	Yes	N/A	Yes	N/A	Yes
North America Transmission / NYPA	Segment A +765 kV	A	Yes	N/A	Yes	Yes	N/A	Yes	N/A	Yes
North America Transmission / NYPA	Segment A Base	A	Yes	N/A	Yes	Yes	N/A	Yes	N/A	Yes
North America Transmission / NYPA	Segment A Double Circuit	A	Yes	N/A	Yes	Yes	N/A	Yes	N/A	Yes
North America Transmission / NYPA	Segment A Enhanced	A	Yes	N/A	Yes	Yes	N/A	Yes	N/A	Yes
ITC New York Development	16NYPP1-1A AC Transmission	A	Yes	N/A	Yes	Yes	N/A	Yes	N/A	Yes
National Grid / Transco	New York Energy Solution Seg. B	B	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes
NextEra Energy Transmission New York	Enterprise Line: Segment B	B	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes
NextEra Energy Transmission New York	Enterprise Line: Segment B-Alt	B	N/A	Yes	Yes	Yes	Yes	N/A	Yes	Yes
North America Transmission / NYPA	Segment B Base	B	N/A	Yes	Yes	Yes	N/A	N/A	Yes	Yes
North America Transmission / NYPA	Segment B Enhanced	B	N/A	Yes	Yes	Yes	N/A	N/A	Yes	Yes
ITC New York Development	16NYPP1-1B AC Transmission	B	N/A	Yes	Yes	Yes	N/A	N/A	Yes	Yes
AvanGrid	Connect New York Recommended	A and B	No	No	Yes	No	N/A	Yes	No	No
AvanGrid	Connect New York Alternative	A and B	No	No	Yes	Yes	N/A	Yes	No	No
GlidePath	Distributed Generation Portfolio	N/A	N/A	N/A	N/A	N/A	N/A	No	No	No

4. Conclusions

The NYISO performed a comparable analysis of each proposed Public Policy Transmission Project and Other Public Policy Project to confirm that the proposed solution satisfies the AC Transmission Public Policy Transmission Need. The NYISO determined that the following projects meet the sufficiency criteria:

- National Grid / Transco – New York Energy Solution Segment A
- National Grid / Transco – New York Energy Solution Segment B
- NextEra Energy Transmission New York – Enterprise Line: Segment A
- NextEra Energy Transmission New York – Enterprise Line: Segment B
- NextEra Energy Transmission New York – Enterprise Line: Segment B Alt.
- North America Transmission / NYPA – Segment A + 765 kV
- North America Transmission / NYPA – Segment A Base
- North America Transmission / NYPA – Segment A Double Circuit
- North America Transmission / NYPA – Segment A Enhanced
- North America Transmission / NYPA – Segment B Base
- North America Transmission / NYPA – Segment B Enhanced
- ITC New York Development – 16NYPP1-1A AC Transmission
- ITC New York Development – 16NYPP1-1B AC Transmission

For each sufficient project, the Developer of the project is qualified to develop a transmission solution in accordance with Attachment Y of the OATT, the solution is technically practicable, and the Developer has an approach for acquiring any necessary rights-of-way, property, and facilities. Therefore, each sufficient project is also viable.

The NYPSC Order also requires that the Developer must submit at least two project cost estimates for Public Policy Transmission Projects. The first required cost estimate shall presume that all prudently incurred costs will be recovered. The second required cost estimate shall reflect an 80/20 incentive regime to control costs. Accordingly, each Public Policy Transmission Project provided at least two cost estimates.

5. Next Steps

Following the NYISO's presentation of these results to Electric System Planning Working Group (ESPWG) and Transmission Planning Advisory Subcommittee (TPAS) and issuance of the final Viability and Sufficiency Assessment, the NYISO will submit the Viability and Sufficiency Assessment to the NYPSC for its review. It is expected that, following applicable public notice and comment procedures in accordance with SAPA, the NYPSC will issue an order explaining whether there continues to be a transmission need driven by a Public Policy Requirement and, if so, that the NYISO should continue to evaluate transmission solutions to the AC Transmission Public Policy Transmission Need.²⁰

If the NYPSC concludes that transmission solutions should continue to be pursued to address the AC Transmission Public Policy Transmission Need, the NYISO will evaluate the Public Policy Transmission Projects, which were determined to be viable and sufficient and have elected to proceed, for purposes of selecting the more efficient or cost-effective Public Policy Transmission Project that is eligible for cost allocation and cost recovery under the NYISO's tariffs. The NYISO will rank these Public Policy Transmission Projects based on their satisfaction of the metrics set forth in the Tariff and in the NYPSC Order and document its findings in the AC Transmission Public Policy Transmission Planning Report.

²⁰ Within 15 Calendar Days following the NYPSC's issuance of an order indicating that the NYISO should proceed with its evaluation of transmission solutions to the Public Policy Transmission Needs, the Developer of a proposed Public Policy Transmission Project that the NYISO has determined is viable and sufficient must notify the NYISO whether it intends for its project to proceed to be evaluated for purposes of the NYISO's selection of the more efficient or cost-effective Public Policy Transmission Project to satisfy the AC Transmission Public Policy Transmission Needs. As part of this notification, the Developer must include its consent to the NYISO's disclosure of the details of its proposed Public Policy Transmission Project in the AC Transmission Public Policy Transmission Planning Report.

Appendix A – Sufficiency Criteria

AC Transmission Public Policy Transmission Needs

Sufficiency Criteria and Additional Information

Sufficiency Criteria (Minimum Criteria)

In order to address the AC Transmission Public Policy Transmission Needs (PPTN) as identified by the NYPSC, a sufficient Public Policy Transmission Project or Other Public Policy Project shall meet, at a minimum, the following criteria:

- Proposed solutions to Segment A (Central East) must provide at least a 350 MW increase to the Central East interface transfer capability in accordance with Normal Transfer Criteria as defined by the New York State Reliability Council (NYSRC) Reliability Rules.
- Proposed solutions to Segment B (UPNY/SENY) must provide at least a 900 MW increase to the UPNY/SENY interface transfer capability in accordance with Normal Transfer Criteria as defined by the NYSRC Reliability Rules.

Additionally, a sufficient Public Policy Transmission Project shall meet, at a minimum, the following criteria stated in the NYPSC Order:

- Proposed solutions to Segment A (Central East) must include all project components included in Segment A as described in Appendix A of the NYPSC Order.
- Proposed solutions to Segment B (UPNY/SENY) must include all project components included in Segment B as described in Appendix A of the NYPSC Order.
- No acquisition of new permanent transmission rights-of-way, except for *de minimis* acquisitions that cannot be avoided due to unique circumstances. The transfer or lease of existing transmission right-of-way property or access rights from a current utility company owner to a Developer shall not be considered such an acquisition.
- No crossing of the Hudson River, either overhead, underwater, in riverbed, or underground, or in any other way by any component of the transmission facility.
- For those Public Policy Transmission Projects that were also evaluated in the NYPSC AC Transmission proceedings, the NYPSC Order states that the cost estimate must not exceed the level estimated by NYPSC Trial Staff for the project, unless the applicant can demonstrate that upward estimates are necessary to correct errors or omissions made by NYPSC Trial Staff for the components that were added or adjusted by NYPSC Trial Staff.¹

¹ The NYISO will perform an independent evaluation of Public Policy Transmission Project costs for purposes of its evaluation and selection process under Section 31.4 of Attachment Y to the NYISO OATT. See OATT Attachment Y Section 31.4.8.

Transmission Evaluation Criteria

For the purposes of evaluation and selection of the more efficient or cost effective Public Policy Transmission Project to address the AC Transmission PPTN, the following criteria identified by the NYPSC Order will be applied in addition to the criteria and metrics defined by Section 31.4.8 of Attachment Y to the NYISO OATT:

- In lieu of establishing an intended in-service year against which project schedules would be evaluated, the NYISO will consider the proposed project schedule for each Public Policy Transmission Project in the evaluation of impacts to congestion and other applicable criteria over the study period. The NYISO will assume that project schedules begin January 1 of a given year following the NYISO's selection and NYPSC Article VII siting approval (*i.e.*, project schedules need not account for the timing of the NYISO or NYPSC processes).
- The selection process will favor Public Policy Transmission Projects that minimize the acquisition of property rights for new substations and substation expansions. For the purpose of this criterion, the transfer or lease of existing property rights from a current utility company owner to a Developer shall not be considered such an acquisition.
- No Public Policy Transmission Project shall be selected for Segment B that does not incorporate certain specified add-ons that would be constructed (*i.e.*, as specified in the NYPSC Order the upgrades to the Rock Tavern Substation and the upgrades to the Shoemaker to Sugarloaf transmission lines), unless the NYISO determines that such add-ons, jointly or severally, are not material to the accomplishment of the purpose a solution for Segment B.
- The selection process for transmission solutions for Segment B shall not use the costs of upgrades to the Rock Tavern Substation and upgrades to the Shoemaker to Sugarloaf transmission lines as a distinguishing factor between Public Policy Transmission Projects.
- No Public Policy Transmission Project shall be selected for Segment A unless a Public Policy Transmission Project is selected for Segment B.
- No Public Policy Transmission Project shall be selected for Segment A except on condition that the Public Policy Transmission Project selected for Segment A shall not be implemented until there is reasonable certainty established in a manner to be determined by the NYISO that the Public Policy Transmission Project selected for Segment B will be implemented.
- The selection process shall favor Public Policy Transmission Projects that result in upgrades to aging infrastructure.
- Project selection will be competitive by Segment (Segment A and Segment B), but synergies produced by selecting a single Developer to provide both segments may be considered.
- The selection process shall not use the percentage rates applied to account for contingencies and revenue requirement as a distinguishing factor between Public Policy Transmission Projects. The NYISO will evaluate costs based on raw construction costs to ensure that all of the proposed Public Policy Transmission Projects are evaluated on a comparable basis as to the scope of costs.

PPTN-specific Project Information

For each Public Policy Transmission Project, the Developer must submit at least two project cost estimates, as required by the NYPSC Order:

- The first required cost estimate shall presume that all prudently incurred costs will be recovered and there will be no sharing of cost overruns by the Developer.
- The second required cost estimate shall reflect an 80/20 incentive regime to control costs. The NYPSC Order stated its intent that if actual costs come in above a cost estimate, the Developer bears 20% of the cost over-runs, while ratepayers bear 80% of those costs. The NYPSC Order stated its intent that if actual costs come in below a cost estimate, then the Developer should retain 20% of the savings. Furthermore, if the Developer seeks incentives from FERC above the base return-on-equity otherwise approved by FERC, then the Developer shall not receive any incentives above the base return-on-equity on any cost overruns over the cost estimate. The NYPSC Order stated that the cost estimate would therefore cap the costs that may be proposed to FERC for incentives.²

Baseline Study Cases

The baseline study case for the AC Transmission PPTN will be the same system representation as that employed by the NYISO for the Trial Staff Final Report in the NYPSC AC Transmission proceedings. That case is based on the NYISO 2014 Comprehensive Reliability Plan base case system representation of 2019 summer peak load, modified to include the now-planned CPV Valley Energy Center generation plant and associated system deliverability upgrades.

The baseline study cases are available, subject to a Critical Energy Infrastructure Information (CEII) request:

http://www.nyiso.com/public/webdocs/markets_operations/services/customer_relations/CEII_Request_Form/CEII_Request_Form_and_NDA_complete.pdf

Baseline Study Results

Baseline study results, as presented in the NYPSC AC Transmission proceedings, are publicly available on the NYISO website under Public Policy Documents at:

http://www.nyiso.com/public/markets_operations/services/planning/planning_studies/index.jsp

² The NYISO takes no position on the cost overrun and underrun provisions in the NYPSC Order, but notes that the NYISO's tariff states that FERC determines the scope of transmission costs that may be recovered under the NYISO's tariffs. See OATT Attachment Y Section 31.4.8.2.