nationalgrid New York Transco

March 1, 2019

VIA ELECTRONIC MAIL

Ave M. Bie, Chairperson
Board of Directors
New York Independent System Operator, Inc.
10 Krey Boulevard
Rensselaer, New York 12144

RE: Comments of Niagara Mohawk Power Corporation d/b/a National Grid And New York Transco LLC Regarding the AC Transmission Public Policy Transmission Planning Process

Dear Chairperson Bie,

Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid") and New York Transco LLC ("Transco") appreciate the extensive efforts that the New York Independent System Operator, Inc. ("NYISO") has undertaken in this ongoing Public Policy Transmission Planning Process ("PPTPP"). Together, we write to express our support of the NYISO Board of Directors' (the "Board") recent recommendation to select our joint proposal (T019) as the more efficient or cost-effective project to satisfy Segment B of the AC Transmission Public Policy Transmission Need (the "AC Transmission PPTN").[1]

As discussed in detail below, proposal T019 is the superior Segment B solution across the *full range* of metrics and scenarios that NYISO Staff studied, particularly with respect to cost per megawatt ("MW") ratio, production cost savings, operability, and resiliency. For these reasons, among others, T019's marginally-higher capital cost correlates to significantly greater benefits to the Statewide electric system and New York consumers, making it the more efficient or cost-effective project to satisfy Segment B of the AC Transmission PPTN.

I. Proposal T019 Provides Superior Quantitative Benefits When Compared To Other Segment B Proposals

After conducting a detailed evaluation of each viable and sufficient Segment B solution, NYISO Staff correctly determined that proposal T019 exceeds its next closest competitor (proposal T029), developed by North American Transmission, LLC (now referred to as LS Power Grid New York) and the New York Power Authority (together, "LS Power"), in every quantitative selection metric, aside from pure capital cost. Standing alone, proposal T019's

[1] New York Independent System Operator, *NYISO Board of Directors' Summary of Proposed Modifications to Draft AC Transmission Public Policy Transmission Planning Report and Proposed Selections* (dated Dec. 27, 2018), at 1-2.

estimated capital cost (including a 30% contingency rate) is $479M,[2] which is $57M more than proposal T029's estimated capital cost (including a 30% contingency rate) of $422M.[3] However, as discussed below, proposal T019's superiority in every other quantitative metric analysis, especially when those quantitative benefits are coupled with the important qualitative benefits outlined below in Point II, justifies its selection as the more efficient or cost-effective project to satisfy Segment B of the AC Transmission PPTN.

a. *Proposal T019 has the lowest cost per MW ratio*

The cost per MW ratio is generated by dividing the independent cost estimate of each project by the MW value of transfer capability that project proposes. As outlined in the Draft Report and the Addendum to the Draft Report (the "Addendum"), proposal T019 has the lowest cost per MW ratio of all the Segment B projects.[4] Specifically, proposal T019's cost per MW is $0.228,[5] which is $0.031/MW *less* than proposal T029's.[6] In fact, if measuring projects solely on the cost per MW ratio, proposal T029 would have ranked fourth out of the six viable and sufficient Segment B solutions.

b. *Proposal T019 has the most production cost savings*

Proposal T019 provides the greatest production cost savings of all of the Segment B proposals. Specifically, when considering the "original case" scenario for this metric (*i.e.*, original RGGI program only), proposal T019's production cost savings value is $1,080M,[7] which represents a more than $4M savings over the next-best Segment B proposal.[8] The production cost savings metric for proposal T019 even further exceeds its next-closest competitor when accounting for the social cost of carbon sensitivity. Under this scenario,

[2] LS Power's suggestion that proposal T019 should have included an additional transient voltage recovery ("TRV") mitigation cost is misplaced (*see* LS Power, *LS Power Grid New York / New York Power Authority Comments on Addendum* [Dated Feb. 2019] [the "LS Power PPT"], at 4). No study conducted during the AC Transmission PPTN evaluation process has indicated that there are any TRV issues with proposal T019. Accordingly, no mitigation measures are required at this juncture. Moreover, TRV-specific assessments are customarily conducted and will be conducted during the detail design phases and specifications of all related equipment. If those future studies identify any potential TRV issues, the selection of proposal T019's equipment types and sizes could mitigate these issues at nominal, or even no additional, cost.

[3] New York Independent System Operator, *Draft AC Transmission Public Policy Transmission Planning Report* (dated June 19, 2018), at 53, Table 3-6 (the "Draft Report"). Even measuring the cost differential using LS Power's preferred approach with the $116M difference between the cost of proposals T027+T019 and T027+T029, proposal T019's total performance across the selection metrics and scenarios still renders proposal T019 the most efficient or cost-effective solution to satisfy Segment B of the AC Transmission PPTN (*see* New York Independent System Operator, *Draft Addendum to Draft AC Transmission Public Policy Transmission Planning Report* [dated Feb. 20, 2019] [the "Addendum"], at 43-44).

[4] Draft Report, at 23; Addendum, at 11.

[5] Addendum, at 11, Table A-3.

[6] *Id*.

[7] *Id*. at 23, Table A-7.

[8] *Id*. (showing proposal T029 having a production cost savings of $1,076M under this scenario).

proposal T019 has a production cost savings value of $1,191M, which is $44M *higher* than proposal T029.[9] Under either scenario, proposal T019 has the most production cost savings.

c. *Proposal T019 provides the most capacity benefits*

Following the NYISO Board's review of the Draft Report, it directed NYISO Staff to evaluate the installed capacity ("ICAP") benefits for all Segment B proposals in combination with the recommended proposal for selection to satisfy Segment A of the AC Transmission PPTN (*i.e.*, proposal T027). The Board also directed the NYISO's Market Monitoring Unit ("MMU") to perform an independent assessment of the proposed Segment B projects' capacity benefits.

The MMU calculated the 20-year ICAP savings in its "Baseline" scenario as $237M for proposal T027+T019 versus $218M for T027+T029.[10] Similarly, the MMU's 20-year ICAP savings in the "CES+Retirement" scenario are $529M for T027+T019 versus $523M for T027+T029.[11] Notably, the MMU's calculations are *not* impacted by the NYISO Staff's recent impedance data correction.[12] Additionally, using a variety of estimates and scenarios, NYISO Staff concluded, using their own calculation, that the 20-year benefits in the "Existing Localities" scenario for proposal T019 range from $744M-$1,040M versus $584M-$816M for *all other* Segment B proposals.[13] Moreover, the "G-J Elimination" scenario revealed that proposal T019's benefits range from $1,385M-$1,936M versus $1,327M-$1,856M for *all other* Segment B proposals.[14]

In sum, proposal T019 is the superior solution to satisfy Segment B of the AC Transmission PPTN when considering the required quantitative metrics of cost per MW, production cost savings, and capacity benefits.

II. Proposal T019 Provides Superior Qualitative Benefits When Compared To Other Segment B Proposals

In addition to the above quantitative benefits, proposal T019 features numerous, important qualitative benefits, ranging from increased transfer capability to operational

[9] *Id*. (showing proposal T029 having a production cost savings of only $1,147M under this scenario). In its presentation delivered to the Management Committee on February 27, 2019, LS Power focused on the production cost savings for the RGGI scenario and argued that the difference between proposal T019 and T029 is immaterial (*see* LS Power PPT, at 5). Notably, however, LS Power selectively omitted reference to the scenario involving the social cost of carbon sensitivity, where, as noted above, proposal T019 measurably outperforms proposal T029.
[10] Addendum, at 30.
[11] *Id*.
[12] *Id*.
[13] New York Independent System Operator, *Revised AC Transmission Public Policy Transmission Planning Report PowerPoint* (dated Feb. 27, 2019) (the "NYISO Addendum PPT"), at 29. Although we recognize that NYISO Staff's data points have not been updated to reflect the impedance data correction that has since been identified, rendering the precise quantity of future benefits to be imperfect, all studies suggest that proposal T019's ICAP savings will nevertheless exceed those of all other Segment B projects (*see id*. at 31).
[14] *Id*. at 29.

flexibility and project resiliency. These additional qualitative benefits, as described below, more than offset proposal T019's marginally-higher capital cost when compared to proposal T029's lesser benefits. For these reasons as well, proposal T019 is the more efficient or cost-effective project to satisfy Segment B of the AC Transmission PPTN.

a. *Proposal T019 allows for the highest additional transfer capability*

Project T019 has the highest incremental UPNY/SENY transfer capability.[15] Moreover, proposal T019 provides additional N-1 emergency transfer capability of between 400 MW and 550 MW for UPNY/SENY relative to the other Segment B proposals.[16] This additional emergency transfer capability will materially improve the transmission system's resilience in the Southeast New York area, including an increased ability to accommodate additional generator deactivations in Zone G if they occur.[17] Moreover, the increased capacity offered by proposal T019 not only maintains, but improves, transmission capability within New York State, which improves the grid's reliability and resilience as a whole.[18]

b. *Proposal T019 provides the highest operability benefits to the grid*

NYISO Staff appropriately considered how each Segment B proposal would affect flexibility in "operating the system, such as dispatch of generation, access to operating reserves, access to ancillary services, or the ability to remove transmission facilities for maintenance" when determining which proposal would provide the most operability benefits to the grid.[19] Following this analysis, NYISO Staff concluded that proposal T019 provides for the highest operability rating because of its resilient structure design and performance.[20]

i. Resiliency

NYISO Staff has acknowledged that "[t]he resilience of the electric power system is an important consideration in evaluating the operability of proposed transmission projects."[21] Accordingly, during NYISO Staff's recent examination of how certain design aspects of the proposed Segment B solutions could be beneficial to the future operation of the grid under more extreme conditions such as high impact storms or significant generation retirements, the NYSIO evaluated the design of each proposal's transmission lines and poles. Following this analysis,

[15] *Id*. at 38.
[16] Addendum, at 6.
[17] *Id*. at 14-15 (discussing how proposal combination T027+T019 can accommodate up to 500 MW more of generation deactivation than proposal combination T027+T029 in Zone G).
[18] LS Power argued at the February 27, 2019 Management Committee meeting that proposal T019's requirement of approximately 475 MW of additional 30-minute reserves compared to other Segment B projects is a negative attribute (*see* LS Power PPT, at 4). This is incorrect. As noted in the Addendum, proposal T019's need for additional 30-minute reserves does *not* impact the New York Control Area's ("NYCA") 30-minute reserve requirement of 2,620 MW (*see* Addendum, at 16-18). As such, this additional reserve requirement is not expected to impact the NYCA and should not be considered a detriment of the proposal (*see id*.).
[19] *Id*. at 12.
[20] *See e.g. id*. at 12-15, 34-37.
[21] *Id*. at 12.

NYISO Staff correctly concluded that proposal T019's utilization of heavier-duty structures mounted on drilled-shaft concrete foundations, coupled with the use of more dead-end structures, demonstrates better resilience compared with other Segment B proposals.[22]

ii. Performance

Proposal T019 is the only Segment B solution that incorporates a series compensation element. Specifically, proposal T019 includes a 50% series compensation element at the new Knickerbocker switching station.

Recently, at the NYISO Board's request, NYISO Staff investigated whether there are performance benefits associated with proposal T019's series compensation capability and concluded that "operational benefits will be realized by the capability to control Segment B power flows by directing the operational status of the series compensation for T019."[23] Further, NYISO Staff determined that this improved controllability "will allow the NYISO more flexibility in addressing grid reliability needs and can result in improved utilization of the overall transmission system as compared to the other proposed projects."[24] In other words, NYISO Staff has correctly concluded that proposal T019's inclusion of a series compensation element is a benefit of the project that distinguishes it favorably from other Segment B proposals.[25]

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[22] *Id*. at 12-13. LS Power has not submitted any evidence to support a different conclusion. On the contrary, LS Power's claim that proposal T029's structures and foundations are stronger and more resistant to cascade failure than proposal T019 since a 100 mph extreme wind speed was applied to proposal T029 is incorrect (*see* LS Power PPT, at 8). The application of a 100 mph extreme wind weather condition does not necessarily lead to the conclusion that the structures and foundations associated with proposal T029's design are stronger or more resistant to cascade failure. Rather, the strength and resilience of transmission line structures and their foundations is a result of the weather cases, load factors, strength reduction factors, geotechnical parameters, structure line angle, *and* other inputs that are applied during structure and foundation design. In other words, no individual weather case controls the design of all transmission line structures or their foundations.

[23] NYISO Addendum PPT, at 23.

[24] *Id*.

[25] Indeed, LS Power clearly agrees with NYISO Staff's conclusion on this point as it is now suggesting that it could install series compensation on its proposal T029 in the future, if selected by the NYISO Board (*see* LS Power PPT, at 9). LS Power's suggestion that proposal T019 should not reap the benefit of its inclusion of series compensation because it can be added to a line at any time in the future is contrary to the PPTPP. The NYISO solicited all developers to submit what they believed to be the more efficient or cost-effective project to satisfy the declared AC Transmission PPTN. If LS Power wanted its project to receive the benefit of including a series compensation element in its project, it should have done so at the time the proposal was submitted so it, like proposal T019, could have been reviewed holistically during the NYISO's evaluation process. This same logic applies to the recent suggestions from LS Power that it could similarly incorporate the NS-K terminal upgrade equipment proposed by T019 into proposal T029 at a later date (*see e.g.* LS Power PPT, at 6). Moreover, LS Power's assertion that it will cost $7.3M to mitigate potential subsynchronous resonance ("SSR") issue resulting from the series compensation associated with proposal T019 is misleading (*see id*., at 4). NYISO Staff engaged ABB to independently estimate costs for conceptual mitigation solutions to resolve the potential SSR issues identified in the screening study for T019. ABB found that the mitigation costs could range from $565K to $4.875M, without a contingency or contractor markup. Obviously, LS Power cherry picked the high-end of ABB's estimate and represented it as a fact certain when addressing the cost of potential SSR mitigation. NYISO Staff, relying upon ABB's assessment, has correctly concluded that any potential SSR issue can "be mitigated in a manner that is cost effective and does not affect T019's project ranking" (NYISO Addendum PPT, at 34). LS Power has provided no evidence to rebut NYISO Staff's conclusion on this point.

In addition, proposal T019 affords the operator with the ability to perform live line maintenance.[26] This is a significant performance benefit that proposal T029 lacks as it provides the NYISO with incremental operational capabilities to avoid necessary planned and unplanned outages for maintenance that result in additional costs to customers.[27]

In sum, proposal T019 offers qualitative benefits either lacking or in excess of those offered by the other viable and sufficient Segment B proposals.

III. Conclusion

As the NYISO Board has recognized both with its selection of NextEra Energy Transmission New York, Inc.'s project as the more efficient or cost-effective transmission solution to address the Western New York Public Policy Transmission Need[28] and recommendation of LS Power's proposal T027 to satisfy Segment A of the AC Transmission Need,[29] a project with a higher capital cost may properly be selected as the most efficient or cost-effective solution to satisfy a declared transmission need if the higher capital cost correlates to greater benefits to the electric system than the lower-cost alternative proposals. As established by the NYISO's Draft AC Transmission PPTN Report and Addendum, along with the stakeholders' and developers' comments and the MMU's analysis of the market impacts, and as discussed above, proposal T019 provides the greatest benefits to the Statewide electric system and New York customers and is unquestionably the superior project to satisfy Segment B of the AC Transmission PPTN. For these reasons, we support the NYISO Board's recommendation that proposal T019 be selected as the more efficient or cost-effective solution to satisfy Segment B of the AC Transmission PPTN.

[26] *See e.g.* Joint Comments of National Grid and Transco to the NYISO Public Policy Planning Group, *Comments Regarding Substation Engineering Company's AC Transmission New York Public Policy Transmission Need Technical Review Report* (dated May 3, 2018), available at https://www.nyiso.com/documents/20142/1402489/Joint%20Comments%20of%20National%20Grid%20and%20Transco.pdf/2c0dece1-931d-3c22-6758-5606bddb1ced (last accessed Feb. 26, 2019).

[27] *Id.*

[28] *See* New York Independent System Operator, *Final Western New York Public Policy Transmission Planning Report* (dated Oct. 17, 2017), at iii-iv.

[29] *See* Draft Report, at 10 (stating that the "overall quantitative benefits of T027 warrant the higher cost of that project relative to some other Segment A proposals").

We hope that the NYISO finds these comments helpful as it completes the ongoing AC Transmission PPTPP, and we thank you for your continuing attention to this matter.

Sincerely,

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