Appendix 22-3

CONFIDENTIAL BUSINESS INFORMATION

Summer 2016 Pilot Bat Mist-Netting and Telemetry Work Plan

Bull Run Wind Project, Clinton County, New York

Prepared for:
Invenergy LLC
One South Wacker Drive,
Suite 1800
Chicago, IL 60606

Prepared by:
Stantec Consulting Services Inc.
30 Park Drive
Topsham, ME 04086

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1.0 INTRODUCTION

1.1 PROJECT DESCRIPTION

Invenergy Wind Development LLC (Invenergy) is planning the development of the Bull Run Wind Project (Project) in the towns of Clinton and Ellenburg in Clinton County, New York. As currently proposed, the Project area is approximately 54,444 acres. The forest types are relatively homogenous throughout the Project area consisting of deciduous, evergreen, deciduous-evergreen mixed forest, and woody wetlands (Homer et al. 2011). There are 38,551 acres of suitable summer habitat for forest-dwelling bats comprising 27,427 acres of non-wetland forest habitats and 11,124 acres of woody wetlands.

To assess the habitat and wildlife resources in the area, Invenergy contracted Stantec Consulting Services Inc. (Stantec), an independent environmental consultant, to conduct pre-construction avian and bat surveys. This work plan is for the summer 2016 pilot bat mist-netting and telemetry survey only.

1.2 PURPOSE AND OBJECTIVES

Stantec will conduct a pilot mist-netting survey to assess species composition of bats occurring in the Project area, determine the age and sex of individuals captured, and identify roost locations of up to 2 individuals of federally listed species, if captured. This study plan has been developed as part of the endangered species survey planning process for the Project and the pilot study will be used to inform potential future netting efforts at the site; however, the pilot survey will not constitute a presence/absence survey for federally listed bats. The study will be conducted in accordance with Stantec's federal permits (Appendices A and B), as well as a state permit which Stantec has applied for.

This scope of work will partially address recommendations described in the Standard Pre-Construction Studies detailed in the New York State Department of Environmental Conservation (NYSDEC) *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (NYSDEC Guidelines; NYSDEC 2016). Further, field methods will follow the U.S. Fish and Wildlife Service (USFWS) *2016 Range-wide Indiana Bat Summer Survey Guidelines* (2016 Bat Guidelines; USFWS 2016), with the exception of the number of survey locations to be sampled. The number of netting sites and their locations are described below.

2.0 METHODS

Stantec will sample 8 mist-netting locations and will track up to 2 individuals of species of federally listed bats, if captured, during the 2016 pilot survey. Mist-netting locations will target suitable summer habitat for the federally threatened northern long-eared bat (*Myotis*

septentrionalis) and federally endangered Indiana bat (*Myotis sodalis*) in those areas where landowner permission is granted. The netting locations will be selected by a federally permitted Indiana bat biologist on the ground prior to the initiation of netting, and net-site selection will follow the specifications in the 2016 Bat Guidelines.

2.1 MIST-NETTING SURVEY

In the field, site selection will be based on a number of factors including canopy cover, presence of non-obstructed flyways, and forest condition, and will target areas with high potential for rare bat presence (based on habitat suitability). Bat biologists will record the coordinates of each net site and photograph each site to illustrate the selection criteria. A map and sketch of each site will be included in the final report to illustrate the location of each net in relation to topographic features and the project as a whole.

The mist-netting survey will be conducted between 1 July and 15 August 2016. Three net sets will be deployed at each selected site, and each site will be surveyed for 2 nights. Eight net sites will result in 48 net nights of effort, with surveys taking place over approximately 8 to 12 calendar nights. Stantec estimates that 2 teams can complete this effort in 8 nights with suitable conditions. Nightly surveys will begin 30 minutes prior to sunset and continue for 5 hours following sunset.

Mist-netting equipment will consist of various sizes of the lowest visibility mesh nets commercially available with mesh sizes of 1 ½ – 1 ¾ inch, support poles and rebar, pulley ropes, and stabilizing ropes. Nets will be checked at regular 10–15 minute intervals, and all bats will be promptly removed to minimize stress on the animals and decrease chances of escape. Due to concerns over White-nose Syndrome (WNS), equipment will be decontaminated following the latest USFWS protocols. In addition, Stantec will also monitor WNS disinfectant updates posted to the USFWS web page to ensure the most up-to-date methodology is implemented.

A federally permitted bat biologist will supervise each site and confirm the identification of all captured bats. Bats will be live-caught in mist-nets, removed by the biologists, processed (data collected and recorded), and released unharmed at the capture site. If provided by the state, wing bands having unique numbers to identify individual bats will be placed on forearms of captured bats prior to release. Bat biologists will identify captured bats to the species-level and determine the sex, age class, and reproductive condition of each bat. The weight and right forearm length of each individual bat will be recorded. Age will be determined by examining the epiphyseal diaphyseal fusion of long bones in the wing. Reproductive condition of female bats will be recorded as pregnant (based on gentle abdominal palpation), lactating, post-lactating, or non-reproductive. Males will be recorded as reproductive or non-reproductive. Documentation photos will be taken for all species encountered on site. To identify same night recaptures, a small mark of non-toxic water-soluble paint will be applied to one forearm.

Weather conditions will be monitored each night of the survey. Conditions recorded will include temperature, wind speed and direction, percent cloud cover, and moon phase (if visible). Temperature readings will be obtained from the nearest weather station or a digital thermometer at the site. Wind speed will be estimated and based on the Beaufort wind scale, and cloud cover will be visually estimated.

If a northern long-eared bat or Indiana bat is captured during the survey, Stantec will inform the USFWS within 48 hours as specified in Stantec's federal permit. In accordance with a state permit obtained for the survey, Stantec will notify the NYSDEC of captures of listed bats within 24 hours.

2.2 TELEMETRY SURVEY

Bat biologists will attach radio transmitters on up to 2 individuals of northern long-eared bat or Indiana bat (with no more than 1 male per species). Bats selected for transmitter attachment will have a small area of fur removed from between the scapula to provide a good bonding surface for transmitter attachment. An activated transmitter will be attached to the bare skin between the scapulae using Skin Bond® surgical cement. Once transmitters are attached, the bat will be retained for 15 minutes in a holding bag to allow cement to fully dry. Receivers will be used to confirm the transmitter is functioning properly before bats are released. Stantec will use the smallest commercially available transmitter. Transmitters along with associated bonding cement will equal less than 6% of the bat's body mass. Transmitters will have a whip antenna and an expected battery life of 10 – 14 days.

Each bat fitted with a radio transmitter will be tracked the following day in an attempt to locate their roost. Stantec will use TRX1000s receivers (Wildlife Materials, Inc., Carbondale, Illinois) and hand-held yagi antennas during tracking activities. Telemetry will continue for 7 days or until transmitter failure or detachment, whichever occurs first. Once roost sites are located, each roost will be flagged and GPS location data will be collected. Other field data collected will include type of roost (e.g., tree, building, bridge), identification of the bat using the roost (transmitter frequency and/or band number), tree species (if a tree roost), diameter at breast height (dbh) of any tree roost, as well as percent bark cover, percent canopy cover at roost location, aspect of roost, and proximity to water. Roosts will be photographed to illustrate roosting conditions at each site. Upon confirming landowner permission (if the bat is tracked to a location where permission is not already granted), a path from the nearest road or trail will be marked to each roost site providing a safe and easy access route for biologists conducting follow-up work at the roost sites (e.g., emergence counts, roost data collection). If landowner access is denied during roost identification, the approximate roost location will be determined using triangulation.

Once a roost site is located, emergence counts will be used to determine colony size. This will be completed by a biologist positioned near the roost where visibility of the potential exit point is least cluttered. The biologist will count bats exiting the roost beginning at 30 minutes before sunset and will continue for 2 hours or until light diminishes to a point at which the surveyor can

no longer see bats emerging. A minimum of 2 emergence counts will be conducted on every identified roost.

2.3 REPORTING

Stantec will prepare a report describing survey methods and results. The report will include completed datasheets for the survey sites, a map showing the location of each survey site and photographs of each net, representative photos of species captured, and tables summarizing the capture results. If telemetry is conducted and roosts are discovered, roost information and photographs will also be included.

3.0 REFERENCES

Homer, C. G., J. A. Dewitz, L. Yang, S. Jin, P. Danielson, G. Xian, J. Coulston, N. D. Herold, J. D. Wickham, and K. Megown. 2011. Completion of the 2011 National Land Cover Database for the conterminous United States-Representing a decade of land cover change information. Photogrammetric Engineering and Remote Sensing, v. 81, no. 5. <http://www.mrlc.gov/nlcd2011.php>. Accessed 13 June 2016.

(NYSDEC) New York State Department of Environmental Conservation. 2016. Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects, April. Prepared by New York State Department of Environmental Conservation Division of Fish and Wildlife.

(USFWS) U.S. Fish and Wildlife Service. 2016. Range-wide Indiana Bat Summer Survey Guidelines, 11 April. http://www.fws.gov/midwest/Endangered/mammals/inba/inbasummersurveyguidance.html

APPENDICES

Appendix A STANTEC PERMIT NO. TE15027A-3

Appendix B STANTEC PERMIT NO. TE38821A-2