

Case 21-T-0340

APPENDIX B DESCRIPTION AND LOCATION OF THE PROJECT

The Project consists of rebuilding approximately 100 linear miles of existing 230 kilovolt (“kV”) transmission lines to either 230 kV or 345 kV, along with associated substation construction and upgrades. The Project includes rebuilding all or parts of the following transmission lines primarily within existing rights-of-way (“ROW”): NYPA’s Moses-Willis 1 & 2, NYPA’s Willis-Patnode and NYPA’s Willis-Ryan; and National Grid’s Adirondack to Porter (Chases Lake-Porter Line 11, Adirondack-Porter Line 12, and Adirondack-Chases Lake Line 13), the extension of the existing 230 kV Rector Road to Chases Lake Line 10, as well as connecting to NYPA’s Moses-Adirondack 1&2 (also known as “MA 1&2” or “Smart Path”) ROW.

The major components of the Project are discussed in detail below (the owner of each facility comprising each component is noted in parentheses), as well as in Exhibit 2, E-1, and E-2 of the Application.

SPECIFIC PROJECT DESCRIPTIONS BY TRANSMISSION LINE SECTION

The Project includes upgrading several existing circuits to increase power transfer capabilities throughout Northern New York. The transmission line portion of the Project is discussed below in six (6) distinct segments.

Segment 1: Moses-Haverstock (MH1, MH2, & MH3) (NYPA)

This portion of the Project involves the construction of approximately 0.2 miles of three (3) single-circuit 230 kV lines on steel H-frame, monopole, and horizontal 3-pole structures, for a total of approximately nine (9) structures with single-bundle conductor and optical ground wire (OPGW) functionality. These three circuits will serve as the interface between the MA 1& 2 and Moses-Willis 2 Lines, and the Haverstock Substation. In addition, approximately 2 miles of the existing MW2 line, which will become the MH3 line, will remain in place and OPGW will be installed.

Segment 2: Haverstock-Willis (HW1 & HW2) (NYPA)

This segment of the Project consists of: (1) removing the existing Moses-Willis 230 kV 1 & 2 lines and replacing with two (2) single-circuit 345 kV lines on steel predominantly monopole structures, for a total of approximately 410 structures with double-bundle conductor and OPGW functionality, generally on the existing centerline; and (2) constructing two 230 kV tie-lines between the existing Willis Substation and the new Willis 345/230 kV Substation. This segment of the Project is approximately 35.4 miles long and generally within the existing ROW, with the exception of the ROW connections into and out of Haverstock and Willis. Temporary bypasses will be installed outside of the MW-Patnode ROW, to the east of Haverstock, for the duration of Haverstock Substation construction. There will also be temporary connections from the W1 and W2 tie lines to the existing MW-Patnode ROW during construction of the new Willis 345/230 kV Substation.

Segment 3: Haverstock-Adirondack (HA1 & HA2) (NYPA)

This segment of the Project involves constructing the connections between the Smart Path lines, and the Haverstock and Adirondack Substations. The connection to Haverstock Substation consists of two (2) single-circuit 345 kV lines on steel monopole structures, for a total of approximately six (6) structures. The connection to the proposed Adirondack Substation consists of two (2) single-circuit 345 kV lines on steel monopole structures, for a total of approximately six (6) structures.

Segment 4: Willis-Ryan/Patnode (WRY1, WRY2, WPN1, WPN2, & RYP2) (NYPA)

This segment of the Project extends approximately 8.7 miles, and consists of: (1) removing existing structures between the existing Willis Substation and Ryan Substation, and replacing with two (2) double-circuit 230 kV lines on approximately 110 predominantly steel monopole structures, generally on their existing centerlines; and (2) replacing existing structures between Ryan Substation and Patnode Substation, with one (1) double-circuit 230 kV line of structures and one (1) single-circuit 230 kV line of structures on steel predominantly monopole structures. The new configuration will include two new 230 kV circuits between Willis and Ryan, one (1) new 230 kV circuit between Ryan and Patnode, and two (2) new 230 kV circuits between Willis and Patnode. After leaving the Ryan Substation, heading east, the Willis to Patnode circuit will pick up the existing Ryan to Plattsburgh 230 kV circuit to be double circuited.

Segment 5: Adirondack -Porter (AAR1, ARE1, & AM1) (National Grid)

This segment of the Project consists of the rebuild and 345 kV voltage upgrade of three (3) existing 230 kV National Grid circuits over approximately 54.2 miles, and the removal of the existing 230 kV Adirondack to Chases Lake Line 13, Chases Lake to Porter Line 11, Adirondack to Porter Line 12, and the 230 kV Edic to Porter Line 17. The existing single-circuit 230 kV wood pole H-Frame structures will be replaced with 345 kV single-circuit, steel predominantly monopole structures, for a total of approximately 652 structures with double bundled conductor and OPGW functionality.

Segment 6: Rector Road - Austin Road Line 10 (RRAR1) (National Grid)

This segment involves extending the existing Rector Road - Chases Lake 230 kV transmission line for approximately 1.0 mile, on the eastern side of the existing Adirondack-Porter Line, from the site of the existing Chases Lake Substation to connect to the new Austin Road Substation. The proposed structures will be single-circuit 230 kV steel monopole structures, for a total of approximately thirteen (13) structures with single bundle conductor and OPGW functionality.

SPECIFIC PROJECT DESCRIPTIONS BY STATION

The Project involves the construction of four (4) new substations, as well as upgrades to seven (7) existing substations. The work at each substation is discussed below.

Haverstock Substation (NYPA)

The new Haverstock Substation will be built south of the existing Moses Substation to interconnect with the 345 kV Smart Path Project and the rebuilt 345 kV Moses-Willis 1&2 lines, as well as

connect to existing 230 kV lines from the Moses Substation. This substation will have a seven (7) bay “double-breaker, double-bus” configuration at 345 kV. The configuration includes four (4) positions for 345 kV lines and three (3) positions for 345/230 kV autotransformers. Each autotransformer will directly connect with a 230 kV line to the Moses Substation. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Adirondack Substation (NYPA)

The proposed work will involve constructing a new 345/115 kV Adirondack Substation that will be constructed just to the south of the existing Adirondack 230/115 kV Substation. Major portions of the existing Adirondack 230/115 kV Substation will be decommissioned. The new substation will include three (3) bays of a “breaker-and-a-half” configuration at the 345 kV voltage level. The third bay will have just two (2) breakers, so the configuration results in five (5) positions which includes four (4) positions used for 345 kV lines and one (1) position used for a 345/115 kV autotransformer. The autotransformer will have a low-side 115 kV breaker which will directly connect with an existing 115 kV line to the nearby Beaver Falls generation station. There will be two (2) 345 kV lines from Haverstock Substation and two (2) 345 kV line positions for lines running south to existing Marcy and new Austin Road 345 kV substations. There will be two (2) 140 MVAR shunt capacitor banks, one connected to each 345 kV bus. There will also be two (2) 100 MVAR shunt reactor banks, one connected to each 345 kV bus. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Austin Road Substation (National Grid)

The new 345/230 kV Austin Road Substation will be constructed approximately a mile south of the existing Chases Lake Substation. The existing 230 kV circuit-breakers and bus work at Chases Lake Substation will ultimately be decommissioned and replaced by the new Austin Road Substation. The existing Chases Lake Substation control house and associated facilities will remain. The new substation will be a three (3) position ring bus with expansion to two (2) bays of a “breaker-and-a-half” configuration at the 345 kV voltage level. Room has been allotted inside the yard to allow for an additional expansion of two (2) bays, for a total of four (4) 345 kV bays. Two (2) positions of the ring bus are for incoming 345kV lines. The third position is for a 345/230 kV autotransformer with a 13.8kV tertiary for station service. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Willis 345/230 kV Substation (NYPA)

The new Willis 345/230 kV substation will be constructed adjacent to the existing Willis 230/115 kV Substation. There will be three (3) bays of a “breaker-and-a-half” configuration at the 230 kV voltage level. The configuration results in six (6) positions which includes two (2) positions used for 230 kV lines to the Ryan Substation, two (2) positions used for 230 kV lines to the Patnode Substation, and two (2) positions used for 345/230 kV autotransformers. The autotransformers will directly connect with 345 kV transmission lines to the Haverstock Substation. There will be one (1) 75 MVAR shunt capacitor bank connected to a 230 kV bus. Additionally, there will be one 230 kV breaker connected to each bus which will each have a short 230 kV line connection to the existing Willis 230 kV yard. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Existing Willis 230/115 kV Substation (NYPA)

The existing Willis 230 kV bus will be modified to abandon Bay 1. The existing Willis 230 kV Bay 2 position will be repurposed to allow an interconnection to the new Willis Substation East Bus. The existing Willis 230 kV Bay 3 position will be repurposed to allow an interconnect to the new Willis Substation West bus. The autotransformers at the existing Willis Substation will continue to connect to the existing east and west 230 kV buses, but utilize the Bay 2 & 3 interconnection lines to connect to the new Willis 345/230 kV Substation. There will be protection and control work performed within the existing control enclosure to accommodate the changes to the existing Willis Substation.

Patnode Substation (NYPA)

The proposed work at Patnode involves adding two (2) additional 230 kV breakers to the ring bus and connecting a second 230 kV line to Willis. There will be protection and control work performed within the existing control enclosure to accommodate the changes to the physical 230 kV yard and to coordinate local line protection with the new protection at the opposite end of the line. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Ryan Substation (NYPA)

The proposed work at Ryan involves adding one (1) additional 230 kV breaker to the ring bus and connecting a second 230 kV line to Willis. There will be protection and control work performed within the existing control enclosure to accommodate the changes to the physical 230 kV yard and to coordinate the local line protection with the new protection at the opposite end of the line. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Moses Substation (NYPA)

The proposed work at Moses involves the line terminals for the existing Adirondack lines (MA1, MA2) and Willis #2 line (MW2) becoming lines to Haverstock (MH1, MH2, and MH3). Those lines along with the lines to Massena (MMS1, MMS2) will have wave traps removed to accommodate changes in line protection. The Willis #1 line (MW1) will be disconnected, and the line position will become an empty spare position. The autotransformer 3 and MH3 positions will be switched within the substation. There will also be protection and control work performed within the existing control enclosure to coordinate local line protection with new protection at the opposite end of the line.

Massena Substation (NYPA)

The proposed work at Massena involves adding two (2) 230 kV, air-core, series reactors, one to each of the Moses 230 kV lines. These will be placed within the existing fence line and 230 kV free-standing current transformers will be installed with them. There will also be protection and control work performed within the existing control enclosure to coordinate the local line protection with the new protection at the opposite end of the line for the lines mentioned above. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Marcy Substation (NYPA)

The proposed work at Marcy involves adding a new bay on the East side of the substation. The new line from Adirondack will then connect to this bay. There will be protection and control work performed within the existing control enclosure to accommodate the new line and breaker additions and changes in the 345 kV yard. Additional substation equipment is detailed in Exhibit E-2 of the Application.

Edic Substation (National Grid)

The proposed work at Edic involves adding one (1) 345 kV breaker to the 345 kV bus for one (1) 200 MVAR shunt capacitor bank and a new 345 kV line to the Austin Road Substation. There will be protection and control work performed within the existing control enclosure to accommodate the changes to the physical 345 kV yard and to coordinate local line protection with the new protection at the opposite end of the line. The existing eastern fence line of Edic will need to be expanded by an area approximately 61 feet by 120 feet. Additional substation equipment is detailed in Exhibit E-2 of the Application.