Submission of Indicated New York Transmission Owners
For Authority to Construct and Operate Electric Transmission Facilities in Multiple Counties in New York

Case 13-M-0457

Oakdale to Fraser 345 kV Transmission Line
and
Edic to New Scotland
345 kV Transmission Line
and
Knickerbocker to Pleasant Valley
345 kV Transmission Line Project
(O-F/ED-PV)

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AND EDIC TO NEW SCOTLAND 345 KV TRANSMISSION LINE
AND KNICKERBOCKER TO PLEASANT VALLEY
345 KV TRANSMISSION LINE PROJECT
(O-F/ED-PV)

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APPLICATION

Pursuant to Article VII of the Public Service Law ("PSL"), the Public Service Commission's ("Commission") regulations thereunder and the Commission's Orders (including the December 16, 2014 Order Establishing Modified Procedures For Comparative Evaluation (the "December 2014 Order")) in the above-referenced proceeding and in Cases 12-T-0502 and 13-E-0488, *inter alia*, Niagara Mohawk Power Corporation d/b/a National Grid ("National Grid"), New York State Electric & Gas Corporation ("NYSEG"), and NY Transco LLC ("NY Transco" and collectively with National Grid and NYSEG, the "Applicant") submit this application for a Certificate of Environmental Compatibility and Public Need ("Certificate") authorizing: (i) the construction of a new 345 kV overhead electric transmission line from the Edic Substation in the Town of Marcy, Oneida County, New York to the New Scotland Substation in the Town of New Scotland, Albany County, New York over a distance of approximately 91.4 miles ("ED-NS"); (ii) the construction of a new 345 kV overhead electric transmission line from a new Knickerbocker Switching Station in the Town of Schodack, Rensselaer County, New York to the Pleasant Valley Substation in the Town of Pleasant Valley, Dutchess County, New York over a distance of approximately 54.2 miles ("KB-PV" and collectively with ED-NS, the "Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line," "ED-NS/KB-PV" or "ED-PV"); and (iii) the construction of a new 345 kV overhead electric transmission line from the Oakdale Substation in the Town of Union, Broome County, New York to the Fraser Substation in the Town of Delhi, Delaware County, New York over a distance of approximately 57.7 miles (the "Oakdale to Fraser 345 kV Transmission Line," the "Oakdale to Fraser Component," or "O-F," and collectively with ED-PV, the "O-F/ED-PV Project, "O-F/ED-PV," or the "Project").

As required by Section 122 of the PSL, Section 85-2.8 of the Commission's Regulations, and the above-referenced Commission Orders, this Article VII Application contains the following information:

(a) Description of the Project;

(b) Project Location;

(c) Need for the Project;

(d) Other Relevant Information; and

(e) Conclusion.

A. Description of the Project

The Oakdale to Fraser 345 kV Transmission Line and Edic to Pleasant Valley 345 kV Transmission Line Project proposed on October 1, 2013 has been modified. Modifications to the original "Second Oakdale to Fraser 345 kV Transmission Line" component include changes to the proposed structure type and a slight revision to the proposed route such that no additional ROW will be required for this project and resulting in shorter structures than those previously proposed. Modifications to the original Edic to Pleasant Valley 345 kV Transmission Line component include the following:

- Elimination of an approximately 13.1-mile section of the previously proposed 345 kV transmission line, including a crossing of the Hudson River, between the existing New Scotland Substation and the new Knickerbocker Switching Station;
- Reconfiguration of the existing 115 kV transmission system and redesign of transmission line structures such that no additional ROW will be required for the Project, and the height of new structures within the Hudson Valley corridor will be comparable with existing structure heights;
- Elimination of the previously proposed Princetown 345 kV Substation, which is replaced with the expansion and rebuild of the existing 230 kV Rotterdam Substation to include a 345 kV yard;
- Increasing the proposed voltage of two transmission lines to be rebuilt between Princetown Junction and Rotterdam Substation from 230 kV to 345 kV;
- Renaming this component as the Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line (ED-NS/KB-PV).

<u>Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line</u>

The Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line will run a total distance of approximately 145.6 miles, as follows: from Edic Substation in Oneida County, New York over a distance of approximately 86.4 miles to the New Scotland Substation in the Town of New Scotland, Albany County, New York; from Princetown Junction in the Town of Princetown, Schenectady County, New York over a distance of approximately 5.0 miles to the Rotterdam Substation in the Town of Rotterdam, Schenectady County, New York; and from the new Knickerbocker Switching Station in the Town of Schodack, Rensselaer County, New York over a distance of approximately 54.2 miles to Con

Edison's Pleasant Valley Substation in the Town of Pleasant Valley, Dutchess County, New York. This new transmission line will be designed to operate at a nominal system voltage of 345 kV. The proposed conductor type for the line is twin bundled 954 kcmil 54/7 ACSS "Cardinal".

The construction of the Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line will include construction of a new switching station: (i) Knickerbocker Switching Station in the Town of Schodack; and two rebuilt and expanded stations (ii) Rotterdam Substation in the Town of Rotterdam, and (iii) Churchtown Switching Station in the Town of Claverack.

In addition, the approximately 71.8 miles of the two existing Porter-Rotterdam 230 kV lines that will not be rebuilt from Porter Substation to Princetown Junction, will be retired.

Oakdale to Fraser 345 kV Transmission Line

The Oakdale to Fraser 345 kV Transmission Line will be a new 345 kV electric transmission line located parallel to an existing NYSEG 345 kV transmission line named Line 32, which runs between the Oakdale Substation in the Town of Union and the Fraser Substation in the Town of Delhi. The Oakdale to Fraser 345 kV Transmission Line will be constructed within the existing transmission line ROW ("Project ROW"). The Oakdale to Fraser 345 kV Transmission Line will be offset from the line of structures supporting NYSEG's Line 32, to allow Line 32 to remain in service while the Oakdale to Fraser 345 kV Transmission Line is under construction, minimizing the need for long-term outages. The Project ROW traverses Broome, Chenango and Delaware counties.

The Oakdale to Fraser 345 kV Transmission Line will be constructed with 1590 ACSR 54/19 Falcon conductor, and it will have two shield wires: (1) an optical ground wire OPGW S-4-61/61/583, according to the specifications of DNO-8155 and (2) an Alumoweld 7#7 Aluminum Conductor Aluminum-clad steel reinforced. The Oakdale to Fraser 345 kV Transmission Line will be supported by self-supported steel poles that will be designed according to the standard ASCE-48 Design of Steel Transmission Pole Structures for custom-designed pole structures on concrete foundations and USDA-RUS Bulletin 1724E-214 for direct-embedded standard class poles. The structures will be grey in color.

The Project proposed in this Article VII Application is a "composite" alternative, which combines an UPNY/SENY solution with a Central East component (Edic to New Scotland). Increasing the transfer capability for the Central East interface will allow the upgrade on the UPNY/SENY interface to be more fully utilized and increase the benefits of reduced congestion across the State. Adding the Central East component provides a more robust overall system solution, and creates benefits such as adding multiple 345 kV paths on the bulk power systems, thereby increasing system operational flexibility. This

composite project also provides a more complete upgrade to relieve constraints from the Mohawk Valley down to the Hudson Valley. Further, and particularly with the addition of the Central East component, significantly more aging transmission facilities are replaced with new designs, allowing for greater resiliency. Although the cost of this project is relatively high when compared to UPNY/SENY component projects, it provides the following additional benefits which address all of the goals and objectives set forth in the Commission's December 2014 Order and the Energy Highway Blueprint.

- Expected to significantly increase the UPNY/SENY interface capacity by approximately 1,050 to 1,250 MW.

- Expected to increase the Central East Interface capacity by 350 to 450 MW, which will further decrease congestion costs throughout the state of New York.

- Constructs a total of approximately 203.4 miles of new 345 kV transmission lines without requiring the expansion of any of the existing transmission line ROW corridors.

- Improves system "Expandability" of the bulk transmission system by providing two additional 345 kV station hubs.

- Improves system "Operability" by providing new 345 kV parallel lines along both the Edic/Marcy to New Scotland Central East interface and the New Scotland to Leeds to Pleasant Valley UPNY/SENY interface corridors.

- Improves "Resiliency" by replacing approximately 86.5 miles of aging 115 kV infrastructure and approximately 118.4 miles of aging 230 kV infrastructure.

B. Project Location

Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line

The Edic to New Scotland and Knickerbocker to Pleasant Valley 345 kV Transmission Line will share existing electric transmission ROW corridors that are occupied by other National Grid lines and in some locations lines owned and operated by the New York Power Authority. No new ROW acquisition will be required. The existing transmission ROWs range from approximately 100 feet to approximately 500 feet wide. The existing National Grid electric transmission ROW corridors that comprise the primary route for the Edic to New Scotland 345 kV Transmission Line traverse (from west to east) the counties of Oneida, Herkimer, Montgomery, Schenectady and Albany. The existing National Grid electric transmission ROW corridors that comprise the primary route for the Knickerbocker to Pleasant Valley

345 kV Transmission Line traverse (from north to south) the counties of Rensselaer, Columbia and Dutchess.

Oakdale to Fraser 345 kV Transmission Line

The Oakdale to Fraser 345 kV Transmission Line consists of 57.7 miles of new 345 kV transmission line in Broome, Chenango and Delaware counties. In general terms, the Oakdale to Fraser 345 kV Transmission Line will traverse from southwest to northeast the Towns of Union, Maine, Chenango and Barker in Broome County; from west to east in the Towns of Greene, Coventry, Afton and Bainbridge in Chenango County; and from west to east the Towns of Masonville, Sidney, Franklin, Walton, Hamden and Delhi in Delaware County.

Detailed maps, drawings and explanations showing the proposed route of the Edic to New Scotland 345 kV Transmission Line and the Knickerbocker to Pleasant Valley 345 kV Transmission Line, and the Oakdale to Fraser 345 kV Transmission Line, are set forth in various exhibits, including Exhibit 2, to this Article VII Application.[1]

C. Need for the Project

The Commission instituted this proceeding in 2012 "to examine possible solutions to the problem of persistent congestion on portions of the New York Transmission System."[2] The congestion problem has been well documented in the 2011 and 2013 New York Independent System Operator ("NYISO") Congestion Assessment and Resource Integration Studies ("CARIS"), the 2012 New York State Transmission Assessment and Reliability ("STARS") report, and the U.S. Department of Energy Draft "National Electric Transmission Congestion Study". Resource adequacy and transmission reliability issues have also been described in the 2014 NYISO Reliability Needs Assessment ("RNA").

In addition to congestion, reliability and resource adequacy, the transmission system in New York faces the following challenges:

- Aging infrastructure, which reduces resiliency to extreme weather events
- Limited capacity to address changes to the state generation portfolio

[1] It is also important to note that the Commission can consider the O-F Component on its own merits separately from the ED-PV Component. Similarly, either of these two components can be combined with Applicant's other alternative projects proposed in this proceeding.

[2] Case 12-T-0502 – Proceeding on Motion of the Commission to Examine Alternating Current Transmission Upgrades.

- Need to create a new NYISO capacity zone encompassing Load Zones G, H, I, and J ("New G-J Local Capacity Zone"), which can be avoided by increasing the UPNY/SENY transmission capacity
- Limited capacity to integrate renewable energy resources in the western part of the state
- Limited access to generation sources that would lower emissions
- Limited ability to expand the bulk transmission system
- Limited system robustness to respond to system operational needs.

The need for the Project is explained in greater detail in Exhibit E-4 of this Article VII Application, entitled Engineering Justification.

D. Other Relevant Information

Exhibit 1 provides the name, address, email and phone number of the principal officer of each of National Grid, NYSEG and NY Transco; and the status of each as organized under the New York Transportation Corporations Law.

E. Conclusion

The Applicant respectfully requests that the Commission issue an order pursuant to Article VII of the Public Service Law:

1) Certifying the Project, including its construction, operation and maintenance, pursuant to Article VII of the Public Service Law; and

2) Granting such other and further authorizations, consents, permissions, approvals, waivers and permits, as necessary, for the construction, operation and maintenance of the Project, including but not limited to, the issuance of a Water Quality Certification pursuant to Section 401 of the Federal Water Pollution Control Act, 33 USCA Section 1341.

Dated: January 20, 2015

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