Heritage Wind Project

Case No. 16-F-0546

1001.35 Exhibit 35

Electric and Magnetic Fields

EXHIBIT 35 ELECTRIC AND MAGNETIC FIELDS

The information presented in Exhibit 35 of the Article 10 Application is derived from an electric and magnetic field (EMF) study prepared for the Heritage Wind Project and addresses the requirements of 16 NYCRR 1001.35 (see Appendix 35-A).

(a) Every Right-of-way Segment Having Unique Electric and Magnetic Field Characteristics

None of the electrical collection lines from the turbines to the collection station/point of interconnection (POI) station will exceed 34.5 kilovolts (kV); therefore, the Facility will not have transmission line rights-of-way (ROWs) for high voltage transmission power lines. However, a short approximately 400 foot segment of 115 kV transmission line between the POI substation and adjacent existing Lockport-Mortimer line will be located on land controlled by the Applicant. Modeling calculations identified existing EMFs and future EMFs that would result from construction and operation of the Facility.

The collection ROW is assumed to range from 50 feet (25 feet from centerline) to 90 feet (45 feet from centerline). Table 35-1 below identifies the segment name and ROW width associated with each of these segments, as referred to in the EMF Study. A map of these segments is provided in the EMF Study (see Appendix 35-A).

Table 35-1. Unique ROW Segments within the Facility

ROW Segment Name
Case 1: Single Circuit
Case 2: Two Circuits
Case 3: Three Circuits
Case 4: Four Circuits
Case 5: Six Circuits
Case 6: Seven Circuits
Case 7: Overhead Transmission Line

(b) For Each Right-of-way Segment, Base Case and Proposed Cross Sections Showing:

For each of the unique ROW segments, the EMF study provided both base case (where existing facilities are present) and proposed cross sections that will show, to scale, the following features:

- any known overhead electric transmission, sub-transmission, and distribution facilities showing structural details and dimensions and identifying phase spacing, phasing, and any other characteristics affecting EMF emissions;
- any known underground electric transmission, sub-transmission (i.e., 34.5 kV collection system), and distribution facilities;
- ROW boundaries; and
- structural details and dimensions for all structures (dimensions, phase spacing, phasing, and similar categories) and an overview map showing locations of structures.

The station numbers associated with each of the six unique ROW segments and the sheet on which they can be found in the EMF Report are indicated in Table 35-2, below.

Table 35-2. Station Numbers at Each ROW Segment

ROW Segment Name	ROW Width (Feet)	Approximate Station Numbers
Case 1	50	1-A to 1-BB
Case 2	50	2-A to 2-H
Case 3	50	3-A & 3-B
Case 4	60	4-A
Case 5	80	5-A
Case 6	90	6-A
Case 7	295	

(c) Enhanced Aerial Photos/Drawings Showing Exact Locations of Each:

The EMF included in the Article 10 Application includes a set of aerial photos/drawings showing the exact location of each unique ROW segment and each cross-section, and any residences or occupied buildings within the ROW segments. If no residence or occupied building is within the ROW segments, the measurement of the distance between the edge of the ROW segment and the nearest residence or occupied building is provided.

(d) Electric and Magnetic Field Study

(1) Licensed Professional Engineer

The EMF study included in the Article 10 Application was signed and stamped/sealed by Krystian Sokolowski a licensed professional engineer registered and in good standing in the State of New York.

(2) Computer Software Program

The EMF Study used CYMCAP 7.3 and PLSCADD software to model the facilities and make the calculations.

(3) Electric Field Calculation Tables and Field Strength Graphs

The EMF Study modeled the strength and locations of electric fields to be generated by the Facility. Modeling was conducted at rated voltage. The measurement location was assumed to be 3.28 feet (1 meter), and the measurement interval was 5 feet. The Study includes electric field strength graphs depicting electric fields along the width of the entire ROW out to 500 feet from the edge of the ROW on both sides. Software model calculation output tables are included as Appendix B in the EMF Report.

(4) Magnetic Field Calculation Tables and Field Strength Graphs

The EMF Study modeled the strength and locations of magnetic fields to be generated by the Facility. Modeling was conducted at rated voltage. The measurement location was assumed to be 3.28 feet (1 meter) above grade, and the measurement interval was 5 feet. There is no expected change in amperage under any of the following conditions: summer normal, summer short term emergency, winter normal, and winter short term emergency. Therefore, the magnetic field modeling that was performed is applicable to any of these conditions. Magnetic field strength graphs depicting magnetic fields along the width of the entire ROW and out to the property boundary of the Facility are included in the EMF study.

(1) Magnetic Field Calculation Tables and Field Strength Graphs for Maximum Annual Load within 10 Years

There is no expected change in amperage in maximum average load initially versus 10 years after initiation of operation. Therefore, the modeling of magnetic fields described above in Section (d)(4) above (including both the graphs and tables included in the EMF Study) is applicable to both initial operation and operation after 10 years.

(2) Base Case Magnetic Field Calculation Tables and Field Strength Graphs

The generator lead line will be constructed within a new ROW created specifically for the proposed Facility; there are no existing power lines within this ROW. Consequently, this analysis is not applicable to the proposed Facility.