Post-Construction Avian and Bat Monitoring and Adaptive Management Plan

Baron Winds II Project
Steuben County, New York

Case Number: 15-F-0122

October 25, 2024
Revised December 4, 2025

Prepared for:

Baron Winds II LLC
353 North Clark Street, Floor 30
Chicago, IL 60654

Prepared by:

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

Table of Contents

LIST OF APPENDICES

1.0 INTRODUCTION

On September 12, 2019, Baron Winds LLC (Baron Winds) was granted a Certificate of Environmental Compatibility and Public Need, with Conditions (Certificate) by the New York State Board on Electric Generation Siting and Environment (Siting Board) (Case15-F-0122), authorizing the construction and operation of up to 68 turbines with a total generating capacity of 242 megawatts (MW) in the towns of Cohocton, Dansville, Fremont, and Wayland, in Steuben County, New York (Certificated Facility).

On March 9, 2020, Baron Winds petitioned to amend the Certificate to allow phased construction (Phase I and Phase II) and to allow modifications to component locations for Phase I, which was approved on May 6, 2020. Construction of Phase I has been completed and Phase I, consisting of 32 turbines and a total generating capacity of 122 MW, became operational in December 2022.

On September 6, 2022, Baron Winds and Baron Winds II LLC (Baron Winds II) petitioned to amend the Certificate for Phase II modifications and to partially transfer the Certificate to Baron Winds II for Phase II, which was approved on July 1, 2024. Phase II started construction in October 2024. Phase II is herein referred to as the Baron Winds II Project (Project) or Phase II. The Project will primarily be located in the Town of Fremont and will consist of up to 26 turbines, with a total generating capacity of 117 MW, and associated infrastructure. A portion of the Facility infrastructure is also located in the towns of Wayland and Cohocton.

Pursuant to Article 10 of the Public Service Law, the Siting Board issued the Certificate on September 12, 2019, for Baron Winds (Case 15-F-0122). Under Certificate Condition 64, Baron Winds II is required to develop and file a Post Construction Avian and Bat Monitoring and Adaptive Management Plan (Plan) at least 60 days prior to the start of commercial operation of the Project. The Plan includes direct impact fatality studies and habituation/avoidance studies. The details of the Plan and its studies follow the methodology for standard post-construction studies specified in the New York State Department of Environmental Conservation's (NYSDEC) June 2016 *Guidelines for Conducting Bird and Bat Studies at Commercial Wind Energy Projects* (NYSDEC Guidelines; NYSDEC 2016a).

Stantec Consulting Services Inc. (Stantec) has prepared this Plan to satisfy the terms of the Certificate Conditions, specifically Condition 64. The Plan describes Project-specific monitoring objectives and a standardized post-construction monitoring program designed to meet those objectives. This Plan is based on the NYSDEC Guidelines, outcomes of meetings with staff from NYSDEC and US Fish and Wildlife Service (USFWS), the USFWS Land-based Wind Energy Guidelines (LWEG; USFWS 2012), and the Project's Bird and Bat Conservation Strategy (BBCS; Stantec 2021) previously submitted to NYSDEC and Department of Public Service (DPS) staff. Pursuant to the Article 10 requirements, the final study design will be developed in coordination with the NYSDEC and USFWS. The final Plan will be filed at least 60 days before commencement of commercial operation.

2.0 CERTIFICATE CONDITIONS

The Projects' Certificate includes several conditions related to the monitoring of birds and bats during and following construction of the Project:

- Condition 42: Develop a final BBCS in consult with the NYSDEC and USFWS and provide to NYSDEC and DPS staff.
- Condition 61: Prepare and implement a Bat Curtailment Plan to minimize impacts to bat species, and monitor and verify compliance with the curtailment requirements.
- Condition 62: Submit a review of curtailment operations at least every 5 years to DPS and NYSDEC. The review will assess if changes in technology or knowledge of impacts to bats supports modification of the existing curtailment regime.
- Condition 63: Within 6 months of Certificate issuance, file final Endangered or Threatened species Mitigation Plans (ETSMP) for the take of bald eagles (*Haliaeetus leucocephalus*) and northern long-eared bats (*Myotis septentrionalis*; NLEB).
- Condition 64: File a Post-construction Avian and Bat Monitoring and Adaptive Management Plan at least 60 days prior to the start of commercial operation of the Facility. Post-construction monitoring will be conducted for at least 2 years but no more than 3 years.
- Condition 95: Conduct clearing of trees greater than 3 inches in diameter at breast height between November 1 and April 1 in bat-occupied habitat to reduce bat mortality during construction.
- Condition 96: Conduct no tree-clearing activities within 150 feet of any identified NLEB maternity roosts, and conduct all proposed tree-clearing activities within 1.5 miles of a roost site between November 1 and April 1.
- Condition 97 specifies the requirement to mark, report within 48 hours, and establish a 500-foot buffer around any active nests "of any federally, or State, listed threatened or endangered bird species" discovered during construction and operation of the Project.
- Condition 98: Notify DPS and NYSDEC staff within 48 hours of discovery or observation of bald eagle nests or breeding behavior in the Project area. Around the nest, establish an area 0.25 miles in radius if there is no visual buffer or an area 660 feet in radius if there is a visual buffer. Area will be posted and avoided until DPS staff and NYSDEC Region 8 Natural Resources Supervisor grant notice to continue construction or maintenance activities.
- Condition 99: Contact and notify the NYSDEC Region 8 Natural Resources Supervisor within 24 hours of the discovery of any dead, injured or damaged federally or state-listed threatened or endangered species, or their parts, nests or eggs. Contact and notify the USFWS if the specimen is a federally listed species.

- Condition 100: Notify the NYSDEC Regional Office and DPS staff within 48 hours of the discovery of a nest or breeding behavior of a northern harrier (*Circus hudsonius*), short-eared owl (*Asio flammeus*), or upland sandpiper (*Bartramia longicauda*). Around the nest, establish an area 660 feet in radius; area will be posted and avoided until DPS staff and NYSDEC Region 8 Natural Resources Supervisor grant notice to continue construction or maintenance activities.

3.0 PLAN OBJECTIVES

Under Condition 64, the Certificate specifies the Plan will include direct impact fatality studies and habituation/avoidance studies. The post-construction studies (the start date, number and frequency of turbine searches, search area, bat monitoring, further monitoring beyond the second year, etc.), will be designed as described in the NYSDEC's Guidelines and in consultation among Baron Winds II, USFWS, and NYSDEC. Post-construction monitoring will be conducted for a minimum period of 2 years but no more than 3 years.

This document presents the study designs to be implemented during Year 1 and Year 2 of Phase II operations. Monitoring during Year 1 and Year 2 will include a combination of turbine fatality searches and bird habituation and avoidance studies. The results of the studies conducted in the first 2 years will be used to determine if and how monitoring will be implemented in Year 3.

Primary objectives of the Plan are to evaluate whether the Project has adequately satisfied the goals of the Bat Curtailment Plan and two ETSMPs. These are explained in the following sections.

3.1 BAT CURTAILMENT PLAN

Consistent with Certificate Condition 61, Baron Winds II will implement a Bat Curtailment Plan for minimization of impacts to bat species. The Bat Curtailment Plan includes:

a) a curtailment regime during the period July 1 through October 1 requiring a minimum curtailment of 6.0 meters per second (m/s), 30 minutes prior to sunset through 30 minutes after sunrise, when temperatures are greater than 10°C (50°F); and

b) methods for monitoring and verifying compliance with curtailment requirements.

Implementing this curtailment regime is expected to significantly minimize fatalities for all bat species, and NYSDEC has indicated this level of curtailment may result in a 90% reduction in the estimated annual mortality of NLEB.

3.2 ENDANGERED OR THREATENED SPECIES MITIGATIONS PLANS

The Certificate authorizing construction and operation of the Project acknowledges that the Project may result in incidental take of bald eagle and NLEB individuals from collisions with turbines. In accordance with Certificate Condition 63, Baron Winds II has prepared ETSMPs for the take of bald eagles (Stantec 2024a) and NLEBs (Stantec 2024b); take estimates for both species were based on metrics and

assumptions provided by NYSDEC. For both species, implementation of the ETSMP must result in a positive benefit to the species in addition to offsetting the estimated take. The post-construction monitoring study will track bird and bat fatalities and estimate fatality rates, and results will be used to determine if take estimates of bald eagles and NLEBs are being exceeded.

3.2.1 Bald Eagle

In the Order, the Siting Board adopted NYSDEC's position that the certificated Project could take up to 41 bald eagles during its anticipated 30-year lifespan. NYSDEC assumes that 2 adult eagles from the [redacted] nest, plus all young from this nest, would be taken during the 30-year life span of the combined Phase I and Baron Winds II projects. In New York, the average annual reproductive output from eagle nests is estimated at 1.3 fledglings (NYSDEC 2016b), which results in a total of 39 takes from the loss of annual reproduction. In the unlikely event that bald eagle take exceeds what has already been mitigated for in the ETSMP, and bald eagles remain a threatened and/or endangered species in New York, Baron Winds II will develop further mitigation actions through consultations with NYSDEC and DPS.

3.2.2 Northern Long-eared Bat

NYSDEC estimated the certificated Project would have an overall bat fatality rate of 6.7 bats per MW per year, and NLEB would account for 0.4% of bat fatalities. Distributed among the 30 years on which the take estimate was based, the annual estimated NLEB take for the Project was 3.2 NLEB per year. As stated above, NYSDEC has indicated the Bat Curtailment Plan may result in a 90% reduction in the estimated annual mortality of NLEBs, thereby reducing annual take of NLEBs to 0.32 or approximately 9.5 NLEBs over the 30-year life of the Project.

3.3 OBJECTIVES

The Plan is designed to address, to the extent possible, general objectives expressed in the USFWS LWEG and NYSDEC Guidelines. Based on Stantec's understanding of the goals of the NYSDEC Guidelines, USFWS LWEG, and the Certificate conditions for this Project, we have outlined the following site-specific objectives for the Plan:

Objectives Regarding Bat Species:

1) Estimate bat fatality rate (per turbine and per MW) and associated 90% confidence intervals

2) Evaluate whether NLEB bat fatality rate is likely at or below the rate assumed in the take estimate

3) Confirm proper implementation of curtailment (e.g., via rotations-per-minute [rpm], temperature, wind speed data)

Objectives Regarding Bird Species:

1) Estimate bird fatality rate (per turbine and per MW) and associated 90% confidence intervals

2) Evaluate whether bald eagle fatality rate is likely at or below the rate assumed in the take estimate

3) Document seasonal fatality patterns for birds[1]

4) Evaluate potential displacement of birds using available data within the current Project area and update site-specific occurrences of rare, threatened, and endangered (RTE) species in the Project area

5) Document any instances of other large raptor fatalities

Objectives Regarding Both Bird and Bat Species:

1) Document species composition of fatalities

2) Document spatial fatality patterns among turbines

3) Provide training to operations staff to facilitate self-reporting of any carcasses, particularly eagle and other large raptor fatalities and/or fatalities of RTE species or new occurrences of RTE species in the Project area

4.0 STUDY DESIGN

To meet the objectives outlined above, this Plan incorporates a combination of standardized carcass monitoring and breeding bird surveys. Additionally, this Plan describes the incidental carcass monitoring protocols implemented by Project operations staff throughout the life of the Project, which will supplement results of targeted monitoring efforts using standardized methods. This section describes the general strategy used to address the monitoring objectives identified above, and detailed survey methods are outlined further in the document.

4.1 STANDARDIZED CARCASS MONITORING (OBJECTIVES 1, 2, 4, 5, 7, 8, 9, 10)

The primary variables in designing a standardized carcass monitoring program include the proportion of turbines to be searched, the size of survey plots at each turbine, and the frequency of turbine searches. Even when all turbines are searched regularly, not every carcass is detected, and raw carcass counts must be corrected using one of several available methods to account for imperfect carcass detection, carcass removal by scavengers, and carcasses falling outside the searched area to produce an accurate estimate of fatality rates (Bernardino et al. 2013).

[1] Curtailment is expected to affect seasonal distribution of bat mortality at the site such that data from the Project will be of limited value in documenting seasonal bat mortality patterns. Curtailment is not expected to affect bird fatality rates.

Accordingly, standard carcass monitoring programs produce a dataset of individual carcasses identified to species and use these carcasses to develop an estimate of the fatality rate by species type (usually birds and bats; birds are occasionally broken down to species groups). Fatality estimates are initially calculated per turbine and can then be converted to per MW. Raw carcass counts are used to establish seasonal patterns and assess species composition of fatalities, whereas the fatality estimate provides a more realistic measure of the magnitude of fatality. The difference between the number of carcasses found and the estimated rate depends on the variables outlined above (e.g., proportion of turbines searched, area searched, searcher efficiency, carcass persistence), but the lower the survey effort, the larger the correction factors. Confidence intervals are also affected by these correction factors as well as the number of carcasses found and the spatial distribution of carcasses among turbines.

4.1.1 Bald Eagle Fatalities

Unlike bats and other smaller birds, injured eagles or eagle carcasses are difficult to overlook. We assume that the actual number of eagles found will be used to determine the number of eagle fatalities and take rate. It is expected that injured eagles and eagle carcasses will be detected during standardized carcass searches and daily maintenance inspections conducted by Baron Winds II operations staff.

4.1.2 Northern Long-eared Bat, All-Bat, and Bird Fatality Rates

Determining an appropriate level of survey effort for carcass monitoring depends on project-specific objectives and the associated metrics against which survey results will be compared. Stantec evaluated three monitoring scenarios for their capacity to address the objectives identified above: (1) the level of effort recommended in the NYSDEC 2016 Guidelines (33% of turbines daily and 33% weekly); (2) monitoring all turbines at a weekly interval; and (3) monitoring all turbines twice weekly. Of these, the two scenarios that monitor all turbines will be more effective in documenting spatial patterns in fatality among turbines because they apply consistent effort among turbines. Species composition and seasonal patterns would be equally detectable among plans, but the sample size of carcasses would be greater for the twice-weekly and NYSDEC Guidelines scenarios due to the higher number of turbine searches.

Two primary approaches could be used to address Objective 2 (whether the NLEB fatality rate is aligned with the permitted level). The empirical bat fatality estimate measured at the Project could be substituted into the same calculation used to predict take (maintaining the same assumptions for species composition and risk reduction from curtailment), or the actual number of NLEB carcasses could be used to evaluate take. Based on the lack of NLEB fatalities at any turbine operating with curtailment across North America and because the annual NLEB take estimate is so low (0.32 NLEB/year), it is likely that zero NLEB carcasses will be found at the Project, regardless of the level of survey effort. Accordingly, the absence of carcasses would need to be evaluated in the context of confidence that the actual number of carcasses did not exceed a certain level. This approach, using the Evidence of Absence (EoA) software (Dalthorp et al. 2017), can provide statistical confidence that take did not exceed a certain threshold when zero carcasses are discovered, but it requires a disproportionally large amount of survey effort when expected fatality rates are very low. Of these approaches, the first will likely be more responsive and sensitive to

project-specific patterns in bat activity and risk, whereas the EoA approach would likely provide more information on monitoring intensity among wind farms than the relative likelihood of NLEB take.

Accordingly, we propose to use the empirical bat fatality estimate as the primary metric to address Objective 2. For the Project, the empirical bat fatality rate, 3.35 bats per MW per year (assuming a 50% reduction under the curtailment regime), will be used estimate NLEB take based on the assumed proportion of NLEB fatalities to all bat fatalities (i.e., 0.004). Because all turbines will be operated with curtailment, the actual effectiveness of curtailment (i.e., mortality reduction from fully operating turbines) cannot be measured, requiring reliance on the assumed 50% reduction in the all-bat fatality rate. As applied to turbines at the Project, this fatality rate translates to 15.1 bats per turbine per year. Determining whether the bat fatality rate measured at the Project is above or below the statewide rate would, therefore, be a straightforward method of evaluating whether the level of NLEB take assumed in the ETSMP has been exceeded (Objective 2). Due to the small sample size of bat carcasses anticipated for the Project (due to curtailment), site-specific carcass data will not be useful for updating the assumed NLEB species composition.

While any of the three monitoring strategies Stantec evaluated would generate an empirical bat fatality rate, precision of fatality estimates depends on sample size of turbines, searcher efficiency, search interval relative to carcass persistence, and distribution of carcasses among turbines. Consistent monitoring effort among turbines simplifies the process of generating empirical fatality estimates and helps minimize potential variance related to survey effort, supporting the two monitoring scenarios with consistent level of effort at all turbines. Although we recommend relying on the empirical fatality estimate as opposed to the EoA method to evaluate NLEB take relative to the permitted level, Stantec also utilized the EoA software (Dalthorp et al. 2017) to evaluate the effectiveness of each monitoring strategy at determining that the NLEB take estimate would not be exceeded for the Project if zero carcasses are found. The results will be expressed in terms of overall detection probability (g), which can then be used to determine, with a certain level of confidence (alpha; α), that the estimated take has not been exceeded.

The following assumptions were used:

- Temporal coverage (*v*) of 100% (searching is occurring during the entire period of risk for the NLEB, from April 15 to November 15; results from Year 1 of monitoring could be used to revise these dates)
- Area adjustment of 56% (56% of carcasses fall within 60 meters of a turbine, which would be within a 120-meter by 120-meter plot)
- Carcass persistence of 5.5 days (based on data from New York post-construction monitoring studies)
- Searcher efficiency of 60% on full plots, 90% on roads and pads (a trained searcher is likely to find 60% of carcasses on full plots and 90% on the road or pad)
- Factor by which searcher efficiency changes with each search (*k*) of 0.8 (EoA default)

The monitoring effort outlined in the NYSDEC Guidelines achieves an overall detection probability (*g*) of 0.2095. As applied to the Project, 2 years of monitoring at this level would be required to determine that the annual take of NLEB was at or below 0.32, using a confidence level (α) of 50%. We also tested scenarios in which all turbines were searched weekly; this resulted in a *g* value of 0.209, which would also require 2 years to confirm NLEB take was below 0.32 per year. Continuing to search all turbines but increasing search frequency to twice per week would increase *g* to 0.299 but would still require 2 years to confirm annual NLEB take of less than 0.32 using an α of 50%. However, having a higher detection probability (*g*) would result in a higher level of confidence in the take estimate after 2 years of monitoring. Results of on-site searcher efficiency and carcass persistence trials (as opposed to regional values used above) may yield higher or lower *g* values, although the relative difference in detection probability among monitoring scenarios would be equivalent, with the biweekly searches of all turbines being most able to detect a rare event.

Of these strategies, the NYSDEC Guidelines strategy would require the most resources. Applied to the Project, daily searches at 9 turbines and weekly searches at 9 turbines would require 72 turbine searches per week, whereas weekly or twice weekly surveys at all turbines would require 26 or 52 turbine searches weekly. Extended to the full monitoring period, these differences affect the required level of effort and associated costs moderately. However, the NYSDEC daily/weekly strategy would provide no information on 8 turbines at the Project during certain weeks, limiting the ability to assess spatial fatality patterns at the Project.

Carcass persistence data from the region indicate that many carcasses persist on the ground well beyond a daily search interval, and the condition at the time of discovery of many carcasses suggests many of these fatalities occurred several days to over a week prior. From 2006 to 2015, 15 operating New York wind projects reported the average number of days carcasses remained and/or the percentage of carcasses remaining for 7 days or longer during carcass persistence trials. The average number of days carcasses remained was 5.5 days for bats and 7.6 days for birds, and the average percentage of carcasses remaining for 7 days or more was 60% for bats and 67% for birds (see Appendix A, Table 1). Searching all turbines twice per week achieved the highest overall detection probability and would be the most appropriate strategy to address the Project-specific objectives identified above.

4.1.3 Turbine Operation Data (Objective 3)

To address Objective 3 identified above, this Plan includes an analysis of temperature, wind speed, and turbine rpm data collected at individual turbines and averaged at 10-minute intervals. This information will be used to confirm that turbines were curtailed effectively (i.e., rpm <1) when conditions of the curtailment plan were met. Data will be summarized per turbine and compared to the number of carcasses to determine whether curtailment is being implemented correctly (i.e., as designed).

4.1.4 Bird Habituation and Avoidance Study (Objective 6)

In addition to surveys measuring direct fatality rates and exposure of bats to turbine operation, the Plan includes a study to assess behavioral responses of birds to the presence and operation of turbines on the

landscape to meet Objective 6. Although similar surveys were conducted pre-construction, the data were collected early in the Project's design and many survey points occurred outside of what is now the Project area. However, some pre-construction data are available from the current Project footprint that may provide an opportunity to compare distribution and behavior of birds before and after the Project was constructed. Please note that this comparison will not be able to account for the many outside factors that could influence differences in observed bird species and composition on the landscape beyond the construction and operation of the Project.

Certificate Condition 64 specifies 2 years of monitoring. It should be noted that the pre-construction breeding bird and fall bird migration surveys occurred for 1 year. Depending on the status of site restoration following construction, this survey may take place during Year 2 of operation when Project site habitats and communities may more adequately represent long-term conditions.

4.1.5 Incidental Eagle Monitoring (Objective 10)

Project operations staff will be trained on the protocol for discovery of injured eagles or eagle carcasses incidental to Project maintenance work. Staff will be trained on the protocol for carcass data collection (i.e., species identification, global positioning system [GPS] location, photographs, and distance and bearing from turbine) if they encounter eagle individuals during regular maintenance checks. Operations staff will document any carcasses found throughout the life of the Project, addressing Objective 10. Incidental observations of live eagles in the Project area will also be recorded by operations or environmental monitoring staff. Similarly, incidental observations of fatalities or injuries of other species, including RTE species, will be tracked and reported following similar procedures used for eagles.

5.0 SCOPE OF WORK

5.1 BIRD AND BAT FATALITY STUDY

5.1.1 Schedule and Search Effort

Based on our assessment of possible study designs (described in Section 4.0), Stantec proposes to conduct fatality searches within full plots at every turbine twice per week throughout the monitoring period. This level of effort provides consistent spatial and temporal coverage to document seasonal patterns and inter-turbine variation in fatality rates and achieves the highest predicted detection probability for rare events among the scenarios we evaluated. Monitoring will begin following completion of Project site restoration (i.e., Year 1). Completion of site restoration activities is anticipated to occur by mid-2026 and the first year of monitoring is anticipated to begin in 2027.

Monitoring of all turbines during Year 1 will occur two times per week from April 15 to November 15 (31 consecutive weeks of survey), pending safe site conditions and site access. The start and end dates of the survey period may depend on the feasibility of searches based on site conditions (mainly snow cover).

5.1.2 Search Area

The search area at each turbine will consist of square plots, up to 120 meters (394 feet) on a side, centered on towers where possible. Search areas for turbines in cleared areas within forest will extend to the limits of the cleared area up to a maximum square plot measuring 120 meters by 120 meters, depending on landowner use (e.g., agricultural activity) within the turbine area. Surveys will be conducted in all vegetation types present in the search plots but will not extend into uncleared forested areas or steep terrain that cannot be searched safely. The boundaries of search plots will be mapped using a GPS receiver and an area correction will be applied during data analysis for areas within the search plot that could not be searched. Parallel transects oriented north to south will be established 5 meters (16.4 feet) apart within each search plot and will be marked with wooden stakes with flagging or flagging on trees, depending on what landowners allow.

5.1.3 Vegetation Monitoring and Ground-Cover Mapping

Because vegetation influences carcass detectability, the areal extent of each ground cover type within search areas will be mapped using a GPS unit and vegetation heights and any significant changes in ground cover within search plots will be recorded throughout the study period. The visibility class for each ground cover type within plots will be classified as designated below, and the dominant visibility class will be recorded during each turbine search:

1 (Easy): >90% bare ground; ground cover sparse and <6” in height

2 (Moderate): >25% bare ground; all ground cover <6” in height and mostly sparse

3 (Difficult): <25% bare ground; <25% of ground cover >12” in height

4 (Very Difficult): little or no bare ground; >75% of ground cover >12” in height.

Ground cover type and height will be monitored at each turbine on each day that it is searched. To the extent possible, agricultural practices will be noted. The need for mowing to maintain decent visibility in plots will be monitored and assessed in consultation with Project operations staff. If necessary and depending on ground conditions, mowing may be used to maintain visibility at search plots if agreeable to the landowner. The visibility class where each carcass is found will be considered during data analysis.

5.1.4 Data Collection

Trained searchers will conduct standardized carcass surveys. Searchers will target the period between sunrise and 8 hours after sunrise in an effort to recover carcasses before potential removal by scavengers and to increase the chances of recovering live birds or bats, if present. The order in which turbines are searched each day will be determined by random allocation so that individual turbines are not searched at the same time of day throughout the study period. Searches will not be conducted during unsafe conditions (e.g., lightning, heavy rain or hail, icing on blades, turbine maintenance activities). If certain conditions prohibit searching, searches will resume the same day or the following day, as feasible.

Surveyors will document the start and end times for searches at each turbine, as well as general weather conditions during surveys and other applicable notes (site disturbances, agricultural practices, scavenger signs, etc.), on standardized field forms. During searches, surveyors will walk slowly looking for carcasses on either side of transects. Each turbine search is anticipated to take approximately 1 to 1.5 hours, depending on if the full plot area is searchable and if carcasses are found. All intact carcasses or remnants of scavenged carcasses (e.g., a cluster of feathers representing more than a molt, or a patch of skin, fur, and bone) will be documented as fatalities.

In an attempt to standardize time spent searching each turbine, the site where the carcass is found will be flagged and the fatality will be processed after the turbine search is completed. Once a carcass is relocated, a searcher will record the location using a GPS or a laser range finder and compass. Multiple photographs will be taken of each carcass found, including at least one photograph showing 1) a ruler or pen placed next to carcass for scale; 2) the position in which carcass was found; 3) the dorsal side; 4) the ventral side; 5) for bats, features distinguishing sex and reproductive condition; and 6) any features distinguishing the species.

The following information will be recorded for each carcass found, whether found during a search or incidentally (any carcass found outside of search areas, outside of standardized search periods, or found by Project site personnel):

- Date, time, and surveyor identification
- Turbine number
- Weather conditions
- Ground cover conditions (visibility class, vegetation type and height, wet, dry, etc.)
- Distance (determined with a laser range finder) and compass direction of carcass from turbine tower, and from the transect from which the carcass was detected
- Carcass species identification, age (juvenile or adult), sex, and reproductive condition (to the extent possible)
- Carcass position (face-down, balled up, etc.) and condition (fresh or stage of decomposition, intact, scavenged, feather spot, etc.)
- Ground cover type where carcass found

Carcasses found will be collected and stored (pending acquisition of applicable permits) in a freezer at the Project's operations and maintenance building. Carcasses found incidentally (i.e., outside the search plot or not during a scheduled search) will be documented and collected according to the protocol outlined above; however, these carcasses will be designated as incidental and reported separately. Operations personnel will be instructed on the handling and notification requirements for these occurrences and will be supplied with datasheets so that the appropriate data is collected for each fatality.

Prior to the initiation of mortality searches, the appropriate state and federal permits will be acquired for the collection and possession of dead or injured migratory birds and bats. The required procedures regarding the discovery of any state or federally listed species will be adhered to. If injured animals are discovered, animals will be brought to local wildlife rehabilitators.

5.1.5 Searcher Efficiency Trials

It is anticipated that searchers will not find all carcasses during mortality searches. Therefore, estimates of searcher efficiency will be used to adjust the number of carcasses found, thereby correcting the estimate of total mortality for this bias.

Searcher efficiency trials will be conducted concurrent with monitoring efforts. Trials will target the placement of at least 50 bird carcasses and 50 bat carcasses over the course of each monitoring year (where 1 carcass equals 1 trial), subject to carcass availability. Since carcass availability is often limited, the same individual trial carcasses may be re-used in multiple trials over the course of the study period until they become too decomposed. If a sufficient number of trial carcasses cannot be obtained on-site, additional surrogate carcasses may be acquired from the New York State Health Department (for bats) and/or wildlife rehabilitation centers or other wildlife organizations (for birds). Brown mice may also be used as surrogates for bats, and pen-raised game species (e.g., young quail of different ages) may be used for birds.

Trial carcasses will be placed and discreetly marked by a trial coordinator so that trial carcasses may be distinguished from actual fatalities once found by the searchers. Carcasses will be placed at random distances and azimuths from turbine towers and within different vegetation types and visibility classes.

The searcher(s) being tested will be unaware of trial dates and locations. The trial coordinator will leave carcasses out before sunrise at scheduled search turbines and will make every effort to leave no evidence of trial set-up (e.g., vehicle or footprints in wet grass or mud). The trial coordinator will record the following information for each carcass placed:

- Date, time of set-up, and searcher being tested
- Turbine number
- Carcass number and species identification
- Carcass distance and direction from tower and/or GPS location
- Vegetation type and visibility class where carcass was placed

After searches are completed on trial days, the trial coordinator will determine how many trial carcasses were recovered. Trial carcass presence will be determined (i.e., to verify that it had not been scavenged prior to searches) and recorded by the trial coordinator each day immediately after the completion of the survey day.

5.1.6 Carcass Persistence Trials

Carcass persistence trials will be performed regularly within the study area to estimate the percentage of bird and bat fatalities that are removed from study plots by scavengers. Estimates of carcass removal will be used to adjust the number of carcasses found, thereby correcting for this bias.

Trials will target the placement of at least 50 bird carcasses and 50 bat carcasses over the course of each monitoring year (where 1 carcass equals 1 trial), subject to carcass availability. If a sufficient number of native trial carcasses cannot be obtained on-site, additional native surrogate carcasses may be acquired from the New York State Health Department (for bats) and/or wildlife rehabilitation centers or other wildlife organizations (for birds). If native surrogate species are not available, brown mice may also be used as surrogates for bats, and pen-raised game species (e.g., young quail of different ages) may be used for birds. Non-native carcasses are not preferred and will only be used if necessary.

Carcass removal trials will be conducted in a variety of ground cover conditions on-site and throughout the study period. Efforts will be made by those setting-up the trials to avoid attraction of scavengers to trial carcasses. These efforts will include wearing gloves during the handling of all carcasses, tossing carcasses during trial set-up to reduce the risk that scavengers will follow human scent to the carcasses, and avoiding the setup of trials when or where scavengers are present and may be cued into human activity. All carcasses will be checked daily for the first week and approximately every 2 days until evidence of the carcass is absent or 14 trial days is reached. The searcher (trial coordinator) will record the following information for each carcass:

- Date, time of set-up, trial coordinator
- Turbine number
- Carcass number and species
- Carcass distance and direction from tower and/or GPS location
- Ground cover type and vegetation height where carcass was placed

During each carcass check, it will be documented whether the carcass is still detectable by the searcher (completely removed, or feathers or skeleton remaining). Detailed notes will be taken when scavenger activity is detected for the purpose of scavenger identification.

5.1.7 Data Summary and Analysis

Data from standardized carcass searches, searcher efficiency trials, and carcass persistence trials will be entered into a database and analyzed. Data analysis will be conducted according to industry standard methods, and any new methods available at the time of reporting will be considered.

5.1.7.1 Fatality Estimates

As explained in Section 4.1.1, bald eagle fatalities will be based on actual carcass detections. Estimates of bird and bat fatality rates will be based on the results of one or more quantitative estimators incorporating correction factors (e.g., Huso estimator 2012 or USGS GenEst 2019). Estimates of fatality will account for the proportion of turbines searched, searchable area per turbine, searcher efficiency, and carcass persistence. Bird and bat fatality estimates, calculated per turbine and per MW, will be generated for each study year. Carcasses found incidentally will be reported but not included in estimates of fatality. However, any injured birds or bats found during searches will be included in fatality estimates, if found during standardized searches.

The following additional data summaries and analyses will be conducted based on the temporal and spatial distribution of bird and bat fatalities found at the Project:

- The numbers of birds and bats, and the number of species and species groups found
- Seasonal timing of fatalities
- The range of distances that birds and bats were found from the towers and the average distances birds and bats were found from towers
- The distances and azimuths of carcasses from turbine bases, plotted on a scatterplot diagram within 10-meter concentric distance increments
- The distribution of bird and bat fatalities among individual turbines (including covariates such as presence of Federal Aviation Administration lighting)
- The distribution of fatalities at turbines in different landscapes settings (saddle, crest, or side slope)

5.1.7.2 Curtailment Evaluation

The Project will use turbine operation data (rpm), wind speed, and temperature data recorded at the nacelles of each turbine at 10-minute intervals to calculate the proportion of time in which curtailment conditions were met and turbine rpm was less than 1. This information will provide a quantitative metric to evaluate how closely turbine operation aligned with parameters of the curtailment program. Data will be summarized initially per turbine on a monthly basis, and any anomalies will be investigated on a finer temporal scale.

5.1.8 Adaptive Management

Baron Winds II has established adaptive management thresholds to address an unexpected bird or bat fatality event or increased risk to bald eagles. Adaptive management will apply throughout the life of the Project as part of the long-term evaluation of Project impacts and subsequent responses in the form of measures to effectively avoid and/or reduce impacts to birds and bats, as necessary. The following

sections describe the triggers for adaptive management, which are in alignment with those specified in the Project BBCS. Adaptive management triggers may be revisited and revised over time as the Project progresses and site-specific information on bird and bat mortality becomes available.

5.1.8.1 Bald Eagles

The post-construction fatality monitoring will inform the Project's actual risk to eagles. Adaptive management will allow Baron Winds II, in coordination with NYSDEC, to adjust management actions at the Project based on the results of post-construction monitoring.

5.1.8.2 Northern Long-eared Bat

The fatality monitoring study is designed to reveal the possibility that the authorized take of NLEB may be exceeded after 2 years of monitoring. Adaptive management will allow Baron Winds II, in coordination with NYSDEC, to adjust management actions at the Project based on the results of the fatality monitoring.

5.1.8.3 All Birds and Bats

For birds and bats in general, triggers for adaptive management include the following:

1) Any large-scale fatality event discovered during standardized searches or incidental monitoring (here defined as the discovery of greater than five birds or 10 bats at any one turbine or the discovery of greater than 20 birds and/or bats during searches at all turbines on any given day).

2) Any fatality of a state- or federally threatened or endangered species other than bald eagle or NLEB.

Actions to be taken in response to the triggers listed above:

1) Baron Winds II will notify NYSDEC and USFWS within 48 hours of the large-scale fatality event and will investigate, based on available data, circumstances under which the fatality event(s) occurred.

2) Baron Winds II will notify NYSDEC and USFWS within 24 hours of a state- or federally listed threatened or endangered species fatality.

3) If appropriate, Baron Winds II will evaluate the curtailment regime to ensure it was functioning properly at the time the incident was expected to have taken place.

4) Baron Winds II may prevent the potential for, and formation of, seasonal water sources in the direct vicinity of turbines if these are thought to result in increased collision mortality of birds or bats.

5) Pending cooperation of landowners and recommendations of NYSDEC and/or USFWS, onsite land use surrounding turbines may be altered to reduce attraction of birds if land use is thought to result in increased collision mortality of birds. This could include removal of carcasses or gut piles from recreational hunters that may field dress their game near turbines or access roads.

6) Baron Winds II will review and monitor lighting at the Project for a night to ensure the lighting is functioning appropriately.

5.2 BIRD HABITUATION AND AVOIDANCE STUDIES

Post-construction bird habituation and avoidance studies will be conducted consistent with the Project's Certificate, NYSDEC Guidelines, NYSDEC's Survey Protocol for State-listed Breeding Grassland Bird Species (NYSDEC Protocol; NYSDEC 2022) and Project BBCS (Stantec 2021). Surveys will be conducted during the first 2 years following commissioning of the Project and reclamation of the turbine clearings (2027), unless otherwise agreed to by NYSDEC. Studies will include a breeding bird survey in the Project site, as performed during pre-construction surveys at the Project in 2013 and 2015. Spatial data of the survey locations will be provided to NYSDEC for review and approval at least 6 weeks in advance of initiating surveys.

Although not specified as a Condition of their Certificate, Baron Winds II has agreed to monitor and evaluate the Project's potential effects to bald eagles at two eagle nests in the vicinity of the Project for 2 years. The nests to be monitored are listed below. These nest locations were monitored in 2024 and 2025 as part of the post-construction monitoring efforts for Phase I.

- [redacted]
  - [redacted]
- [redacted]
  - [redacted]

This post-construction survey effort includes a combination of nest monitoring, fledgling survival assessment, and carcass monitoring. The nest monitoring findings are expected to improve the accuracy of the bald eagle fatality estimate and provide greater assurance that the proposed mitigation described in the bald eagle ETSMP will meet its net conservation benefit objective and comply with the regulatory requirements of 6 NYCRR §182.11. The nest monitoring plan is included here in Appendix B.

5.2.1 Spring Breeding Bird Survey

Much of the Project area has changed since the 2015 breeding bird survey. Per the NYSDEC Protocol, the post-construction breeding bird survey will be conducted during eight survey periods from approximately May 15 through July 20. To meet the required eight survey periods during the study window, there will be two survey periods in May, four survey periods in June, and two survey periods in July during the first year of Project operations. The survey will include five transects surveyed in 2015 that are still within the Project area in close proximity to turbines (treatment transects) and three transects

surveyed in 2015 that are outside the Project area (control transects). Control transects are situated along public roads to avoid non-participating landowner properties. Each transect contains five to six survey points spaced 125 m (410 ft) apart. Survey points may be microsited during the first survey visit to accommodate safe access.

An avian biologist experienced in identifying New York birds by sight and sound will conduct survey events from sunrise until approximately 10:30 am in weather conditions conducive to hearing birdsong and seeing birds move about in vegetation and in flight. All birds identified by sight or sound, including soaring raptors, waterfowl, and other flyovers, will be recorded during a 5-minute session at each survey point. The following data will be recorded during each point count:

- Date
- Observer(s) name(s)
- Site name and point number
- General habitat characteristics (cover type, recent mowing, etc.)
- Start and end time of the observation period
- Survey period
- Weather information (temperature, wind speed, wind direction, and cloud cover)
- Species identification
- Number of individuals per species (actual number or write > 20 if large numbers)
- Sex and age of birds, when possible
- Behavior (nesting or courtship behaviors, foraging, high flyover, perching, singing, etc.)
- The “highest” breeding behavior code (based on https://ebird.org/atlasny/about/breeding-codes)
- Distance from observer
- Mode of species detection (visual or by ear)
- Possible human activities in the area (e.g., active tree-cutting, mowing, moving vehicle) that may have limited the detection of birds during the survey period

While traversing between point count locations, biologists will conduct qualitative meandering surveys and record notable incidental observations (threatened, endangered, or special concern species, and any potential breeding behaviors of such species). For each threatened or endangered species documented in the Project area, including those detected outside of regular survey times or locations (i.e., incidental observations), observers will record on a standardized form the date, time, flight heights, and behavior

observed, and, when possible, will map perch locations, potential or confirmed nest locations, foraging areas, and flight paths (if applicable).

For points in grassland habitat, the following site description information will be collected on the Site Description datasheet (Appendix B of the NYSDEC Protocol):

- Habitat type and management/land use information
- Distance from a trail or road
- Distance from hedgerow or wood line
- Vegetation measurements within 25 meters of the survey point, to include:
    - Percent cover of each vegetation type (grass, forb, or woody) and percent bare ground;
    - Dominant grass and forb;
    - Average vegetation height;
    - Litter depth; and
    - Nearest shrub above vegetation height.

The observed presence of invasive species will also be recorded, as well as any recent management practices, if applicable.

5.2.1.1 Analysis and Reporting

Due to differences between the pre-construction and current Project layouts, a true before, after, control, impact (BACI) study design is limited. Therefore, the primary focus of the spring breeding bird survey will be to update site-specific occurrence data for breeding birds and habitats in the Project area. This will also help update potential occurrences of RTE species to be reported to NYSDEC, as required in Certificate Condition 98[2] and Certificate Condition 100.[3] As appropriate and as much as possible, given the current Project area, survey results will be compared with the pre-construction data collected in 2015.

The breeding bird survey results will be compiled into a report, which will be submitted together with relevant GIS shapefiles to NYSDEC within 6 weeks of the completion of the study. If state threatened or

[2] Condition 98: Notify DPS and NYSDEC staff within 48 hours of discovery or observation of bald eagle nests or breeding behavior in the Project area. Around the nest, establish an area 0.25 miles in radius if there is no visual buffer or an area 660 feet in radius if there is a visual buffer. Area will be posted and avoided until DPS staff and NYSDEC Region 8 Natural Resources Supervisor grant notice to continue construction or maintenance activities.
[3] Condition 100: Notify the NYSDEC Regional Office and DPS staff within 48 hours of the discovery of a nest or breeding behavior of a northern harrier, short-eared owl, or upland sandpiper. Around the nest, establish an area 660 feet in radius; area will be posted and avoided until DPS staff and NYSDEC Region 8 Natural Resources Supervisor grant notice to continue construction or maintenance activities.

endangered species are documented during surveys, a summary of the sightings with detailed location information will be provided to the agencies within three weeks of the completion of the survey. The report will include a summary of methods, survey effort, results, and discussion, including:

- Survey dates and durations (total number of survey minutes) conducted at each survey point;
- A description of weather conditions during survey days;
- A description of any disruptions and/or distractions that occurred during each survey that may have precluded an adequate field survey;
- Description of habitat surrounding each survey point, noting any changes during the survey period;
- Number of species observed overall;
- A list or table of all species with all dates and points where they were observed;
- Summaries of the number and behavior of birds seen, and whether any active nests or recently fledged young were observed or suspected;
- For threatened or endangered species, whether any behaviors designated as “probable” or “confirmed” breeding were observed, and the location of such observations;
- The point(s) with the highest and lowest number of species, species diversity, frequency, and relative abundance; and
- One or more maps, as needed, to display observations of threatened or endangered and special concern species, indicating observation date and behavior code.

For each threatened or endangered species observation, the following information is to be provided to the agencies via GIS shapefile and associated attribute table(s):

- Date
- Time
- Location
- Number of individuals (if birds seen close together or interacting)
- Flight path and flight height
- Behavior (foraging, perching, nesting, singing, roosting, flyover)
- Age (if possible)
- Sex (if possible)

6.0 REPORTING

6.1 PROGRESS REPORTS

An interim progress report of fatality results will be submitted to NYSDEC in mid-July of each survey year. Fatality data including a list of species, the date each fatality was discovered, and the location and habitat at which each fatality was found will be reported. The interim report will include, if available, preliminary results of searcher efficiency trials and/or carcass persistence trials.

6.2 SCIENTIFIC COLLECTION PERMIT REPORTING

The information required to be submitted to the agencies will be summarized and submitted by the permit-specified deadlines. These reports will first be submitted for review and signature by Baron Winds II. These documents will be submitted through the permit-specified method (e.g., email) in the format required (e.g., Excel spreadsheet template provided by USFWS).

6.3 ANNUAL REPORT

A final report will be provided to NYSDEC and USFWS by January 31 following each survey year. The report will describe the following:

Bird and Bat Fatality Study

1) empirical bird and bat fatality estimates for the survey period (expressed per turbine and per MW) and associated confidence intervals

2) evaluation of whether monitoring results align with assumptions in site-specific NLEB take estimate

3) assessment of the effectiveness of curtailment (based on analysis of weather and turbine operation data), summary of curtailment parameter information, and discussion of how curtailment effort impacted the estimated mortality rates

4) fatality summaries for birds and bats by species, turbine, month

5) summary of searcher efficiency and carcass persistence trial results and area correction factors

6) a discussion of all methods, results, and recommendations

7) tables and graphs, as needed, depicting all the above information, as well as showing the number and identification of birds and bats found, and at which turbine, during standardized searches and incidentally

8) maps, as needed, identifying each turbine and the area searched beneath each turbine

9) appendices with raw survey data including:

   a) the results of the twice-weekly carcass searches

   b) a description of the habitat type and ground cover height surrounding each turbine, including details of any vegetation management that was done at each turbine

   c) the cardinal direction and distance from the turbine, in 10-m increments, each carcass was found during standardized searches and incidentally

   d) the size class of each carcass (small or large bat, small, medium or large bird)

   e) the condition of each carcass found

   f) the date each carcass was found

   g) photographs of all carcasses found (provided if requested)

   h) the age and sex of each carcass, if determinable

   i) the total area beneath each turbine that was searched

   j) a description of daily weather conditions prior to and during each search

   k) the number and identification of people conducting each survey

Bird Habituation and Avoidance Studies

1) the number and location of each turbine and control point count and/or transect

2) the overall survey period, and date, time, and duration of surveys conducted at each location

3) a description of the habitat surrounding each point

4) the number of species observed overall

5) the total number of individuals of each species observed overall

6) the number of individuals of each species observed at each habitat type

7) a summary of the number and behavior of birds seen (individual, moving in a small flock, feeding, resting, carrying nesting material, food, or fecal sac, etc.) and whether any active nests or recently fledged young were observed

8) the number of birds identified visually or acoustically

9) the point(s) and/or transect(s) with the highest number of species, species diversity, frequency, and abundance

10) the habitat type(s) with the highest number of species, species diversity, frequency, and abundance

11) a description of the weather conditions during survey days

12) the number and identification of the observer(s) conducting each survey

13) a description of any disruptions and/or distractions that occurred during each sampling period that may have precluded an adequate survey

14) a detailed discussion of all methods and results

15) figures, tables, or graphs, as appropriate, to depict the above listed information, as well as the location of turbines and other project components

7.0 REFERENCES

Bernardino, J., R. Bispo, H. Costa, and M. Mascarenhas. 2013. Estimating bird and bat fatality at wind farms: a practical overview of estimators, their assumptions and limitations. New Zealand Journal of Zoology 40: 63–74.

Dalthorp, D., M. Huso, and D. Dail. 2017, Evidence of absence (v2.0) software user guide: U.S. Geological Survey Data Series 1055, 109 p., https://pubs.er.usgs.gov/publication/ds1055

New York State Department of Environmental Conservation (NYSDEC). 2016a. Guidelines for conducting bird and bat studies at commercial wind energy projects. Division of Fish and Wildlife, Albany, New York. June.

NYSDEC. 2016b. Conservation plan for bald eagles in New York State. Division of Fish, Wildlife and Marine Resources, Bureau of Wildlife. March.

NYSDEC. 2022. Survey Protocol for State-listed Breeding Grassland Bird Species. March 2022.

Stantec Consulting Services Inc. (Stantec). 2021. Baron Wind Farm bird and bat conservation strategy, Steuben County, New York. Stantec Consulting Services Inc., Topsham, Maine. 24 September.

Stantec. 2024a. Endangered and threatened species mitigation plan – bald eagle (*Haliaeetus leucocephalus*), Baron Winds II LLC, Baron Winds Project, Steuben County, New York. Stantec Consulting Services Inc., Topsham, Maine. 30 September 30.

Stantec. 2024b. Endangered and threatened species mitigation plan – northern long-eared bat. Baron Winds II LLC, Baron Winds II Project, Steuben County, New York. Stantec Consulting Services Inc., Topsham, Maine. 22 July.

US Fish and Wildlife Service (USFWS). 2012. Land-based wind energy guidelines. 23 March.

Appendix A RESULTS OF CARCASS PERSISTENCE TRIALS

Table 1. Average number of days carcasses remained during carcass persistence trials at 15 New York Wind Facilities

Site	Year	Average No. Days Carcasses Remained		% of Carcasses Remaining 7 Days or More[1]		Reference
		Bats	Birds	Bats	Birds	
Cohocton and Dutch Hill	2009	5.0	4.0	n/a	n/a	Stantec 2010
	2010	4.0	8.0	n/a	n/a	Stantec 2011
	2013	3.3	6.8	n/a	n/a	Stantec 2014a
Hardscrabble	2012	3.6 [2]	10.4 [2,3]	n/a	n/a	Ritzert et al. 2013
	2014	5.8	3.9 [3]	n/a	n/a	Ritzert et al. 2015
Howard Wind Farm	2012	not reported	not reported	40	40	Tidhar et al. 2013a
Maple Ridge	2006	not reported	not reported	61	94	Jain et al. 2007
	2012	4.5	not reported	n/a	n/a	Tidhar et al. 2013b
Marble River	2014	5.2	16.0 [3]	n/a	n/a	Bay et al. 2015
	2015	7.3 [4]	11.3 [3,4]	n/a	n/a	Bay et al. 2016
Marsh Hill	2015	6.3	9.6	61	69	Stantec 2016a
Munnsville	2008	5.0	4.8	n/a	n/a	Stantec 2009
Noble Altona	2010	not reported	not reported	68	75 [3]	Jain et al. 2011a
Noble Bliss	2008	not reported	not reported	49	40 [3]	Jain et al. 2009a
	2009	not reported	not reported	38	53 [3]	Jain et al. 2010a
Noble Chateaugay	2010	not reported	not reported	70	77 [3]	Jain et al. 2011b
Noble Clinton	2008	not reported	not reported	72	98 [3]	Jain et al. 2009b
	2009	not reported	not reported	52	72 [3]	Jain et al. 2010b
Noble Ellenburg	2008	not reported	not reported	72	68 [3]	Jain et al. 2009c
	2009	not reported	not reported	52	72 [3]	Jain et al. 2010c
Orangeville	2015	13.2	12.6	77	71	Stantec 2016b
Sheldon	2015	4.9	5.6	57	56	Stantec 2016c
Steel Winds I and II	2012	6.8	2.4	71	47	Stantec 2013
	2013	2.2	3.5	n/a	n/a	Stantec 2014b
Average		**5.5**	**7.6**	**60**	**67**	

[1] For 7-day search interval studies only [2] Average of spring and fall estimates [3] Average of small and large birds [4] Average of 2 different estimators

References

Bay, K., E. Baumgartner, D. Young, and S. Conover. 2015. Post-construction Studies for the Marble River Wind Farm, Clinton County, New York. Final 2014 Fatality and Acoustic Bat Report: April – November 2014. Prepared for EDP Renewables. January 31.

Bay, K., C. Fritchman, and D. Young. 2016. Post-Construction Studies for the Marble River Wind Farm, Clinton County, New York, Final 2015 Fatality Report: April – November 2015. Prepared for EDP Renewables. February 29.

Jain, A., P. Kerlinger, R. Curry, and L. Slobodnik. 2007. Annual Report for the Maple Ridge Wind Power Project Postconstruction Bird and Bat Fatality Study - 2006. Final Report. Prepared for PPM Energy and Horizon Energy. June 25.

Jain, A., P. Kerlinger, R. Curry, L. Slobodnik, J. Quant, and D. Pursell. 2009a. Annual Report for the Noble Bliss Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2008. Prepared for Noble Environmental Power, LLC. April 13.

Jain, A., P. Kerlinger, R. Curry, L. Slobodnik, J. Histed, and J. Meacham. 2009b. Annual Report for the Noble Clinton Windpark, LLC Postconstruction Bird and Bat Fatality Study - 2008. Prepared for: Noble Environmental Power, LLC. April 13.

Jain, A., P. Kerlinger, R. Curry, L. Slobodnik, A. Fuerst, and C. Hansen. 2009c. Annual Report for the Noble Ellenburg Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2008. Prepared for Noble Environmental Power, LLC. April 13.

Jain, A., P. Kerlinger, L. Slobodnik, R. Curry, A. Fuerst, and A. Harte. 2010a. Annual Report for the Noble Bliss Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2009. Prepared for Noble Environmental Power, LLC. March 9.

Jain, A., P. Kerlinger, L. Slobodnik, R. Curry, and K. Russell. 2010b. Annual Report for the Noble Clinton Windpark, LLC Postconstruction Bird and Bat Fatality Study - 2008. Prepared for: Noble Environmental Power, LLC. March 9.

Jain, A., P. Kerlinger, L. Slobodnik, R. Curry, and K. Russell. 2010c. Annual Report for the Noble Ellenburg Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2009. Prepared for Noble Environmental Power, LLC. March 14.

Jain, A., P. Kerlinger, L. Slobodnik, R. Curry, and K. Russell. 2011a. Annual Report for the Noble Altona Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2010. Prepared for Noble Environmental Power, LLC. January 22.

Jain, A., P. Kerlinger, L. Slobodnik, R. Curry, and K. Russell. 2011b. Annual Report for the Noble Chateaugay Windpark, LLC, Postconstruction Bird and Bat Fatality Study - 2010. Prepared for: Noble Environmental Power, LLC. January 22.

Ritzert, J. P., R. Good, and S. Howlin. 2013. 2012 Post-Construction Study and AnaBat Study, Hardscrabble Wind Project, Herkimer County, New York. April 15 – October 15, 2012. Prepared for: Iberdrola Renewables, LLC. March 6.

Ritzert, J. P., M. Ritzert, and G. DiDonato. 2015. 2014 Post-Construction Study, Hardscrabble Wind Project, Herkimer County, New York, May 1 to September 30, 2014. Prepared for: Iberdrola Renewables, LLC. January 30.

Stantec Consulting Services Inc. (Stantec). 2009 Post-construction Monitoring at the Munnsville Wind Farm, New York, 2008. Prepared For: E.ON Climate and Renewables. January 2009.

Stantec. 2010. Cohocton and Dutch Hill Wind Farms Year 1 Post-Construction Monitoring Report, 2009. Prepared for Canandaigua Power Partners, LLC and Canandaigua Power Partners II, LLC. March.

Stantec. 2011. Cohocton and Dutch Hill Wind Farms Year 2 Post-Construction Monitoring Report, 2010. Prepared for Canandaigua Power Partners, LLC and Canandaigua Power Partners II, LLC. October.

Stantec. 2013. Steel Winds I and II Post-Construction Monitoring Report, 2012, Lackwanna and Hamburg, New York. Prepared for First Wind Management, LLC. April.

Stantec. 2014a. Cohocton and Dutch Hill Wind Farms 2013 Post-Construction Wildlife Monitoring Report. Prepared for First Wind. May.

Stantec. 2014b. Steel Winds I & II Year 2 Post-Construction Wildlife Monitoring Report, 2013. Prepared for First Wind. May.

Stantec. 2016a. Bat and Bird Carcass Monitoring Report, 2015, Marsh Hill Wind Energy Project, Steuben County, New York. Prepared for March Hill Energy, LLC. April 8.

Stantec. 2016b. Post-Construction Monitoring Report, 2015, Orangeville Wind Energy Project, Wyoming County, New York. Prepared for Stony Creek Energy, LLC. April 6.

Stantec. 2016c. Sheldon Wind Energy Project Bat and Bird Carcass Monitoring Report, 2015, Sheldon Wind Energy Project, Wyoming County, New York. Prepared for Sheldon Energy, LLC. April 11.

Tidhar, D., M. Sonnenberg, J. Griswold, E. Baumgartner, and K. Bay. 2013a. 2012 Post-Construction Monitoring Studies for the Howard Wind Project, Steuben County, New York. Final Report, April 13 – November 16, 2012. Prepared for Howard Wind, LLC. February 15.

Tidhar, D., J. Ritzert, M. Sonnenberg, M. Lout, and K. Bay. 2013b. 2012 Post-Construction Fatality Monitoring Study for the Maple Ridge Wind Farm, Lewis County, New York. Final Report July 12 – October 15, 2012. Prepared for: EDP Renewables North America, LLC. February 12.

Appendix B BALD EAGLE NEST MONITORING PLAN

Stantec

Bald Eagle Nest Monitoring Plan

Baron Winds II Project
Steuben County, New York

October 25, 2024
Revised December 4, 2025

Prepared for:

Baron Winds II LLC
353 North Clark Street, Floor 30
Chicago, IL 60654

Prepared by:

Stantec Consulting Service Inc.
30 Park Drive
Topsham, ME 04086

Table of Contents

1.0 INTRODUCTION

On September 12, 2019, Baron Winds LLC (Baron Winds) was granted a Certificate of Environmental Compatibility and Public Need, with Conditions (Certificate) by the New York State Board on Electric Generation Siting and Environment (Case15-F0122), authorizing the construction and operation of up to 68 turbines with a total generating capacity of 242 megawatts (MW) in the towns of Cohocton, Dansville, Fremont, and Wayland, in Steuben County, New York (Certificated Facility).

On March 9, 2020, Baron Winds petitioned to amend the Certificate to allow phased construction (Phase I and Phase II) and to allow modifications to component locations for Phase I, which was approved on May 6, 2020. Construction of Phase I has been completed and Phase I, consisting of 32 turbines and a total generating capacity of 122 MW, became operational in December 2022.

On September 6, 2022, Baron Winds and Baron Winds II LLC (Baron Winds II) petitioned to amend the Certificate for Phase II modifications and to partially transfer the Certificate to Baron Winds II for Phase II, which was approved on July 1, 2024. Phase II started construction in October 2024. Phase II is herein referred to as the Baron Winds II Project (Project) or Phase II. The Project will primarily be located in the Town of Fremont and will consist of up to 26 turbines, with a total generating capacity of 117 MW, and associated infrastructure. A portion of the Facility infrastructure is also located in the towns of Wayland and Cohocton.

The presence of an active nest located near [redacted] raised concerns over potential impacts to bald eagles (*Haliaeetus leucocephalus*) and led the New York Department of Environmental Conservation (NYSDEC) to determine that Baron Winds and, subsequently, Baron Winds II requires an Endangered/Threatened Species Permit pursuant to Environmental Conservation Law § 11-0535 and 6 New York Codes, Rules and Regulations (NYCRR) Part 182. Condition 63 of the Order and requirements of 6 NYCRR §182.11 require development of an Endangered and Threatened Species Mitigation Plan (ETSMP) for bald eagles. The ETSMP outlines measures to minimize and mitigate potential impacts during construction and operation of the Project.

The NYSDEC estimated that the Certificated Facility would take approximately 41 bald eagles during its anticipated 30-year lifespan, “based on the potential for the annual failure of the nest within proposed turbine array either through disturbance to the nesting eagles or direct mortality to fledgling eagles” (NYSDEC testimony Crocoll and Landry Case No. 15-F-0122). This estimate is based on the assumption that productivity of the nest would equal the statewide average of 1.3 fledglings per nest during each year, that no fledglings would survive, and that 2 additional eagles would also be taken during the 30-year period of operation.

The following monitoring plan has been developed to evaluate potential impacts to eagles at nests in the vicinity of the Project and includes a combination of nest monitoring, fledgling survival assessment, and carcass monitoring.

2.0 OBJECTIVES

According to the NYSDEC Conservation Plan for Bald Eagles in New York State (Conservation Plan),[1] managing impacts to eagles from wind projects, is hampered by a "lack of research into potential impacts." The Conservation Plan indicates that "wind towers should not be sited in areas where they will negatively affect nesting, roosting, daily foraging movements, or migration of bald eagles" although the NYSDEC does not currently have sufficient information to determine in what situations impacts will occur. Disagreement as to the accuracy of assumptions underlying methods to estimate take and mitigation credit are particularly challenging for developing a suitable ETSMP and meeting conditions of 6 NYCRR Part 182 regulations.

The following monitoring plan is intended to provide empirical data on impacts to bald eagle nest success from construction and operation of a wind energy facility whose closest turbines are within eagle commuting/foraging distance but well outside the 660-foot to 0.25-mile buffer distances referenced in the NYSDEC Conservation Plan. As stated in the Conservation Plan, "pre and post construction monitoring of nesting and wintering habitat at or near wind farms would provide valuable information for project reviews." Given the simultaneous increases in New York's bald eagle population and the continued expansion of the wind energy industry in the state, this information will not only help inform the ETSMP for the Project but will help the NYSDEC manage risk to eagles at other wind energy facilities.

Specific objectives of the plan are to:

- Document bald eagle nesting success during Project operation;
- Document behavior and survival for bald eagle fledglings; and
- Determine whether fledgling or adult bald eagle mortality occurs at Project turbines.

The monitoring plan uses visual nest monitoring and carcass monitoring (standardized searches and incidental monitoring) to accomplish these objectives. Methods for nest surveys will be similar to those used by the NYSDEC to determine nest productivity (e.g., two visual surveys during the courtship/incubation period) but will include more frequent surveys and will extend through the late summer and early fall to cover the post-fledgling period.

3.0 MONITORING PLAN

3.1 NEST MONITORING

Surveys will consist of visual observation using binoculars and/or a spotting scope and will occur at approximately monthly intervals from January through July. Surveys will be conducted from the same

[1] NYSDEC. 2016. Conservation plan for bald eagles in New York State. Division of Fish, Wildlife and Marine Resources, Bureau of Wildlife. March.

locations used during pre-construction surveys.[2] These sites are set back at a safe distance from the nests to avoid disturbing the nest but also provides good visibility of the nests. Two eagle nests in the vicinity of the Project will be monitored and the nests to be monitored are listed below. These nest locations were also monitored in 2024 and 2025 as part of the post-construction monitoring efforts for Phase I.

- [redacted]

During each survey, a biologist will monitor the nests until eagles are observed up to a maximum period of 8 hours each month. Surveys will target hours between 9 am and 4 pm during a one-week period within each phase of the nesting period (courtship, incubation, and nestling stages). Nest surveys will occur at varying times within the daytime periods specified for each stage. If the nests fails or are abandoned, surveys will document the stage at which nest abandonment or failure occurs and will attempt to document a cause, although we note this could be difficult. The frequency of nest surveys may be increased to determine dates for incubation periods and fledging.

Stantec will record incidental observations of additional eagles detected in the vicinity of the nests during surveys and also track observations made outside survey hours at non-survey locations while traveling through the Project area. Stantec will also record other species detected during visits, particularly species of concern or any large groups of birds (e.g., other raptors, waterbirds, songbirds). The purpose of nest monitoring will be to determine whether eagles are using the nests, how many eggs are laid (if possible), the start date for incubation, how many nestlings hatch, and how many nestlings fledge successfully.

3.2 FLEDGLING MONITORING

Once nestlings have fledged, Stantec will continue monthly visual surveys at the nest sites to document fledgling behavior and survival. Surveys will follow similar methods to those used during nest monitoring, but will target hours between sunrise and approximately 10:30 am, when young eagles are more likely to be seen near the nest sites. We anticipate that fledgling surveys will occur between July and September. If fledgling eagles are not observed at the nest sites during a survey, the biologist will travel to the Project and conduct visual surveys for eagles in the vicinity of turbines. The purpose of fledgling monitoring is to document survival during the first few months after fledging, when juvenile eagles may be most vulnerable

[2] Stantec Consulting Services Inc. 2020. 2019-2020 Eagle Nest Survey and Eagle Use Point Count Survey Report. April 3, 2020.

to turbine-related impacts. If young eagles remain in the vicinity of the nests for at least 2 months after fledging and/or leave the area with no fatalities documented at the Project, Baron Winds II will conclude that the Project did not impact eagle survival at the nests for the corresponding year.

3.3 CARCASS MONITORING

Baron Winds II will conduct standardized bird and bat carcass monitoring at a subset of Project turbines during the first 2 years of operation following completion of site restoration activities (anticipated 2027 and 2028), providing an opportunity to directly measure take of eagles alongside nest monitoring. In addition to standardized carcass searches, Baron Winds II will implement an incidental carcass monitoring program at all Project turbines. Eagle carcasses, unlike those of bats and small songbirds, are large and conspicuous and tend to not be removed by scavengers. Accordingly, carcass monitoring efforts will enable Baron Winds II to determine, with a relatively high degree of confidence, whether or not eagle fatalities occurred at the Project during the first 2 years of operation.