

**2017 Sharp-tailed Grouse Lek Report**  
**Emmons-Logan Wind Energy Center and 230 kV Transmission Line**  
**Emmons and Logan Counties, North Dakota**

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**Final Report**

**Prepared for:**

Emmons-Logan Wind, LLC

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**Exhibit 36 – 2017 Sharp Tailed Grouse Lek Report**

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**Exhibit 36 – 2017 Sharp Tailed Grouse Lek Report**

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**EXHIBIT**

**36**

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## REPORT REFERENCE

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## **INTRODUCTION**

Emmons-Logan Wind, LLC (Emmons-Logan Wind), a wholly-owned, indirect subsidiary of NextEra Energy Resources, LLC, is proposing to construct the Emmons-Logan Wind Energy Center and 230 kV Transmission Line (Project) in Emmons and Logan Counties, North Dakota. Emmons-Logan Wind tasked Western EcoSystems Technology, Inc. (WEST) to survey sharp-tailed grouse (*Tympanuchus phasianellus*) leks within the Project and a 0.5-mile (mi; 0.8-kilometer [km]) buffer (collectively, the “study area”). This report presents results of aerial lek surveys conducted during April and May 2017. Data includes sharp-tailed grouse observation locations, number of grouse observed, and lek status.

## **PROJECT AREA**

The Project encompasses approximately 75,375 acres (ac; 30,503 hectares [ha]) and is located in south-central North Dakota in Emmons and Logan counties approximately eight miles (13 kilometers [km]) northeast of Linton, North Dakota. The Project is within the Northwestern Glaciated Plains Level III Ecoregion with a flat to gently rolling landscape (USEPA 2016). Sections of the Project remain in grassland and are utilized for grazing and other areas have been tilled for cropland. Wetland depressions can be found across the landscape.

The Project boundary used for this survey was received prior to surveys in 2017. Figures in this report show the current Project boundary received by WEST on in July 2018 date. Survey data from 2017 is applicable to the current boundary as all changes were within 0.5-mile buffer.

## **METHODS**

The objective of the sharp-tailed grouse lek aerial survey was to determine the location of sharp-tailed grouse leks and provide a general sense of sharp-tailed grouse use within and immediately adjacent to the Project during peak lekking activity (late March through early May). Survey methodology was similar to that used at other wind sites in North and South Dakota and followed methods outlined in Martin and Knopf (1981). Historical lek data was requested from North Dakota Game and Fish Department (NDGFD) prior to the start of surveys.

Confirmed leks were locations where birds were observed, generally in courtship behavior, during more than one survey period. Possible leks were locations where birds were observed engaging in courtship behavior during only one survey period. Birds were considered: 1) male, when observed in courtship behavior, 2) female, when observed along the edges of a lek with males engaging in courtship behavior, or 3) unknown, when in flight or when no courtship was observed.

North/south transects were created throughout the study area. Transects started 0.5 miles (mi; 800 meters [m]) outside the east/west Project boundary and were placed at approximately 0.25 mi (400 m) intervals covering the study area (Figure 1). The length of each transect varied

based on the study area. Each transect was flown by fixed-wing aircraft (e.g. Cessna 172) at approximately 30 to 46 m (100 – 150 feet) during three separate survey periods.

Surveys were conducted approximately two weeks apart and occurred during the normal sharp-tailed grouse lekking period in North Dakota. Surveys were conducted approximately 30 minutes before sunrise, depending on cloud cover, until 2 hours after sunrise. When three or more sharp-tailed grouse observed together, the location was recorded with a global positioning system (GPS) unit along with the number of birds, activity, and lek status. Precipitation, temperature, wind speed, and cloud cover (%) were also recorded for each flight. Survey flights occurred during calm weather (wind <20 mph) with no rain.

## RESULTS

Approximately 679 km (1093 mi) of transects were surveyed during each survey period: (April 3-6, April 17, 19-20, 22, and April 27, 30, May 1-3) encompassing nearly 48 flight hours. Two survey days were canceled due to poor weather conditions and one day was shortened due to ground-level fog, but surveys were completed the next day with calm weather. No historical lek data was received from NDGFD.

One confirmed lek (Lek 1) and two possible leks (Lek 2 and 3) were observed during the three survey periods (Table 1; Figure 1). One confirmed lek (Lek 1) and one possible lek (Lek 2) were within the Project boundary. Birds were observed at Lek 1 during all three survey periods, but no courting behavior was observed from the airplane. A ground survey was conducted by a field biologist on May 6 confirming courtship behavior at Lek 1 (Figure 1). No leks were observed within the 230 kV Transmission Line corridor.

With one confirmed lek within the Project, Emmons-Logan yields an approximate density of one lek per 131 mi<sup>2</sup>. The average number of sharp-tailed grouse observed on a lek was 10.67 birds. While the maximum number of birds recorded on a lek during aerial was 11 birds (Lek 1; Table 1), a total of 17 birds were observed during the ground check on May 6. All leks were recorded within grassland/hay habitat.

**Table 1. Summary of aerial sharp-tailed grouse lek surveys conducted during April and May 2017 at the Emmons-Logan Wind Energy Center and 230 kV Transmission Line.**

Lek ID	Date First Observed	Other Dates Observed	Highest Total	Lek
1	4/5	4/20, 5/1	11	Confirmed
2	4/30	n/a	10	Possible
3	5/3	n/a	11	Possible

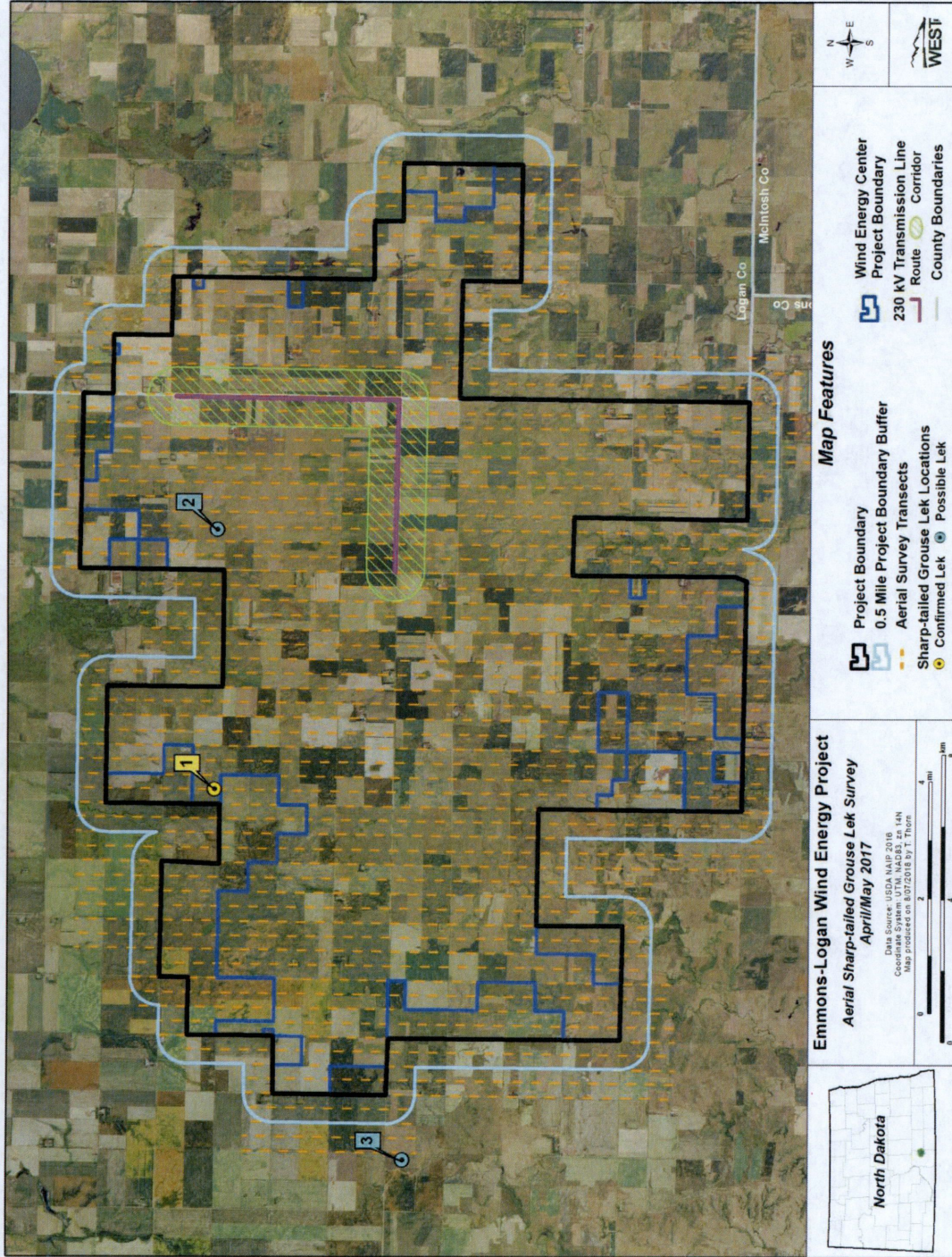


Figure 1. Sharp-tailed grouse leks observed during aerial surveys at the Emmons-Logan Wind Energy Center and 230 kV Transmission Line conducted in April and May 2017.

## REFERENCES

- Martin, S.A. and F.L. Knopf. 1981. Aerial survey of greater prairie chicken leks. *Wildl Soc. Bull.* 9:219-221.
- U.S. Environmental Protection Agency (USEPA). 2016. Level III and Level IV Ecoregions of the Continental United States. Information available online at: <https://www.epa.gov/eco-research/level-iii-and-iv-ecoregions-continental-united-states>.