APPENDIX F – PRESENCE/ABSENCE SURVEYS FOR NORTHERN LONG-EARED BAT

Bat Summer Presence/Absence Surveys Sweetland Wind Project Hand County, South Dakota

Final Report

July 5 – July 10, 2018



Prepared for:

Scout Clean Energy

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EXECUTIVE SUMMARY

Scout Clean Energy (Scout) is developing the Sweetland Wind Project (Project) in Hand County, South Dakota. Scout contracted Western EcoSystems Technology, Inc. to conduct bat presence/probable absence surveys in the proposed Project footprint. The objective of the bat surveys was to determine presence or probable absence of the federally threatened northern long-eared bat (NLEB) in the Project footprint during the summer maternity season.

Acoustic surveys were completed at three sites (24 detector nights) at the Project from July 5 – July 10, 2018. Bat call identification software found no NLEB calls in the acoustic data, supporting probable absence of NLEB in the Project footprint.

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REPORT REFERENCE

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INTRODUCTION

Scout Clean Energy (Scout) is developing the Sweetland Wind Project (Project) in Hand County, South Dakota (Figure 1). Scout contracted Western EcoSystems Technology, Inc. (WEST) to conduct bat surveys in the proposed Project footprint during summer 2018. The objective of the bat surveys was to determine presence or probable absence of the federally threatened northern long-eared bat (NLEB; *Myotis septentrionalis*) in the Project footprint during the summer maternity season.

METHODS

All surveys followed the current US Fish and Wildlife Service (USFWS) *Range-Wide Indiana Bat Summer Survey Guidelines* (Guidelines; USFWS 2018), which apply to NLEB surveys. The USFWS Guidelines for NLEB surveys recommend: 1) desktop habitat assessment and 2) presence/probable absence acoustic or mist-net surveys.

Desktop Habitat Assessment

The desktop habitat assessment for the Project footprint showed there were approximately 280 acres (ac; 113 hectares [ha]) of forest habitat in the Project footprint. The USFWS Guidelines (2018) recommend a minimum of eight detector nights per 123 ac (50 ha) of suitable summer habitat for non-linear projects.

Acoustic Surveys

The objective of the acoustic surveys was to assess the potential for presence of NLEB in the Project footprint. The Project footprint was defined as the minimum-convex polygon (MCP) that encompasses the proposed wind turbine locations along with the hazardous area around all proposed turbine locations.

Three acoustic sites were sampled, using two detectors deployed at each site for four nights, for a total of 24 detector nights. Bats were surveyed using Song Meter full-spectrum ultrasonic detectors (SM4; Wildlife Acoustics, Inc.; http://www.wildlifeacoustics.com).

Acoustic surveys were conducted from July 5 – July 10, 2018. Acoustic monitoring began before sunset and continued for the entire night. If weather conditions such as persistent rain (30 or more minutes), strong sustained winds (greater than nine miles per hour [mph] for 30 or more minutes), or cold temperature (below 10 degrees Celsius [50 degrees Fahrenheit] for 30 or more minutes) occurred, then the acoustic site subject to those conditions was surveyed for an additional night. Omnidirectional detector microphones were positioned at least 9.8 feet (ft; 3.0 meters [m]) off the ground and oriented horizontally. For each acoustic detector, the date, site description, site coordinates, tree species composition, stand age, vegetation community type, and weather data were recorded. Representative photographs of each acoustic site also were taken.



Figure 1. Location of the Sweetland Wind Project in Hand County, South Dakota.

Bat calls were identified using USFWS-approved quantitative identification methods (Kaleidoscope Pro[©] version 4.2.0; Wildlife Acoustics Inc.; [Kaleidoscope]). The Bats of North America classifier 4.2.0 was used within Kaleidoscope. Kaleidoscope output generated a list of maximum likelihood estimates (MLE) for each species with the potential to occur in the Project footprint. The following species were included in the Kaleidoscope model: big brown bat (*Eptesicus fuscus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), hoary bat (*L. cinereus*), little brown bat (*Myotis lucifugus*), western small-footed bat (*Myotis ciliolabrum*), and NLEB.

All calls identified as NLEB by automated identification software were examined and verified by a qualified biologist with extensive acoustic identification experience. For each night that Kaleidoscope considered NLEB presence likely (MLE p-value <0.05), WEST reviewed all calls from the night. WEST also reviewed all calls identified as NLEB by Kaleidoscope regardless of whether the MLE p-value for the night was significant or not. If call sequences were not characteristic of NLEB, contained distinct calls produced by species other than NLEB or were of insufficient quality, they were reclassified.



Figure 2. Acoustic survey sites at the Sweetland Wind Project in Hand County, South Dakota.

RESULTS

Acoustic Surveys

Locations and descriptions of acoustic survey sites are provided in Table 1. Photographs of detector setups are included in Appendix A. Acoustic detectors were deployed for a total of 24 valid detector nights including July 5, 6, 8, and 9 for all three sites. The night of July 7 was invalid due to wind speeds greater than nine mph for more than 30 minutes. Detectors were retrieved from deployment on July 10.

Kaleidoscope recognized a total of 3,726 bat calls and identified 3,010 of those calls (80.8%). Hoary bats (1,485 calls [39.9%]) were the most commonly identified species, followed by eastern red bats (1,072 calls [28.8%]), big brown bats (237 calls [6.4%]), silver-haired bat (167 calls [4.5%]), little brown bats (25 calls [0.7%]), and western small-footed bats (24 calls [0.6%]; Table 2).

The Project is on the edge of the geographic range of the western small-footed bat and this species is not expected to occur within the Project footprint. Kaleidoscope call identifications of this species were reviewed by an acoustic expert and determined to be incorrectly classified. Western small-footed bats were not detected in the Project footprint. Additionally no NLEB calls were identified by Kaleidoscope; therefore, no qualitative review was necessary and no follow-up mist-net or telemetry surveys were performed. The acoustic survey results support probable absence of NLEB within the Project footprint.

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|---------|--------|-------|----------|-----------|-------------------------|-------|--------------|--------|----------------|
| | | | | - | A a a un tin Data ata u | Total | Det Celle | Total | Det Celle ner |
| Site ID | County | Zone* | Easting* | Northing* | Site Description | Calls | Identified** | Nights | Detector Night |
| SL1A | Hand | 14 | 515228 | 4921870 | Bottomland forest | 1,013 | 733 | 4 | 253.25 |
| SL1B | Hand | 14 | 514829 | 4921924 | Bottomland forest | 861 | 661 | 4 | 215.25 |
| SL2A | Hand | 14 | 516828 | 4917161 | Upland forest | 210 | 183 | 4 | 52.50 |
| SL2B | Hand | 14 | 516690 | 4917453 | Bottomland forest | 963 | 879 | 4 | 240.75 |
| SL3A | Hand | 14 | 519164 | 4912510 | Pond | 280 | 228 | 4 | 70.00 |
| SL3B | Hand | 14 | 519497 | 4912653 | Bottomland forest | 399 | 326 | 4 | 99.75 |
| Tota | | | | | | 3,726 | 3,010 | 24 | 155.25 |

 Table 1. Acoustic survey site coordinates, descriptions, and results of Kaleidoscope identification software at the Sweetland Wind

 Project in Hand county, South Dakota.

*Coordinate system and datum: Universal Transverse Mercator North American Datum 1983.

**Number of calls identified to species by the acoustic software.

| Table 2. Bat calls identified by | V Kaleidoscope Pro® Ve | rsion 4.2.0 at the Sweet | land Wind Proiect in Har | d county. South Dakota. |
|----------------------------------|------------------------|--------------------------|--------------------------|-------------------------|
| | | | | |

| Site ID | LACI | LABO | EPFU | LANO | MYLU | MYCI | NLEB | UNKN |
|---------|------------------|------------------|---------------|---------------|--------------|---------------|-----------|----------------|
| SL1A | 412 | 231 | 38 | 43 | 8 | 1 | 0 | 280 |
| SL1B | 539 | 32 | 32 | 58 | 0 | 0 | 0 | 200 |
| SL2A | 100 | 38 | 29 | 13 | 1 | 2 | 0 | 27 |
| SL2B | 108 | 666 | 53 | 28 | 12 | 12 | 0 | 84 |
| SL3A | 101 | 36 | 79 | 10 | 1 | 1 | 0 | 52 |
| SL3B | 225 | 69 | 6 | 15 | 3 | 8 | 0 | 73 |
| Total | 1,485 (39.9%) | 1,072 (28.8%) | 237 (6.4%) | 167 (4.5%) | 25 (0.7%) | 24 (0.6 %) | 0 (0%) | 716 (19.2%) |

LACI = hoary bat (*Lasiurus cinereus*); LABO = eastern red bat (*Lasiurus borealis*); EPFU = big brown bat (*Eptesicus fuscus*); LANO = silver-haired bat (*Lasionycteris noctivagans*); MYLU = little brown bat (*Myotis lucifugus*); MYCI = western small-footed bat (*Myotis ciliolabrum*); NLEB = northern long-eared bat (*Myotis septentrionalis*); UNKN = unknown.

REFERENCES

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North American Datum (NAD). 1983. Nad83 Geodetic Datum.

US Fish and Wildlife Service (USFWS). 2018. 2018 Range-Wide Indiana Bat Summer Survey Guidelines. April 2018. Available online: <u>https://www.fws.gov/midwest/endangered/mammals/inba/surveys/pdf/2018RangewidelBatSurvey</u> Guidelines.pdf Appendix A. Photographs of Acoustic Survey Detector Setups, Sweetland Wind Project, Hand County, South Dakota



Appendix A1-a. Acoustic Survey Location SL1A. Cone of detection



Appendix A1-b. Acoustic Survey Location SL1A. Microphone orientation.



Appendix A1-c. Acoustic Survey Location SL1A.Detector placement.



Appendix A2-a. Acoustic Survey Location SL1B. Cone of detection.



Appendix A2-b. Acoustic Survey Location SL1B. Microphone orientation.



Appendix A2-c. Acoustic Survey Location SL1B. Detector placement.



Appendix A3-a. Acoustic Survey Location SL2A. Cone of detection.



Appendix A3-b. Acoustic Survey Location SL2A. Microphone orientation.



Appendix A3-c. Acoustic Survey Location SL2A. Detector placement.



Appendix A4-a. Acoustic Survey Location SL2B. Cone of detection.



Appendix A4-b. Acoustic Survey Location SL2B. Microphone orientation.



Appendix A4-c Acoustic Survey Location SL2B. Detector placement.



Appendix A5-a. Acoustic Survey Location SL3A. Cone of detection.



Appendix A5-b. Acoustic Survey Location SL3A. Microphone orientation.



Appendix A5-c. Acoustic Survey Location SL3A. Detector placement.



Appendix A6-a. Acoustic Survey Location SL3B. Cone of detection.



Appendix A6-b. Acoustic Survey Location SL3B. Microphone orientation.



Appendix A6-c. Acoustic Survey Location SL3B. Detector placement.