STATE OF NEW YORK
PUBLIC SERVICE COMMISSION

Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades	Case 12-T-0502
In the Matter of Alternating Current Transmission Upgrades - Comparative Proceeding	Case 13-E-0488
Application of North America Transmission Corporation and North America Transmission, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law for an Alternating Current Transmission Upgrade Project Consisting of an Edic to Fraser 345 kV Transmission Line and a New Scotland to Leeds to Pleasant Valley 345 kV Transmission Line	Case 13-T-0454
Part A Application of NextEra Energy Transmission New York, Inc. for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII of the Public Service Law for the Marcy to Pleasant Valley Project.	Case 13-T-0455
The Part A Application of NextEra Energy Transmission New York, Inc. for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII for the Oakdale to Fraser Project	Case 13-T-0456
Application of New York Transmission Owners Pursuant to Article VII for Authority to Construct and Operate Electric Transmission Facilities in Multiple Counties in New York State	Case 13-M-0457
Application of Boundless Energy NE, LLC for a Certificate of Environmental Compatibility and Public Need Pursuant to Article VII for Leeds Path West Project	Case 13-T-0461

INITIAL COMMENTS OF NORTH AMERICA TRANSMISSION, LLC AND NORTH AMERICA TRANSMISSION CORPORATION ON REVISED PART A APPLICATIONS

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Pursuant to the Public Service Commission's (the "Commission") *Order Establishing Modified Procedures for Comparative Evaluation*, issued December 16, 2014 ("December 16th Order"),[1] North America Transmission, LLC and North America Transmission Corporation (together, "North America") respectfully submit these comments on the Revised Part A Applications filed by the various developers in the above-referenced proceedings (collectively, the "AC Transmission Proceeding"). North America submits these comments to assist the Commission in identifying the proposal(s) that best satisfy(ies) the State's transmission requirements and the Commission's criteria in the AC Transmission Proceeding.

Introduction

The December 16th Order sets a path forward and defines—through the Commission's establishment of six evaluation criteria—the balance to be addressed by Applicants in their revised submittals. The six evaluation criteria identified in the December 16th Order focus on technical, environmental, and economic aspects of the various proposals. Specifically, the December 16th Order describes the criteria as

> "1) the relative contribution to transfer capability; 2) the costs to ratepayers; 3) electric system impacts, emissions reductions, and impacts on production costs, measured in terms of overall changes to generation dispatch; 4) the extent of any additional right-of-ways ["ROW"] that may be needed; 5) the integration of innovative technologies to enhance transfer capability or reduce the physical footprint of the project; and, 6) an initial assessment of environmental compatibility, including visual impacts."[2]

As set forth in the detailed comparative analysis below, North America's Revised Part A submittal provides the best balance among these evaluation criteria and best meets the Commission's objectives in the AC Transmission Proceeding. This is demonstrated in particular

[1] Case 13-E-0488: *In the Matter of Alternating Current Transmission Upgrades - Comparative Proceeding*, Order Establishing Modified Procedures for Comparative Evaluation (Dec. 16, 2014).
[2] December 16th Order, at 38.

by the portion of North America's proposal for a new multi-circuit 345 kV line from the Knickerbocker Switchyard to Pleasant Valley referred to as Alternative 2 (115 kV ROW), which:[3]

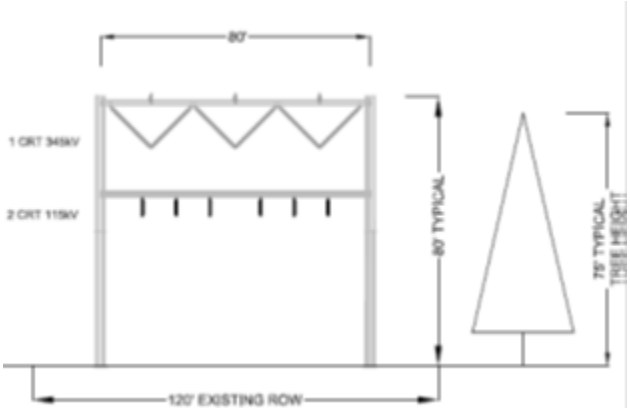

Figure 1 – Multi-circuit tower proposed Knickerbocker-Pleasant Valley, Alternative 2 (115 kV ROW)

- Adds significant increased transfer capability with a new 345 kV circuit;
- Presents a reasonable cost estimate with significant risk protection to ratepayers;
- Provides minimal electric system impacts with the best reliability on the 115 kV system;
- Requires no new ROW;
- Offers an innovative tower design that meets the criteria of not requiring a wider ROW and being no taller than the existing transmission lines; and
- Minimizes environmental impacts, including visibility impacts, by being within an existing ROW, at the same or lower height as the existing towers.

Further, North America's Knickerbocker - Pleasant Valley Alternative 2 (115 kV ROW) is the only proposal that meets all of the key goals of the proceeding – additional transfer capability provided by an additional 345 kV circuit, is entirely within exiting ROW, and is no taller than the existing transmission lines and structures. Additionally, North America proposes to execute this proposal with significant ratepayer risk mitigation.

In contrast to North America's Knickerbocker - Pleasant Valley Alternative 2 (115 kV ROW), Table 1 on the following page compares the elements proposed by each applicant in their respective Revised Part A Applications. The criteria used to assign scoring to each element in

[3] North America's Alternative 2 (115 kV ROW) could a) originate at the New Scotland Substation with a segment from New Scotland to the Knickerbocker Switchyard/Substation within the CSX railroad ROW and continue within the 115 kV ROW to the Pleasant Valley Substation or b) originate at the Knickerbocker Substation/Switchyard and continue within the 115 kV ROW to Pleasant Valley. These comments generally refer to the Knickerbocker Switchyard to Pleasant Valley portion of this alternative. The alternative from New Scotland to Knickerbocker to Pleasant Valley would have similar benefits, but with additional ROW and new towers on the segment from New Scotland to Knickerbocker, as well as an additional river crossing.

Table 1 is identified in the notes at the bottom of the table. For these reasons, among others described herein, North America's Knickerbocker-Pleasant Valley Alternative 2 (115 kV ROW) proposal should be a key element of any final portfolio selected by the Commission.

Table 1 – Comparison of Proposal Elements

Individual Projects	Increased transfer capability[1]	Cost to ratepayers[2]	Electric system impacts[3]	Extent of any additional ROW[4]	Innovative tech. (transfer capability or reduce footprint) [5]	Environ. Compat. (including visual impacts) [6]
North America						
Edic-Fraser	o	+	+	-	o	o
New Scotland-Leeds-Pleasant Valley	+	+	+	-	o	o
NS-L-PV Alternative 1 (I-87 ROW)	+	o	+	o	o	-
K-PV Alternative 2 (115 kV ROW)	**+**	**o**	**+**	**+**	**+**	**+**
NEETNY						
Thruway	+	o	+	o	o	-
Marcy Southern 1	+	o	-	+	o	o
Marcy Southern 2	+	o	-	+	o	o
Marcy Northern	+	o	-	+	o	o
Knickerbocker	+	o	-	+	o	o
Oakdale-Fraser	o	o	o	+	o	o
Boundless						
Reconductor CPV Valley-Rock Tavern	-	o	o	+	o	+
Reconductor Leeds-PV	-	o	o	+	o	+
Reconductor Leeds-Hurley	-	o	o	+	o	+
Roseton-East Fishkill (2 circuits)	-	o	o	+	o	+
NYTOs						
Edic-Princetown-Rotterdam-New Scotland	+	-	-	+	o	o
New Scotland-Leeds-PV	+	-	o	+	o	o
New Scotland-Churchtown-PV	+	-	o	+	o	o
New Scotland-Leeds-PV Reconductor	-	-	-	+	+	+
New Scotland-Leeds-PV Reconductor	-	-	-	+	+	+
Knickerbocker-Churchtown-PV	+	-	-	+	o	o
Hurley Avenue PARs	o	-	o	+	+	+

Key: + Better than average proposal
o Average proposal
- Worse than average proposal

Notes

1. Segment is identified as "+" if it adds a new circuit to UPNY/SENY, "–" if it only reconductors this path, and "o" otherwise.

2. Segment is identified as "+" with a low, all-inclusive binding estimate, and "–" with non-binding estimate.
3. Segment is identified as "+" if it adds a new circuit to UPNY/SENY and does not negatively impact the 115 kV system and "-" if it has negative impacts to service on the 115 kV system.
4. Segment is identified as "–" if it requires new ROW, "+" if entirely within existing ROW. The proposals along the highway are identified as o due to minimizing new ROW where they are within the highway ROW, but requiring new ROW between the highway ROW and terminal substations.
5. A segment is identified as "+"if it includes a true technical innovation that reduces the footprint of the project.
6. A segment is identified as "+" if no taller than existing lines in an existing ROW and "–" in an area with new visual impacts.

North America Comments on the Revised Part A Applications

North America's comments on each of the Revised Part A Applications are organized to track the six evaluation criteria identified in the Commission's December 16th Order.

1) Relative Contribution to Transfer Capability

The increased transfer capability of each proposal will be identified in the ongoing New York Independent System Operator ("NYISO") analysis. North America expects that reconductoring proposals identified by Boundless Energy NE, LLC ("Boundless") and by the NY Transmission Owners ("NYTOs") will have relatively lower benefits than proposals that include the addition of a new circuit. In any event, even if a reconductoring proposal provides some technical benefits, reconductoring does not provide adequate long-term solutions to New York's persistent congestion issues. Congestion not only results in higher costs for downstate electricity customers, it also limits the ability of new upstate renewable resources to enter service and causes market inefficiencies that may cause valuable upstate generation to exit the market.

Reconductoring Provides Little Incremental Capacity

By necessity, utility planning is conducted in a manner commonly referred to as contingency analysis. In utility planning terminology, the state "N" or "Normal" is used to refer to a state of the entire system intact. "Minus 1" or "-1" is used to refer to a "contingency event" of a specific element in the system instantly being removed from service. This could be due to a lightning strike, breaker failure, storm, fire, or other unpredictable event that removes a

transmission system element from service due to a fault. The transmission system must be designed to operate after the occurrence of such an event in order to operate reliably. For example, Figure 2 below depicts a simplified electrical transmission system consisting of a 2,000 MW power plant with two transmission lines to a town each rated at 1,000 MW.

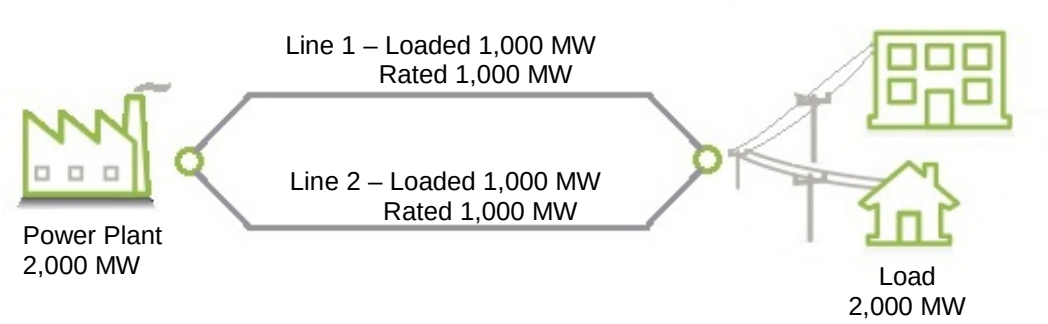

Figure 2

This system might suffice under normal conditions, with 1,000 MW flowing on each line. But if a contingency were to happen that instantly removes one line from service, all 2,000 MW would try to flow on the second line, shown in Figure 3, and the second line would be overloaded (since it is only rated to carry 1,000 MW) and would likely immediately trip out of service to protect itself. This would result in a blackout in the town as both lines would be out of service.

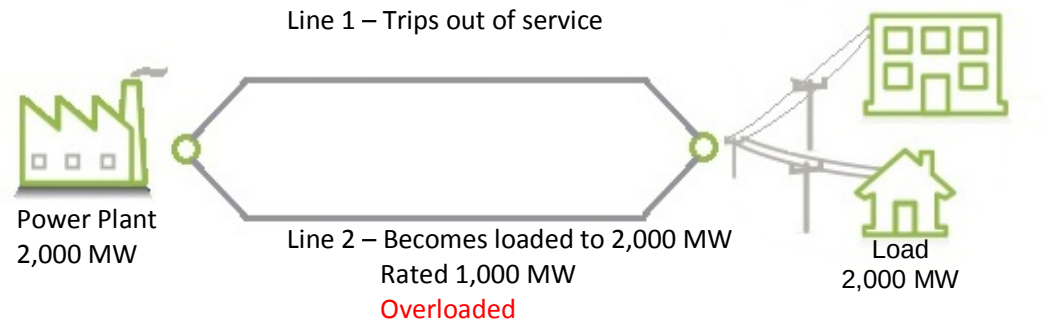

Figure 3

The system in Figures 2 and 3 is not reliable and would never exist in the real world, because an event that would reasonably occur would result in an interruption in service. In order to be a reliable system under N-1 planning, each of the two parallel lines would need to be rated at 2,000 MW each. In this reliable system, each line would normally operate at 50% of its capacity (1,000 MW), but be capable of flowing 2,000 MW, shown in Figure 4.

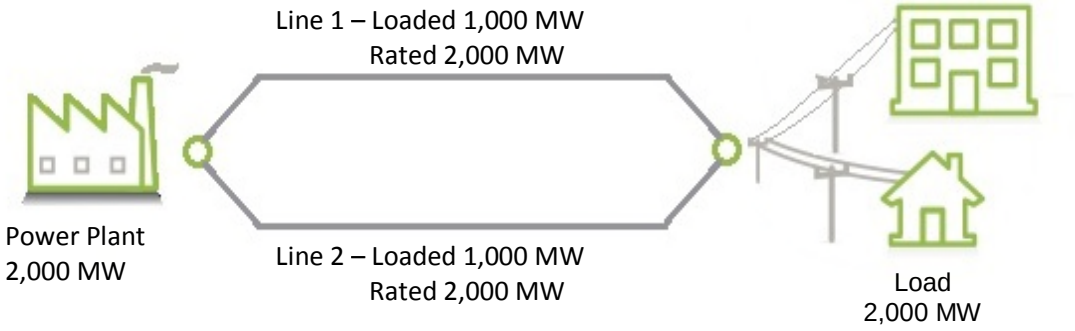

Figure 4

If one line were to trip out of service, all of the power (2,000 MW) would flow on the second line, but it would not be overloaded. In this case, the transfer capability of the system would be 2,000 MW.

This simple example helps illustrate why reconductoring only one transmission line provides relatively little benefit. Figure 5 below identifies what happens with the reliable system in Figure 4 after attempting to increase transfer capability by reconductoring only one transmission line. For example, if the load in the town increases to 4,000 MW, and the capacity of the power plant were to increase to 4,000 MW, it would be necessary to increase the system transfer to 4,000 MW. Reconductoring only one of the lines to 4,000 MW would not achieve any increase and still ensure a reliable system. Under the N-1 contingency of the improved line, the unimproved line would become overloaded as all 4,000 MW would attempt to flow on a line,

which only has a rating of 2,000 MW, shown in Figure 5. Instead of the system in Figure 5, both lines would need to be doubled in capacity to a full 4,000 MW in order to achieve a 4,000 MW transfer capacity in a reliable manner.

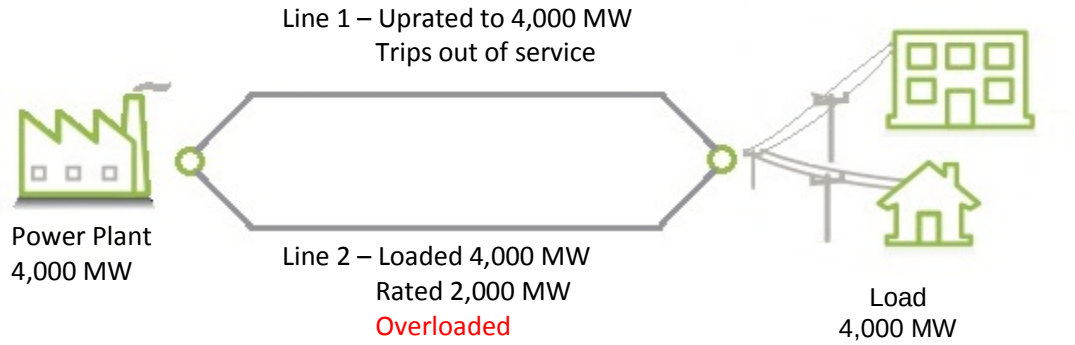

Figure 5

However, instead of doubling both lines, a single new 2,000 MW rated circuit (for a total of 3 lines from the power plant, shown in Figure 6) will also be a reliable system for a 4,000 MW plant under N-1 planning. In this scenario, each line would operate at 1,333 MW under normal conditions.

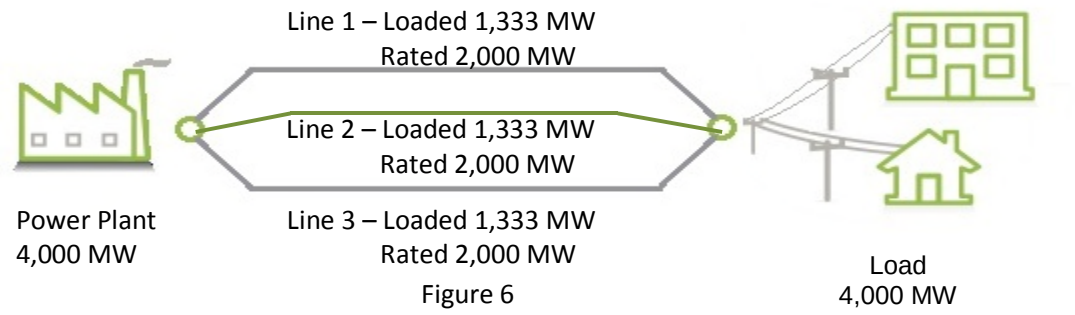

Figure 6

Under a contingency of 1 of the 3 lines, the full capacity of the power plant (4,000 MW) can still be delivered to the load, since the remaining 2 lines have a total capacity of 4,000 MW (2,000 MW each), shown in Figure 7.

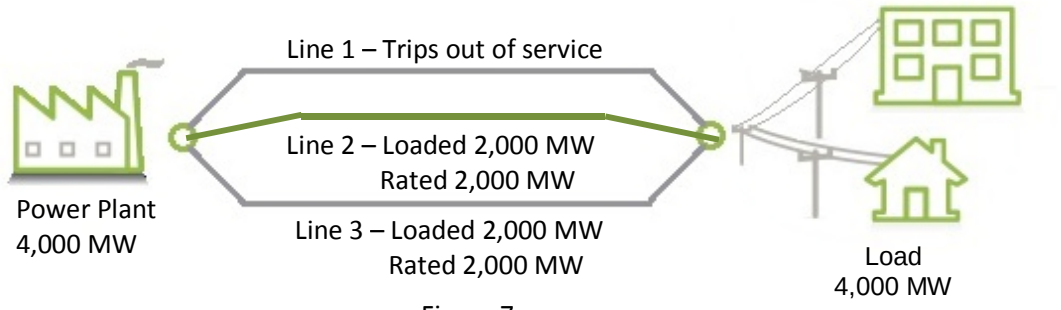

Figure 7

The transfer capability of this new system would be 4,000 MW. Because contingency planning requires there to be latent capacity available for system contingencies, there is a tremendous benefit from a new circuit. In this example, going from 2 to 3 lines doubles the system transfer capacity, from 2,000 MW to 4,000 MW. While the real transmission system operation is more complicated, this example demonstrates why a proposal that simply reconductors only one transmission line provides relatively little benefit under contingency analysis, particularly compared to an alternative that adds an additional circuit to the integrated transmission system.

Traditional "N-1" transmission planning analysis uses complex computer models of the entire transmission system, including all of generators, transmission lines, and loads. The system model is initially optimized in a "base case" with the entire system intact and generators running in an economic, efficient manner to reliably serve load while recognizing limits set on all of the system elements based on a contingency analysis, which considers systematic removal of all possible elements. The "N-1-1" surplus analysis being conducted by NYISO is also a complex analysis. An N-1-1 analysis does not take two elements simultaneously out of service (that would be "N-2") but instead removes elements sequentially, with the system undergoing redispatch after removal of the first element. However, the same principle holds, namely that

upgrading a few elements provides relatively little value in the study cases where two upgrade elements are possibly removed from service due to contingencies.

Reconductoring is Not a Long-Term Solution

In any event, even if reconductoring proposals identified in the AC Transmission Proceeding contribute to increased transfer capability, such a plan is not an adequate long-term solution. The transmission lines proposed to be reconductored by Boundless and the NYTOs[4] have been identified as having a requirement to be upgraded within 10 years.[5] In fact, several lines proposed to be reconductored by Boundless and the NYTOs have been identified as having a design not in compliance with current transmission line construction requirements.[6] Simply reconductoring these lines, or even reconductoring these lines in combination with reinforcing the towers, is not a long-term solution. It does not change the fact that the foundations and overall structures are still aging and will soon require replacement. Reconductoring lines can be analogized to installing a new transmission in an old car. It might help extend the life of the car for a short time via a large expenditure, but the owner will eventually need to purchase a new car. When looking at the benefit of a reconductored line, the analysis should consider that the benefit will only be in place less than 10 years, until the subject line will require replacement.

In addition, proposals that include rebuilding the existing 115-kV transmission lines between Knickerbocker and Pleasant Valley have additional long-term benefits, since the

[4] Boundless proposes reconductoring of Leeds to Hurley Avenue, CPV Valley to Rock Tavern, and Leeds to Pleasant Valley. The NYTOs propose some scenarios which reconductor all of or a portion of the existing New Scotland to Leeds to Pleasant Valley circuits.

[5] *See* Case 12-T-0502: *Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades*, NY TransCo Statement of Intent (Jan. 25, 2013), Exhibit A - New York State Transmission Assessment and Reliability Study Phase II Study Report (Apr. 30, 2012), at 18.

[6] While upgrading older transmission lines to meet current transmission line requirements is not always necessary, National Grid has identified that the New Scotland-Leeds-Pleasant Valley 345 kV lines are being evaluated for replacement due to exposure to cascading Type 3A/3B structure failure. *See* Case 12-E-0201: *Proceeding on Motion of the Commission as to the Rates, Charges, Rules and Regulations of Niagara Mohawk Power Corporation d/b/a National Grid for Electric Service*, Annual Asset Condition Report (Oct. 1, 2014), at 23.

existing 115 kV lines between Knickerbocker and Pleasant Valley have been identified as having a requirement to be replaced within 20 years.[7] North America's proposal, which accomplishes the replacement of the existing 115 kV lines with new, higher-capacity lines and new towers, will avoid this near-term future expense.

Finally, a qualitative benefit of a new circuit is the strengthening of the system to enable taking aging infrastructure out of service for replacement.[8] The evaluation of proposals that only reconductor lines in the UPNY/SENY interface have a significant hidden cost of congestion that will arise during periods when the lines are taken out of service to accomplish the reconductoring.

2) Cost to Ratepayers

North America's proposals provide the best risk mitigation and lowest risk adjusted costs for ratepayers and are the only proposals that exceed the Commission's proposed minimum risk mitigation. The proposals from the other applicants are either higher cost, higher risk, or both. In addition, North America is the only applicant that provided a cost proposal responsive to the December 16th Order inclusive of all costs that could be known at this stage. The Commission should also consider life-cycle costs in addition to capital costs, and North America is the only bidder that also provides certainty and protection related to annualization of capital costs.

[7] *See* Case 12-T-0502: *Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades*, NY TransCo Statement of Intent (Jan. 25, 2013), Exhibit A - New York State Transmission Assessment and Reliability Study Phase II Study Report (Apr. 30, 2012), at 18.

[8] *See* Case 12-T-0502: *Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades*, Notice Soliciting Comments and Scheduling Technical Conference (Jul. 10, 2013) Attachment - Energy Highway AC Transmission Initiative Straw Proposal, Cost Allocation, Cost Recovery & Risk Mitigation, at 4-5. ("The rebuilding of circuits on a congested path poses complex construction challenges. Where there are insufficient redundant paths to permit taking a line out of service, the options for demolition and construction are costly. Besides increased construction costs, there are also increased congestion costs as operators may need to rely on more expensive downstate generation more often").

The NYTOs' Proposal Fails to Provide Binding Cost Estimates

The NYTOs have explicitly "decline[d]" to characterize costs as binding at this stage. Specifically, the NYTOs' cover letter to their January 7th Revised Part A Application states:

> "Accordingly, the Indicated NYTOs reserve the right to review all of the terms and conditions of the Commission's final order before committing to proceed with the Alternative Proposals
>
> * * *
>
> Footnote 2: For the above reasons, the Indicated NYTOs expressly decline to characterize their cost estimates contained in the enclosed Part A data as binding."[9]

This reservation is reiterated in a subsequent filing by the NYTOs:

> "The Indicated NYTOs provide this information subject to the same reservations expressed in their letters of January 7 and 20, 2015 in this proceeding with respect to cost recovery, cost allocation and risk sharing, and continue to reserve the right to review all of the terms and conditions of the Commission's final order before committing to proceed with the Alternative Proposals."[10]

Notably, the NYTOs also requested clarification of the risk mitigation requirements in the December 16th Order[11]. In the December 16th Order, the Commission stated, "[a]ccordingly, the Commission will expect any developer submitting a project for consideration in the comparative evaluation process to be willing to accept the risk-sharing proposal adopted herein."[12] If all applicants are unwilling to comply with this requirement, the proposals cannot be adequately

[9] Case 13-M-0457: *Application of New York Transmission Owners Pursuant to Article VII for Authority to Construct and Operate Electric Transmission Facilities in Multiple Counties in New York State*, Part A Data Required for NYISO Analysis and Information (Filed Jan. 7, 2015), at 2.
[10] Case 13-M-0457: *Application of New York Transmission Owners Pursuant to Article VII for Authority to Construct and Operate Electric Transmission Facilities in Multiple Counties in New York State*, Remaining Part A Materials (Filed Mar. 2, 2015), Cover Letter, at 1.
[11] Case 13-E-0488, *et al.*: *In the Matter of Alternating Current Upgrades – Comparative Proceeding*, Petition for Clarification and/or Rehearing of the Indicated New York Transmission Owners (Filed Jan. 15, 2015).
[12] December 16th Order, at 45.

compared.[13] The non-binding nature of the NYTOs' proposal could seriously disadvantage ratepayers.

NEETNY's Cost Estimates Are Not Inclusive

There are many areas where the capital cost estimates provided by Nextera Energy Transmission New York, Inc. ("NEETNY") appear unrealistically low and not inclusive of everything requested by the Commission. The result is that NEETNY's estimates cannot be directly compared to North America's.

a. NEETNY's January 7, 2015 binding cost estimates do not include interconnection costs or demolition costs.

b. NEETNY's construction labor portion of its cost estimates, in particular, is unrealistically low compared to others. This can be seen in a comparison of the relative share of construction labor as an overall element of the estimate, which can most simply be seen in a calculation of the ratio of transmission line construction to transmission line materials. Table 2 below lists the estimated materials and labor for transmission line construction, and ratio of these values, for each proposal requiring new construction.

Table 2 – Ratio of Estimated Transmission Line Labor Cost to Material Cost

	Transmission Line Material ($ million)	Transmission Line Labor ($ million)	Ratio Labor: Material
NEETNY[14]			
Thruway	172.6	275.3	1.6

[13] The same goes for cost allocation, to which the NYTOs take exception. Furthermore, the NYTOs have requested cost allocation at FERC in Docket ER15-572. This is inconsistent with the cost allocation identified by the Commission in this proceeding. FERC Docket ER15-572: *New York Transco, LLC, Central Hudson Gas & Electric Corp., Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corp., Orange & Rockland Utilities, Inc., and Rochester Gas and Electric Corp*, Application for Acceptance of Transmission Formula Rate and Approval of Transmission Rate Incentives and Cost Allocation Method (Filed Dec. 4, 2014).

[14] *See* Appendix C of NEETNY's March 2, 2015 filing.

Marcy Southern 1	75.3	107.8	1.4
Marcy Southern 2	107.0	180.8	1.7
Marcy Northern	76.2	113.0	1.5
Knickerbocker	40.2	47.1	1.2
Oakdale-Fraser	30.6	44.6	1.5
NYTOs[15]			
O-F	18.1	81.8	4.5
KB-CT	23.0	68.6	3.0
CT-PV	31.1	100.2	3.2
ED-PT	36.2	168.2	4.6
PT-NS	15.5	46.3	3.0
PT-RD	8.4	17.2	2.0
North America			
New Scotland-Leeds	10.9	31.1	2.9
Leeds-Pleasant Valley	21.8	56.1	2.6
New Scotland-Leeds (Alt. 1 I-87)	19.3	68.6	3.6
Leeds-Pleasant Valley (Alt 1 I-87)	37.0	131.3	3.5
New Scotland-Knickerbocker	7.8	18.8	2.4
Knickerbocker-Pleasant Valley (115 kV ROW)	49.5	242.3	4.9
Edic-Fraser	37.4	126.3	3.4

As shown in Table 2, the range of the ratio of NEETNY's estimated labor to estimate materials is 1.2 to 1.7, with the lowest being only 1.2 for the Knickerbocker proposal. The range of the estimated labor to estimated materials for the other new construction proposals is 2.0 to 4.9. NEETNY's construction labor estimates do not appear to be calculated on the same basis as others. While the reason cannot be identified based on the level of detail provided, it is possible that NEETNY did not account for local labor rates. In addition, the NEETNY cost estimates do not appear to include an adequate allowance for construction access or typical environmental measures such as matting and washing of construction equipment to avoid spreading of invasive non-

[15] *See* Additional Cost Information from NYTOs April 15, 2015. Labor includes categories of Labor & Equipment, Access Roads, Access Roads – Matted, and Vegetation Management / Removals.

native vegetation, and restoration of the ROW.[16] NEETNY may have only assumed the use of timber mats in wetlands, and not for all sensitive areas. NEETNY may be relying on these provisions, such as use of timber mats, to ultimately be Commission-imposed requirements that will have a cost greater than the 5% materiality threshold set forth in the process, and therefore be recoverable above its binding cost estimate.[17]

c. NEETNY's estimates do not identify an allowance for contingency, resulting in a higher likelihood that the actual costs will be higher than the estimated amount, with a higher cost to ratepayers.

d. In areas where NEETNY does include detailed estimates, such as landowner payments for new ROW, NEETNY appears to have a very low estimate that only accounts for the bare value of property with no allowance for damages, no premium to landowners, and no other related costs such as surveying. NEETNY does not include any compensation to the existing ROW owners for projects that would utilize an existing corridor. North America, however, assumes payment of a premium to landowners, which will ensure landowners are treated fairly and also provides more local area benefits.

e. NEETNY does not include any allowance for community impact mitigation. North America assumes a significant allowance for such potential impact mitigation, representing significant host community benefits of North America's proposal relative to that of NEETNY.

[16] For example the estimated clearing, access road, and matting costs for North America's Knickerbocker-Pleasant Valley 115 kV Corridor Alternative 2 was $42.1 million while NEETNY's *total* construction labor cost for a similar line in the same ROW is only $47.1 million. *See* Case 13-T-0454: *Application of North America Transmission Corporation and North America Transmission, LLC,* Additional Environmental and Cost Information (Filed Mar. 2, 2015), at 133.

[17] *See* December 16th Order, at 45.

Furthermore, recent transmission projects completed by affiliates of North America and NEETNY provide further reason to scrutinize NEETNY's cost estimates. North America's affiliate Cross Texas and NEETNY's affiliate Lone Star Transmission have both recently placed transmission lines in service in Texas. Each of these facilities was constructed at the same time, in the same state, with the same design parameters (double-circuit 345 kV lines). North America's affiliate's average cost per mile ($1.52 million per mile) was *23% less* than NEETNY's average cost per mile ($1.87 million per mile). After adjusting these actual costs from Texas to estimates for New York, and taking into account differences in the proposed design, local factors such as the cost of real estate, local labor rates, and escalation, North America expects the relative costs associated with its approach and NEETNY's should remain proportional.

Since NEETNY's current estimates appear non-inclusive and unreasonably low, they should be considered with the potential for upward adjustment based on the likelihood that the actual costs will be much higher, including costs such as interconnection costs and demolition costs that are excluded from the risk mitigation cost estimate cap. This adjustment should include: an increase to demolition and interconnection costs to recognize the risk that such items will be much higher than NEETNY's nonbinding estimates; an increase to transmission labor, access, and matting to be consistent with other proposals; an increase to real estate costs to include damages, surveying, and acquisition costs and the cost of land for an easement within the utility ROW as applicable; and the addition of contingency at a level consistent with other bidders. These adjustments will better reflect the ultimate true costs of NEETNY's proposal to ratepayers. North America's estimates, on the other hand, are all inclusive with sufficient detail

to confirm the inclusive nature of such estimates and, therefore, do not necessitate upward adjustment.

From the detail provided in NEETNY's estimates, there may also be upward adjustments for elements included in the cost estimate that would be subject to NEETNY's risk mitigation cap. For example, it should be assumed that the construction cost will be higher than presented by NEETNY's seemingly low estimates. It is possible that NEETNY will be attempting to make up its lost revenue from its risk mitigation from a higher incentive return on equity or other rate parameters such as capital structure. North America, however, has agreed to limit its return on equity. The impact of these differences is identified under the *Annualization of Costs* discussion later in these comments.

Boundless's Costs May Be Excessive

Although the basic premise of Boundless's proposal – reconductoring an existing circuit - appears on its face to be very cost effective, the Boundless proposal may, upon closer review, result in higher costs due to the related costs required to implement this proposal. As discussed above, simply reconductoring a single line provides less benefit than adding a new circuit. Despite this deficiency, Boundless proposes to reconductor multiple lines. In addition, Boundless's plan requires two new underground/underwater 345 kV circuits, which are costly, and Boundless's plan proposes to significantly expand and rebuild the East Fishkill substation as a Gas-Insulated Substation, which is also costly as evidenced by Boundless's cost estimate of $660 million, which is 40% more expensive than the North America's cost estimate of $461 million for its Portfolio 1.[18] Further, in the long-run, Boundless's proposal will be much more

[18] North America's Portfolio 1 consists of Edic-Fraser and New Scotland-Leeds-Pleasant Valley, which have an estimated Capital Cost of $260 million and $201 million, respectively. *See* Case 13-T-0454: *Application of*

costly after consideration of the additional costs when the reconductored lines will ultimately have to be rebuilt.

North America's Cost Estimates are Least Risk

North America utilized the risk mitigation approach outlined in the December 16th Order. Indeed, North America went beyond the Commission's minimum approach, proposing to accept even greater risk of cost overruns, bearing 25% of any cost overrun greater than 20% of its capital cost estimates. This provides even more risk mitigation than other applicants, who merely accept the basic risk mitigation provisions of the proceeding without the enhancement offered by North America or who outright object to any risk mitigation. In addition, only North America has agreed to limit its return on equity.

Annualization of Costs

The December 16th Order describes the second evaluation criteria as "Cost to ratepayers." The risk mitigation approach in this proceeding is an important first step in controlling costs to ratepayers. Consideration also should be given to features that mitigate the annualization of capital costs to a revenue requirement. North America's proposal not only assures a low-cost, low-risk capital cost, but also provides a much lower annual cost to ratepayers than alternatives.

There are many factors that influence the annualization of the capital cost to a revenue requirement. Three key factors are the capital structure (composition between debt and equity), rate of return on equity, and cost of debt. In their formula rate filing at FERC, the NYTOs

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North America Transmission Corporation and North America Transmission, LLC, Part A Data Required For NYISO Analysis and Information Requested in Appendix B of the December 16 Order (Filed Jan. 7, 2015), at 6 and 32.

request rate parameters that will result in a very high annual cost to ratepayers compared to North America.[19]

Table 3 below identifies how several of the differences in rate determinants between the NYTOs' rate filing and what would be included in North America's rates would impact ratepayers, per $100 million of rate base.

Table 3 – Comparison of Annual Revenue Requirement

		Column 1	Column 2	Column 3	Column 4
		NYTOs Rate Filing at FERC	Difference in Capital Structure to 50/50 Debt/Equity	Difference in Return on Equity, 50 bps	Difference in Cost of Debt
1	Rate Base	100,000,000	100,000,000	100,000,000	100,000,000
2	Debt Percent	40%	50%	50%	50%
3	Interest Rate	5.63%	5.63%	5.63%	3.80%
4	Equity Percent	60%	50%	50%	50%
5	Return on Equity Rate	11.6%	11.6%	10.5%	10.5%
6	Federal Tax Rate	35%	35%	35%	35%
7	State Tax Rate	2%	2%	2%	2%
8	Simple Total Tax Rate	37%	37%	37%	37%
9	Return on Equity (1) x (4) x (5)	6,960,000	5,800,000	5,550,000	5,550,000
10	Interest Expense (1) x (2) x (3)	2,253,600	2,815,000	2,815,000	1,900,000
11	Income Tax Allowance	4,087,619	3,406,349	3,259,524	3,259,524
12	Total Year 1 Revenue Requirement Related to Capital (9) + (10) + (11)	13,301,219	12,021,349	11,624,524	10,709,524
	Incremental Difference (Prior Column)		1,279,870	396,825	915,000
	Total Difference Line 12 Column 4 – Column 1				2,591,695
	Percent Difference, Line 12 Column 1 – Column 4				24.2%

The NYTOs submitted an application to set rates at FERC for the projects they proposed in this proceeding. FERC has issued an order granting some aspects of the application, rejecting

[19] *See* FERC Docket ER15-572: *New York Transco, LLC, Central Hudson Gas & Electric Corp., Consolidated Edison Company of New York, Inc., Niagara Mohawk Power Corporation d/b/a National Grid, New York State Electric & Gas Corp., Orange & Rockland Utilities, Inc., and Rochester Gas and Electric Corp*, Application for Acceptance of Transmission Formula Rate and Approval of Transmission Rate Incentives and Cost Allocation Method (Filed Dec. 4, 2014). In their application, the NYTOs also request recovery of incurred abandoned plant costs including costs associated with this proceeding, which is not available to the other participants, and recovery of CWIP.

some, and setting others for hearing and settlement discussions. The calculations shown in Column 1 are based on aspects that were approved or based on the NYTOs' application for elements of the application that remain pending. Column 1 estimates the annual revenue requirement based on the rate determinants in the NYTOs' FERC filing of 40% debt/60% equity,[20] 5.63% cost of debt, 11.6% total return on equity (based return on equity of 10.6% requested by NYTOs plus 100 basis points of incentive return on equity granted for the Edic-Pleasant Valley proposal), a 35% federal income tax rate, and 2% state gross receipt tax rate. The total year one revenue requirement related to capital (not including depreciation) for $100 million of initial capital investment would be $13,301,219.

Column 2 shows the impact on this first year revenue requirement from a more traditional capital structure of 50% equity/50% debt, compared to the capital structure requested by the NYTOs of 60% equity, 40% debt. Keeping all other factors constant, the revenue requirement from $100 million of rate base would be $12,021,349, or $1.28 million less than under the assumptions in Column 1. The relative impact of this change in capital structure would not just apply in the first year, but throughout the life of the project. Just this one change would result in a 10% higher cost to ratepayers over the life of the project.

Column 3 shows the impact of a 50 basis point lower return on equity. This would result in a first year annual revenue requirement that is $396,825 less than Column 2, or over 3% less than under the approach identified by the NYTOs. This is in addition to the savings under the different capital structure assumptions between Column 1 and Column 2. The relative impact of this change would also apply throughout the life of the project, with significant total impacts to

[20] The specific NYTO request was for a hypothetical capital structure of 60% equity and 40% debt during construction and the actual capital structure thereafter. Although this was denied by FERC and set for hearing, there is nothing limiting what the actual capital structure requested by the NYTOs during construction and after, and no indication that the NYTOs would request or maintain a capital structure any different than the requested hypothetical 60% equity and 40% debt.

ratepayers. In order to fairly evaluate and compare other proposals, such as the proposals of NEETNY or Boundless, the highest level of ROE adders allowed under FERC precedent should be utilized.

Column 4 shows the impact of a different cost of debt. North America's regulated affiliate Cross Texas recently closed a long-term financing at a much lower cost of debt than identified by the NYTOs, with a rate of less than 3.8% identified in its recent rate case.[21] The first year savings impact of this difference in cost of debt expected by the NYTOs and actual cost of debt realized by affiliates of North America, per $100 million of rate base, would be $915,000. A higher cost of debt would also be applicable to those who do not provide credible estimates such as NEETNY, as cost overruns will result in a higher borrowing cost.

The total impact of the annual costs under North America's proposal relative to the NYTOs' application is $2.6 million or 24%, based on an equal capital investment. Note that these annual cost savings are cumulative to the cost savings due to North America's binding cost estimates, which are backed by enhanced risk mitigation. Also note that this is a conservative approach because it does not account for the additional impact of having higher Allowance for Funds Used During Construction ("AFUDC") / Construction Work in Progress ("CWIP") during construction with the less favorable capital structure, return on equity adders, and cost of debt. It also does not take into account the NPV impact of the NYTOs request for CWIP.

3) Electric System Impacts

The electric system impacts of each portfolio will be identified in the ongoing NYISO analysis. However, North America's Knickerbocker to Pleasant Valley Alternative 2 (115 kV

[21] The debt consisted of several tenors with a lower general interest rate, but the cost to ratepayers after inclusion of financing costs and fees was agreed with intervenors to be 3.789%. *See* Stipulation and Agreement filed in Public Utilities Commission of Texas Docket 43950 on March 25, 2015.

ROW) offers demonstrable advantages when compared to other proposals to rebuild in the 115 kV corridor. Both the NYTO's and NEETNY's proposals in this corridor change the underlying 115 kV system in a way that has a significant negative effect on local area reliability. In addition, the electric system impacts analysis should include consideration of the inclusion of the CPV Valley project, particularly for the Boundless proposal.

115 kV System Impacts of NYTOs and NEETNY

In response to the December 16th Order and related guidance from the Commission on utilization of existing ROW, North America, NYTOs, and NEETNY all proposed an alternative that would involve construction of a new 345 kV transmission line in the existing 115 kV ROW between Knickerbocker and Pleasant Valley. Although these respective alternatives appear identical on a map because they are located in the same existing ROW, they are very different from an electric perspective, particularly with respect to changes to the underlying 115 kV system in the area. Generally, the existing 115 kV corridor today contains four 115 kV circuits, two circuits each on two sets of transmission line towers. These circuits include many taps and connections that serve load in the local area. Having four circuits provides strong reliability because when one circuit trips out of service due to lightning, faults, or other events, redundancy protects load from outages. More circuits and more capacity work better to serve load reliably. North America spent a great deal of time and effort to ensure that the local area reliability remains equal to or better than the existing system. This was accomplished with the innovative multi-circuit tower that includes one 345 kV circuit and two new high-capacity 115 kV circuits. North America's proposal combines the four existing circuits into two, but in a manner that ensures diversity in serving load and avoiding having all service in the area interrupted due to a single fault anywhere on the circuit or its taps.

In contrast, NEETNY's proposal retires several of the 115 kV circuits without replacement, resulting in going from two circuits to one north of Knickerbocker, and from four circuits to two south of Churchtown. In each case, there is a degradation in service to customers. North of Knickerbocker, NEETNY proposes to combine the two circuits to a single circuit with taps to serve load at Fort Orange and Valkin from a single circuit. The result is that these loads are now exposed to an outage due to a fault at the other location (Valkin would be out of service due to a fault at Fort Orange and vice versa). South of Churchtown, both North America and NEETNY replace the existing four circuits with two, but with the key difference being the capacity of the two replacement circuits. North America proposes two new high-capacity circuits with a significant improvement in total capacity in the existing corridor, even compared with the older four circuits. NEETNY removes two circuits and leaves only two of the older, low capacity circuits, cutting the existing 115 kV capacity in the corridor in half. Therefore, North America provides an increase in system capacity in the corridor while NEETNY reduces the 115 kV system capacity in the area. In addition, NEETNY proposes to remove one of the taps that serves one of the busses at Blue Stores without replacement. This exposes the load at Blue Stores to an outage under a single fault along the line.

Likewise, the NYTOs' proposal adversely impacts service in the area due to a reduction in the circuits in the area. From Greenbush to Churchtown, the NYTO proposal reduces two circuits to a single circuit. This reduces the feeds into Valkin from having the diversity of tapping two distinct circuits to looping into a single circuit. From Churchtown to Pleasant Valley, the NYTO proposal reduces four circuits into a single 115 kV circuit. This exposes the system to a complete loss of an uninterrupted 115 kV path between Churchtown and Pleasant Valley North-South due to a fault anywhere along the path. The result is that the overall

reliability and capacity in the area is reduced compared to the North America proposal. The new single circuit will be limited by the older, smaller capacity line segment between Blue Stores and the ROW. The load served by the Blue Stores substation is in a similar situation as Valkin, going from having the diversity of tapping two distinct circuits to looping into a single circuit.

In each case, proposals by other applicants in the 115 kV corridor would have a negative impact on reliability in the local area.

Inclusion of CPV Valley In The Analysis

Including the CPV Valley generator in any model has a significant impact on the modeling results. When a new generator is introduced along a transmission path, it will have a significant impact.

The specific impact of a new generator along the interfaces in New York State was experienced after the completion of the Athens Generating Facility, which is near the UPNY/SENY interface. The addition of this new power source resulted in significant additional loading on the interface lines when it entered service causing significant congestion and necessitating implementation of the temporary "Athens Special Protection Scheme." A similar impact would be expected with the introduction of the CPV Valley generator. Of course, it is prudent planning to include the Athens Generating Facility as operating in the model since this is an existing unit in service and expected to continue to be in operation in 2018. However, the CPV Valley generator is only proposed and has not yet begun construction, and should not necessarily be included in a planning model here.

It could be argued that the inclusion of CPV Valley in the model has the most significant negative impact on North America's proposal since the Edic-Fraser transmission line improves

the system upstream of CPV Valley, and increases the loading of the line segments to which the CPV Valley project will interconnect.

It is not clear under what circumstances the CPV Valley project would be constructed. The developer has indicated that a likely scenario is that CPV Valley would be constructed to replace other generation capacity that might retire or otherwise exit the market.[22] If this is the case, any power flow modeling or production cost modeling that includes CPV Valley should be paired with the removal or retirement of the appropriate generation. Furthermore, the inclusion of CPV Valley in the model has benefits for the performance of the revised Boundless proposal. Boundless's Revised Part A Application includes a reconductoring of the CPV Valley to Rock Tavern transmission line segment,[23] which helps mitigate congestion caused by the assumption of including this generator.

In order for there to be a fair analysis, North America respectfully suggests that the Commission not allow assumptions regarding a prospective generator to be a factor in the selection of a portfolio in this proceeding. In order to avoid such an unintended outcome, the Commission should a) remove or retire appropriate generation in any model cases that include CPV Valley, b) perform sensitivities without CPV Valley to understand relative performance without this assumption, and c) include the upgraded CPV Valley-Rock Tavern segment in all portfolios with CPV Valley generation included. In any event, the CPV Valley-Rock Tavern reconductor should only be approved contingent upon the construction of CPV Valley.

[22] CPV Valley made clear its desire for a power purchase agreement such as under the Indian Point Contingency Plan proceeding. *See* Case 10-E-0501: *Petition of CPV Valley, LLC*, Response of CPV Valley, LLC to Petition for Rehearing and Motion to Revoke (Filed Jun. 25, 2014), at 5.

[23] Reconductoring CPV Valley to Rock Tavern was not included in Boundless's original Part A application, and such upgrade would not have been identified by Boundless as needing upgrade in analysis performed without CPV Valley in service.

4) Extent of Additional ROW

As an initial matter as to the extent of additional ROW for Revised Part A Applications, it is important to take into consideration the fact that favoring proposals within an existing utility ROW could unfairly advantage the NYTOs as owners of existing utility ROW.[24] Without direction from the Commission, the NYTOs, as competitors in this proceeding, may not have an incentive to cooperate with the implementation of North America's proposal.

Also, there is a significant difference between how the extent of additional ROW criteria should be applied to proposals in different areas of the state. The corridor from New Scotland/Knickerbocker to Pleasant Valley has several existing utility corridors and state highway corridors that allow for use of existing ROW, as evidenced by the many proposals from different proponents in this area. With the many differing proposals, the Commission will be able to evaluate the trade-offs between higher cost proposals in an existing ROW compared to a lower cost proposal in a new ROW. The Edic-Fraser corridor, however, does not lend itself to any existing state highway or lower voltage utility ROW.

North America's Edic-Fraser project provides many electrical and unique benefits to the state. For example, the Edic-Fraser proposal is the only proposal capable of providing broadband access to Otsego and Delaware Counties, an area currently lacking such service. This is a unique opportunity to help meet multiple initiatives of the state.[25] The Edic-Fraser circuit also provides a positive impact to the Central East and Total East interfaces, which has a greater benefit for renewable resources in Western New York. The Edic-Fraser circuit provides this benefit with a lower cost than the Marcy/Edic to New Scotland proposals. The Edic-Fraser

[24] *See, e.g.* Case 13-E-0488: *In the Matter of Alternating Current Upgrades – Comparative Proceeding*, Comments of North America Transmission, LLC, and North America Transmission Corporation in response to January 17, 2014 Notice (Filed Feb. 12, 2014).
[25] *See* https://www.governor.ny.gov/news/2015-opportunity-agenda-restoring-economic-opportunity-1.

project should not be unduly penalized for requiring additional ROW if it is part of the best performing portfolio, but lacks available existing ROW.

5) Innovative Technologies to Enhance Transfer Capability or Reduce the Physical Footprint of the Project

Much of what is presented by competing developers as innovative technologies either does not represent any innovation or presents undue risk to ratepayers. For example, NEETNY claims advantages from innovative concrete poles. North America explored the use of concrete poles for the project but identified many issues with their use in the area. North America's analysis concluded concrete poles would be more expensive than alternatives, as they were in Texas. Concrete poles are fabricated in a single piece that is heavier and longer than a typical steel pole section. As a result, concrete poles may require more road work due to the heavy loads of a single concrete pole. North America's investigations and discussions with vendors revealed conductor galloping issues with similar designed concrete poles at the same voltage. By necessity, phase spacing on a concrete tower is compact. This is due to concrete limitations on both tower height due to the need to have towers in a single section and limitations on concrete pole diameter. As a result, the tower height, even at the 105 feet shown, is relatively low, and to maintain ground clearances, the phases are necessarily closer together than would be needed on a steel structure. The relatively close phase spacing results in higher galloping risk, which occurs after accumulation of ice and snow on the conductors in cold weather. This results in increased risk of flashover (and outage) due to galloping conductors, which have been experienced with the recent use of similar concrete poles at the same voltage.

It is unclear whether the ratings of the underground cables proposed by Boundless have been properly established. Ratings of underground cables are significantly more difficult to determine than overhead conductors. Establishing proper ratings would typically involve soil

classification and thermal resistivity studies to determine the heat transfer of the cables to each other, and there is no evidence that these studies have been performed. Boundless proposes six XLPE cables in a single 6' wide trench only 36-48 inches deep, which is unusually compact for installations at the proposed voltage. This proposed arrangement is likely to have significant heating issues, which will adversely impact the rating of the circuits.

Boundless's ACCC proposal claims ice loading improvement. The proposed conductor type, however, has historical issues with performance under ice-loading conditions. The core of the conductor exhibits very elastic properties under ice load that typically require taller towers to maintain ground clearance in areas prone to icing conditions. There is also a potential feasibility issue related to the ability to upgrade the existing towers, particularly dead-end towers, without replacement due to the higher tensions required by ACCC conductor. It is also not clear if the existing foundations, particularly dead-end tower foundations, can handle the increased loading due to higher tensions and ice loading under the proposal. Finally, it is not clear that the required clearances of the existing towers would be suitable for this new conductor under current codes. The proposed ACCC conductor type has also had numerous failures during installation and has shown to have operational issues, most notably on a bundled 345 kV line in the Pacific Northwest, resulting in significant additional project cost and outages to attempt to fix the problems.

In contrast, North America's proposed multi-circuit tower design is truly innovative and fits squarely with the evaluation criteria of being an innovation that reduces the physical footprint of the project. North America worked with vendors to identify and develop this multi-circuit tower, which meets multiple difficult design requirements – carrying one 345 kV circuit and two 115 kV circuits, maintaining all necessary transmission line electrical clearances, fitting

within the existing right-of-way, and being no taller than the existing structures. North America is not aware of any other similar tower in operation. At the same time, the underlying H-frame tower technology is commonly used, and this innovative design has very little technology risk.

North America's proposed use of series compensation is also an innovation that enhances the transfer capacity of the system with relatively low cost and low environmental and landowner impacts. Series compensation is a smart-grid technology that optimizes the system topology to efficiently direct power. North America believes its proposed series compensation will be an innovative element of the portfolio that best meets the Commission's objectives in not only this proceeding but others, such as the Reforming the Energy Vision proceeding, in which the Commission is exploring innovative ways to incorporate new technologies, such as smart-grid, to enhance energy efficiencies.

6) Initial Assessment of Environmental Compatibility Including Visual Impacts

North America has had extensive outreach with local communities and has made clear its commitment to design and implement its proposed project in a manner that meets or surpasses the Commission's objectives and addressing host community concerns to the maximum extent feasible. In many of these public meetings, comments have expressed a desire to avoid eminent domain and minimize environmental impacts by using existing ROW and minimize visual impacts by being no taller than existing structures. North America has demonstrated in numerous engagements with constituents of host communities its firm commitment to undertaking the project in a manner that satisfies or exceeds each of the Commission's objectives while minimizing local impacts and providing demonstrable host community benefits. Evidence of North America's commitment to soliciting and incorporating public comments is North America's Alternative 2 (115 kV ROW) from Knickerbocker to Pleasant Valley, which meets all

of these demanding requirements. Of the proposals that add a new circuit, only North America's Knickerbocker to Pleasant Valley Alternative 2 (115 kV ROW) fully meets the Governor's policy objective and falls in category "A" on page 9 of Appendix D of the December 16th Order, *i.e.* "A. no change in extent of visibility – new structures at same height as existing or shorter than existing." In contrast, both NEETNY's and the NYTOs' proposed towers from Knickerbocker to Pleasant Valley that are in category "C" "structure height increase by more than 10 feet."

Conclusion

A key element of the final portfolio that the Commission will select to best meet the needs of this proceeding will be a new circuit in the Knickerbocker- Pleasant Valley corridor. The approach that best meets these needs in accordance with the Commission's six evaluation criteria is replacement of the existing 115 kV line corridor with a new 345 kV circuit with multiple 115 kV lines. Of the three Revised Part A Applications with this approach, North America's is clearly superior. It meets the need with the most innovative technical solution – new multi-circuit towers in the existing ROW that are no taller than the existing transmission towers. Furthermore, this proposal has the best reliability of the 115 kV system in the area by having two new 115 kV circuits in the entire length of the corridor to serve existing area loads and generators. Accordingly, the Commission should select North America's Knickerbocker-Pleasant Valley Alternative 2 (115 kV ROW) proposal as part of any final portfolio.

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