Mohawk Solar

Case No. 17-F-0182

1001.35 Exhibit 35

Electric and Magnetic Fields

EXHIBIT 35 ELECTRIC AND MAGNETIC FIELDS

The information presented in this Exhibit is derived from an Electric and Magnetic Field (EMF) Study prepared for the Mohawk Solar Facility by Mott MacDonald. The Study is included as Appendix 35-A.

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

None of the electrical lines from the photovoltaic (PV) panels to the collection substation/point of interconnection (POI) station will exceed 34.5 kilovolts (kV); therefore, the Facility will not have a right-of-way (ROW) associated with high voltage transmission power lines. However, six ROW segments with unique EMF characteristics were identified in the EMF Study. Modeling calculations identified existing EMFs and future EMFs that would result from construction and operation of the Facility. For the purposes of calculations, the ROW is assumed to be 50 feet (25 feet from centerline) for Case 1 and 2, 60 feet (30 feet from centerline) for Case 3, 75 feet (37.5 feet from centerline) for Case 4 and 5 for the buried collection line segments. The ROW is assumed to be 75 feet (37.5 feet from the centerline) for the overhead transmission line span. Table 35-1 below identifies the name and calculation number of each of these segments, as referred to in the EMF Study. A map of these segments is provided in the EMF Study.

Table 35-1. Unique ROW Segments within the Facility

ROW Segment Name	ROW Calculation
Case 1: Single Circuit Trench	1
Case 2: Two Circuit Parallel Trench	2
Case 3: Three Circuit Parallel Trench	3
Case 4: Four Circuit Parallel Trench	4
Case 5: Four Circuit Parallel at Substation	5
Case 6: 115kV Transmission Span	6

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

For each of the unique ROW segments identified in Section (a) above, the EMF Study provides both base case (where existing facilities are present) and proposed cross sections that 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 appendix in which they can be found in the EMF Study are indicated in Table 35-2, below.

Table 35-2. Approximate Station Numbers at Each ROW Segment

ROW Segment Name	ROW Calculation Number	Approximate Station Numbers	EMF Report Appendix
Case 1: Single Circuit Trench	1	1-A to 1-AO	Appendix A.3
Case 2: Two Circuit Parallel Trench	2	2-A & 2-D	Appendix A.3
Case 3: Three Circuit Parallel Trench	3	3-A & 3-B	Appendix A.3
Case 4: Four Circuit Parallel Trench	4	4-A & 4-B	Appendix A.3
Case 5: Four Circuit Parallel at Substation	5	5A	Appendix A.3
Case 6: 115kV Transmission Span	6		Appendix B.2

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

The EMF Study included in this 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, attached as Appendix 35-A to this 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) above grade, and the measurement interval was 5 feet. The Study includes electric field strength graphs depicting electric

fields along the width of the entire ROW and out to 500 feet on either side. Software model calculation output tables are included as Appendix C of the EMF Study. Digital copies of all input assumptions and outputs for the calculations are being provided under separate cover.

(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 using the maximum design currents for the project. 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, 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. Digital copies of all input assumptions and outputs for the calculations are being filed under separate cover.

(5) 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 for 10 years after initiation of operation. Therefore, the modeling of magnetic fields described 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.

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

There are no proposed high voltage transmission lines. Therefore, this analysis is not applicable to the proposed Facility.