HIGH RIVER ENERGY CENTER

Case No. 17-F-0597

1001.35 Exhibit 35

Electric and Magnetic Fields

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Exhibit 35: Electric and Magnetic Fields

This Exhibit will track the requirements of proposed Stipulation 35, dated August 26, 2019, and therefore, the requirements of 16 NYCRR § 1001.35.

The New York State Public Service Commission (NYPSC) set forth in *Opinion and Order Determining Health and Safety Issues, Imposing Operating Conditions, and Authorizing* (Case 26520); *Operation Pursuant to those Conditions No. 78-13*; and *Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities* (NYPSC Cases 26529 and 26559) guidance for electric and magnetic fields (NYPSC Interim Guidelines). These opinions and cases set forth the guidelines addressing electric and magnetic fields at the edge of the right of way (ROW). For electric fields, 1.6 kV/m measured one meter (3.28 feet) above ground level, with the line at the rated voltage is the limit at the edge of the ROW. The magnetic field strength guideline is 200 milligauss (mG), measured at one meter (3.28 feet) above grade, at the edge of ROW. The Project will comply with these guidelines.

35(a) ROW Segments with Unique Characteristics

The Applicant has identified the approximately 50 feet of 115 kV rigid bus interconnection connecting the Project's collection substation with the point of interconnection (POI) switchyard and the approximately 500 feet of double circuit 115 kV transmission line connections to the existing Stoner-Rotterdam #12 transmission line as the only overhead ROW segments with unique characteristics within the Project Area. The proposed ROW for the transmission line is 150 feet wide in total and 75 feet wide from the centerline of the transmission line to the edge of the ROW. An evaluation of the EMF on these segments is included in the EMF Study in Appendix 35-1.

35(b) Cross Sections

The EMF Study (Appendix 35-1) includes structural details and dimensions and identifying phase spacing, phasing, and other characteristics affecting the EMF calculations performed. Structural details and dimensions for the overhead rigid bus and transmission line interconnection, including a cross-section of the proposed line, are included in the Preliminary Design Drawings in Appendix 11-1.

Details related to the underground collection system for the Project are also shown in Appendix 11-1.

35(c) Aerial Photographs/Drawings

The proposed overhead rigid bus and transmission line interconnection are shown on aerial photography as part of the Preliminary Design Drawings (Appendix 11-1) and Figure 1 of Appendix 35-1. In addition to the locations of these features, the design drawings and figure identify the locations of the nearest residence. The distance between the rigid bus and transmission interconnection and the nearest residence is evaluated in the EMF study, as seen in Appendix 35-1.

35(d) Electric and Magnetic Field (EMF) Study

Minimal EMF are generated by the operation of solar facility Components such as the electrical collection lines and transformers. EMF strength decreases with the square of the distance from the source (the electric charges or currents) for power lines and the cube of the distance from point sources such as substations. The solar panels will be a minimum of 14 feet from Project Area boundaries, and individual panels represent outputs consistent with household EMF levels. Additionally, the location of underground 34.5 kV collection cables, and the location of the collection substation transformers and other electrical equipment inside a restricted area will provide separation of these Components from the general public. As a result, EMF levels from solar panel arrays and collection lines are expected to be limited or non-existent.

As part of the EMF Study, the Applicant analyzed the potential for cumulative EMF impacts related to the Project by evaluating EMF along the proposed rigid bus interconnection between the Project's collection substation and POI switchyard and the transmission line connection from the POI switchyard to the existing Stoner-Rotterdam #12 line. Appendix 35-1 provides proposed cross sections, to scale, showing:

- The proposed structural details and dimensions, and identifying phasing, phase spacing, and other characteristics affecting EMF calculations;
- All underground electric transmission, sub-transmission, and distribution facilities;
- All ROW boundaries; and,
- Structural details and dimensions for all structures (dimensions, spacing, phasing, and similar categories) and includes a station number identifying the locations.

Tables 35-1, below, details the EMF levels calculated from the EMF study. Refer to Appendix 35-1 for additional information.

The study reveals that the calculated EMF levels for the rigid bus and transmission line interconnection are less than the 1.6 kV/m maximum and 200 mG field level permitted at the edge of a transmission ROW in New York occupied by a major transmission line as per the NYPSC Interim Guidelines. The report demonstrates that the EMF levels associated with the rigid bus and transmission line interconnection are well within guidelines.

Table 35-1. NYPSC EMF Level Interim Guidelines

Field Type	Limit	Maximum Value at Property/Right-of-Way Edge
Electric Field	1.6 kV/m	0.015 kV/m (rigid bus) 0.040 kV/m (transmission line)
Magnetic Field	200 mG	1.66 mG (rigid bus) 35.35 mG (transmission line)