Orange and Rockland Comments on NYISO's AC Transmission Evaluation: Middletown Upgrades

Orange and Rockland Utilities, Inc. (O&R) provides these comments to NYISO on its AC Transmission Public Policy Transmission Need (PPTN) Evaluation.

The North America Transmission (NAT) / New York Power Authority (NYPA)'s Segment B – Base (T029) and Segment B – Enhanced (T030) projects both include a project component to "Replace Middletown Tap 345/138 kV transformer" in addition to the reconductoring of the 138 kV corridor between the tap and Shoemaker. These upgrades are collectively referred to by NYISO as the "Middletown upgrades." The Middletown upgrades are local (non-bulk) facilities in O&R's service territory. As the interconnecting transmission owner (TO), O&R has significant concerns about the feasibility of these upgrades that have not been addressed in the evaluation process.

Background

The Middletown Tap 345/138 kV transformer bank upgrade is located directly upstream of the Shoemaker to Sugarloaf upgrades that have been identified by the NYPSC as a required upgrade for any developer project. The Middletown Tap 345/138 kV transformer bank upgrade was *not* identified in or required by the PSC Order, but is unique to the developer proposal. It is an additional local upgrade proposed by NAT/NYPA that provides some additional operability benefits under outage conditions. NYISO considers this bank upgrade to be a distinguishing factor in the evaluation, and the Middletown upgrades are listed as a benefit in NYISO's ranking matrix.[1] However, neither NYISO nor SECO has fully vetted the feasibility of the Middletown Tap upgrades.

The Middletown Tap connects to NYPA's 345 kV line 34 from Rock Tavern to Coopers Corner. The site on which the Middletown Tap is located is leased from NYPA, and is built between a highway and wetlands. It provides the only interface with the bulk power (345 kV) system feeding into O&R's Western Division. Before the Middletown Tap was built in 1999, the main source of power in O&R's Western Division was local hydro generation and gas turbine facilities. Exposure and resiliency were risky prior to the facility coming into service. Importantly, load in the area has increased substantially since that time and continues to grow. This history is relevant because the limited sources into O&R's Western Division create operational challenges for completing any potential future Middletown Tap upgrades, which will be discussed further below.

Feasibility of the Middletown Upgrades

O&R has concerns about the feasibility, timing, and operational challenges associated with performing the Middletown Tap upgrades as contemplated in the developer proposal. These upgrades represent a significant increase in project scope beyond the upgrades along the Shoemaker to Sugarloaf corridor required by the PSC Order on the AC Transmission PPTN.

O&R has not had the opportunity to fully study these upgrades, but based on the Company's knowledge of the site, there are significant questions regarding the feasibility of installing a 750 MVA transformer at Middletown tap. It is not known whether this project can be completed as a simple one-for-one replacement of the transformer.

[1] www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2018-06-01/AC_Transmission_PPTN_06012018_ESPWG_TPAS.pdf

First, a 750 MVA transformer is a significant size increase over the current 448 MVA transformer. O&R does not currently have any transformers of that size installed in its territory. The Company needs to understand what information SECO has from vendors about the specifications of a 750 MVA transformer, and the logistics and costs of transporting a transformer of that size to the Middletown site. There are very real concerns that bridges in the area may not be able to accommodate the size and weight of a 750 MVA transformer. Additionally, this would be a non-standard bulk power transformer size for the O&R system, and even if this size is determined to be feasible, the cost of the project would need to reflect the acquisition and storage of an equivalent system spare.

Second, there are questions about whether the current site footprint can accommodate a transformer of the size contemplated. O&R has not studied the site and associated constraints to determine whether a 750 MVA transformer would be feasible at the current Middletown Tap location. It should be noted that the site is surrounded by wetlands and a federal interstate highway, which could preclude a likely requirement for the expansion of the site footprint. The proximity to the interstate highway also poses physical security concerns. Therefore, an entirely new site could be required. The availability of land and appropriate system configuration for a new transformer would need to be investigated. It should be noted that the existing Middletown Tap is a unique arrangement with NYPA, as a transformer tap into a 345 kV line is not the typical way to connect to a major bulk transmission facility. Any new facility would likely require a ring bus connection rather than just a transformer tap. This also would likely lead to significant permitting requirements that are presently unknown and could pose substantial timing challenges.

Beyond the transformer, upgrades to breakers, buses, and other equipment would likely be required at the Middletown station. Additionally, corridor upgrades between the Middletown Tap and the Shoemaker Substation, as well as potential expansion of the Company's Shoemaker Substation facilities need to be studied for required upgrades. We do not believe that SECO had sufficient detail to evaluate these facilities.

Finally, we foresee significant operational challenges during installation of the upgrade. As noted above, the Middletown Tap is the only interface with the bulk system for O&R's Western Division. The outage of the existing bank during replacement would put the entire Western Division being served from a single 138 kV line and two aging 69 kV lines installed on common towers. This is likely to result in voltage violations at various buses and significantly increased operating risk and exposure. Any subsequent contingency (i.e., losing either the 138 kV line or the 69 kV line) would lead to a substantial number of customer outages and unserved load in the Western Division due to thermal and voltage violations. Due to these constraints, not only would replacing the transformer at Middletown Tap create significant operational challenges, but would likely add additional time to the project schedule as well. The project schedule will also need to accommodate the required upgrades along the Shoemaker to Sugarloaf corridor, which are directly downstream from the Middletown Tap and likely cannot be completed simultaneously.

NYISO and SECO's Analysis of the Middletown Upgrades

As far as O&R is aware, neither NYISO nor SECO has fully vetted the feasibility of these upgrades. Neither NYISO nor the project developers contacted O&R about studying the Middletown upgrades, and so it is unclear when and how these issues will be considered. In addition, since the upgrades are *not* required for reliability, an assessment of their costs relative to the benefits they provide should be considered. This analysis has also not been conducted to our knowledge.

NYISO has contracted with SECO to develop independent cost estimates for the developer proposals. SECO's estimate for the cost of the Middletown Upgrades is $16 million. This cost is based on the cost of equipment and associated engineering work. According to the SECO report: "The estimate is a rough order of magnitude estimate as no engineering was performed and SECO did not have access to record drawings."[2] Thus, SECO did not do any engineering work to assess these upgrades, and did not have the information it would have needed to fully assess their costs. We believe the costs are underdeveloped because, among other things, they have not accounted for the possible need for a second facility, or for additional upgrades required at Shoemaker station. O&R has not yet had a chance to study the Middletown upgrades, and therefore cannot provide a complete cost estimate. However, we believe the costs could be substantially more than the amount estimated by SECO.

As noted above, because none of NYISO, SECO or the project developers contacted O&R to discuss the feasibility of the Middletown upgrades, the first time O&R learned of the upgrades was upon reviewing the SECO report released on March 30, 2018. While we understand that development of the scopes for the relevant interconnection studies had inadvertently overlooked the Middletown upgrades, and that NYISO is working to remedy these issues from the interconnection process standpoint, we believe that these upgrades also require proper evaluation pursuant to the public policy evaluation process. O&R is aware that SECO arranged tours with NYSEG and Central Hudson of their affected facilities related to the AC Transmission projects. SECO, however, never approached O&R to schedule a tour of O&R's affected facilities and no site visits were conducted. NYISO staff has not provided an opportunity for O&R to explain to SECO the issues associated with the Middletown Tap.

Evaluation through the Public Policy Planning Process

In conversations between O&R and NYISO, NYISO staff has indicated that O&R's concerns about the Middletown upgrades could be addressed through the interconnection process, and any additional costs would be identified through those studies and incorporated into the evaluation. However, NYISO would have already made its selection, and so it is unclear how any additional costs would be identified and considered in the selection. We would also note that issues such as cost-effectiveness are not typically addressed in interconnection studies. This information is relevant to the selection, and to customers who will be paying for the AC transmission upgrades. To address these questions, we believe that NYISO needs to perform a separate feasibility study of proposed local upgrades prior to the final selection and separate from the interconnection process.

In summary, NYISO needs to assess – with input from the interconnecting TO – the necessity, feasibility, and cost effectiveness of local upgrades as part of the public policy transmission project evaluation process, before the project selection decision is made. Waiting until after the selection to consider these issues will lead to an incomplete evaluation. If studies later establish that the upgrades are not feasible, or are feasible, but at a significant increase above their original cost estimate, questions regarding the integrity of the selection decision could be raised. The interconnection process is not the appropriate place to begin examining these issues; a separate feasibility study needs to be performed.

[2] SECO Report, Appendix D, page 781, Note 27. Available at http://www.nyiso.com/public/webdocs/markets_operations/committees/bic_espwg/meeting_materials/2018-06-01/AppendixD_SECo_Report.pdf.