



## **EIGHT POINT WIND ENERGY CENTER**

**Case No. 16-F-0062**

**1001.35 Exhibit 35**

**Electric and Magnetic Fields**

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## Exhibit 35: Electric and Magnetic Fields

Exhibit 35 of the Article 10 Application typically includes a discussion of the electric and magnetic field (EMF) characteristics for transmission lines that interconnect a proposed generation facility with the existing electric transmission and distribution system. However, because the proposed transmission line for the Eight Point Wind Energy Center is over 10 miles it will be subject to review under Article VII of the Public Service Law (PSL) and it is not subject to the Siting Board's jurisdiction under N.Y. PSL Article 10. As such, the discussion below is limited to certain EMF calculations for collection lines and a discussion of the cumulative impacts of the Project, which includes analysis of the proposed 16.5-mile overhead 115 kV transmission line that will interconnect the Project to the Point of Interconnection (POI) at NYSEG's Bennett Substation. Additional discussion and analysis of the proposed transmission line will be included in the separate Article VII process.

New York State Public Service Commission (NYPSC) set forth in Opinion and Order Determining Health and Safety Issues, Imposing Operating Conditions, and Authorizing, in 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, sets the guidance for electric and magnetic fields, respectively. These opinions and cases set forth the requirement of the minimum 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 requirement is 200 milligauss (mG), measured at one meter (3.28 feet) above grade, at the edge of ROW. The Project, all of its Facilities and the Article VII 16.5-mile transmission will line comply with these standards.

### 35(a) ROW Segments with Unique Characteristics

The transmission ROW will be subject to review under Article VII of the PSL and it is not subject to the Siting Board's jurisdiction under N.Y. PSL Article 10. However, certain segments of the transmission ROW in addition to certain collection line segments are evaluated below in Exhibit 35(e), for the cumulative analysis.

### 35(b) Cross Sections

The transmission ROW will be subject to review under Article VII of the PSL and it is not subject to the Siting Board's jurisdiction under N.Y. PSL Article 10. However, certain segments of the transmission ROW in addition to certain collection line segments are evaluated below in Exhibit 35(e), for the cumulative analysis.

### 35(c) Aerial Photos/Drawings

The transmission ROW will be subject to review under Article VII of the PSL and it is not subject to the Siting Board's jurisdiction under N.Y. PSL Article 10. However, certain segments of the transmission ROW in addition to certain collection line segments are evaluated below in Exhibit 35(e), for the cumulative analysis.

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

The transmission ROW will be subject to review under Article VII of the PSL and it is not subject to the Siting Board’s jurisdiction under N.Y. PSL Article 10. However, certain segments of the transmission ROW in addition to certain collection line segments are evaluated below in Exhibit 35(e), for the cumulative analysis.

### 35(e) Cumulative Impacts

Based on consultation with the New York State Department of Public Service (NYSDPS), the Applicant analyzed the potential for cumulative EMF impacts related to the Project and the Article VII 16.5-mile overhead 115 kV transmission line by evaluating six right of way (ROW) corridor segments having unique EMF characteristics due to structure type, height, voltage, ROW width, and proximity or co-location of other electrical facilities in the ROW. For the six unique ROW segments identified in the table below, the EMF study in Appendix 35-1 provides both base case (where existing facilities are present) and proposed cross section, to scale, showing:

- all overhead electric transmission, sub-transmission and distribution facilities including the proposed project showing structural details and dimensions and identifying phase spacing, phasing, and any other characteristics affecting EMF calculation;
- all underground electric transmission, sub-transmission, and distribution facilities;
- all right-of-way boundaries; and
- structural details and dimensions for all structures (dimensions, phase spacing, phasing, and similar categories) and include a station number identifying the locations.

**Table 35-1. Description of Right of Way (ROW) Segments with Unique EMF Characteristics**

Segment	ROW Segment Description
1	Overhead 115 kV transmission with wood H-frames
2	Overhead 115 kV transmission with steel monopoles
3	Overhead 115 kV transmission with steel monopoles and adjacent existing 34.5 kV overhead distribution line to the north
4	Overhead 115 kV transmission with steel monopoles and adjacent existing 34.5 kV overhead distribution line to the east
5	Overhead 115 kV transmission with steel monopoles and adjacent underground 34.5 kV collection line
6	Overhead 34.5 kV collection line

Appendix 35-1 of this Application contains an EMF calculation study conducted by a licensed professional engineer for each of these ROW corridor segments including cross-sections with structural details and dimensions, as well as phase spacing and phasing calculations. Each ROW segment includes a set of sketches showing the exact location of each unique ROW segment and each cross-section. No

occupied buildings were within the ROWs (where a residence or occupied building is visible in a drawing but outside of the ROW, distance from the centerline of the proposed transmission line to the nearest edge of the building is provided in the sketches).

**Table 35-2. Electric and Magnetic Field Study Results**

Electric Field kV/m					Magnetic Field mG				
ROW Segment	100' ROW	75' ROW	50' ROW	NYPSC Criteria Edge of ROW	ROW Segment	100' ROW	75' ROW	50' ROW	NYPSC Criteria Edge of ROW
1	0.56	NA	NA	1.60	1	104	NA	NA	200
2	0.35	0.76	NA	1.60	2	94	159	NA	200
3	0.35	NA	NA	1.60	3	106	NA	NA	200
4	0.36	NA	NA	1.60	4	84	NA	NA	200
5	0.35	NA	NA	1.60	5	95	NA	NA	200
6	NA	NA	0.38	1.60	6	NA	NA	112	200

The results of the study conclude that the calculated electric and magnetic fields are acceptable when compared to the electric fields requirement of 1.6 kV/m, one meter (3.28 feet) above ground level, and the magnetic field strength requirement is 200 mG, measured at one meter (3.28) above grade, at the proposed edge of ROW for the Project and the proposed transmission line.

Cumulatively, the 16.5-mile overhead 115 kV transmission line adds EMF to the Project Study Area since the construction of the related transmission line has EMF fields, however, as displayed above, all EMF are acceptable when compared to NYPSC criteria. This includes the EMF fields in the very small area (ROW segment 5) where the transmission line and underground collection line exist adjacent to each other.

The Canisteo Wind Energy Center (Canisteo project) is a proposed 290 MW wind project directly east of the Project proposed herein. Currently, the routes of the Canisteo project’s transmission line and collection lines are unknown and the locations of the turbines for the Canisteo project are preliminary. To date, the Canisteo project has only filed a Public Involvement Program; thus the project is still relatively early in the Article 10 permitting process. The New York State Department of Environmental Conservation (NYSDEC) instructs that “assessment of cumulative impacts should be limited to consideration of reasonably foreseeable impacts, not speculative ones” (NYSDEC, The SEQR Handbook at 83 (3d Ed. 2010)).

Design for the Canisteo project is not complete and the location of any potential transmission lines and collection lines associated with that project are unknown at this time. Additionally, given transmission system constraints and other variables that could halt development such as land availability and permitting, construction of the Canisteo project is currently speculative. Because information on important and relevant aspects of the Canisteo project is not available, an attempt to assess any

potentially significant cumulative EMF impacts of the Canisteo project and the Applicant's Project would be speculative and non-meaningful.

No other existing or proposed wind projects are within five miles of the Project; thus there will be no cumulative EMF impacts from any other existing or proposed projects in the area.