



Land-based Wind Energy Voluntary Operational Avoidance Technical Assistance for the Northern Long-eared Bat (*Myotis septentrionalis*)

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BACKGROUND

On November 30, 2022, the U.S. Fish and Wildlife Service (Service) published a final rule to reclassify the northern long-eared bat (*Myotis septentrionalis*; NLEB) as endangered under the Endangered Species Act of 1973, as amended (ESA). The species was previously listed as threatened with a 4(d) rule¹. The 4(d) rule did not prohibit incidental take² (i.e., wound, kill) of northern long-eared bats caused by collision with operating wind turbines. Many wind energy facilities already exist within the range of northern long-eared bats and more are anticipated (USFWS 2022, Appendix 5). Northern long-eared bat fatalities have occurred at some of these facilities. Although the predominant threat to the northern long-eared bat is white-nose syndrome (WNS), the Species Status Assessment Report for the Northern Long-eared Bat indicates that wind energy is a threat to this species due to resulting fatalities from collisions with wind turbines (USFWS 2022 p. 55, 61). However, wind facility operations can reduce, minimize, or avoid the risk of collisions. This document articulates how (new or existing) land-based wind energy facilities can operate in a manner in which incidental take of NLEB is not “reasonably certain to occur,”³ and describes standard post-construction monitoring to validate the effectiveness of this technical assistance at individual wind facilities. Implementation of this technical assistance and the Service’s conclusion on whether incidental take of NLEBs is reasonably certain to occur is memorialized through the use of a technical assistance letter (TAL). Refer to the Northern Long-eared Bat Wind Technical Assistance Frequently Asked Questions document for additional background information and how this technical assistance could be applicable to your project. This technical assistance and associated documents is subject to change if new information becomes available.

This document was developed to be generally applicable to utility-scale land-based wind facilities

¹ Section 4(d) of the ESA, directs the Service to issue regulations deemed “necessary and advisable to provide for the conservation of threatened species”. It allows the service to promulgate special rules for species listed as threatened (not endangered) that provide flexibility in implementing the ESA.

² The ESA defines as: to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct (16 U.S. C. 1542 (b)).

³ The reasonable certainty standard is explained in 80 FR 26832 and Section 3.1 of the Service’s Habitat Conservation Planning and Incidental Take Permit Processing Handbook.

who aim to receive a TAL from the Service. While adherence to this technical assistance is voluntary, following these conditions as written is the most efficient route to obtain a TAL. Wind energy facilities that operate differently than this technical assistance recommends may still determine that take is not reasonably certain to occur, using their own project-specific information and data to determine risk to NLEBs. The Service's review and issuance of a TAL is discretionary and the assessment of proposed variations in will be balanced with other priorities with the consultation workload of the Field Office. Ultimately, it is the facility or associated company's decision whether to pursue a take permit.

RECOMMENDATIONS

As a general bat conservation measure, we recommend all turbines be sited to the largest degree possible in agricultural, rangeland, or grassland landscapes, away from suitable forested roosting habitat (USFWS 2022, pgs. 17-19). Specifically, we recommend projects use at least a 1,000-foot (ft; 0.3 kilometer (km)) buffer, as measured from a distance from the closest suitable roosting habitat to the edge of the turbine rotor-swept area. Note that implementing the 1,000-ft setback does not constitute avoidance of summer risk (see #1 below). In general, for a project to be able to qualify for this technical assistance and associated TAL, it must be outside a 10.0-mile minimum known NLEB hibernacula⁴ buffer⁵. However, an exception may be approved by the local Field Office. Smaller buffer sizes may be appropriate in some cases, especially in areas with low NLEB hibernacula counts. All other proposed or built wind projects are eligible to use this technical assistance, including projects sited within areas of known or assumed summer use⁶ (see number 1 below). Note, these are recommendations and are not necessary to qualify for a TAL.

DIRECTION AND ELIGIBILITY

1) Determining Species Presence during Summer:

- a) Review the "Current Range" found on the NLEB Service website (<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>)
 - i) Any project that falls completely outside the current range would not be expected to have summer risk for NLEB. However, if a wind project proponent has evidence of NLEB presence (e.g., summer MET tower NLEB detections, summer wind fatality record(s)), we recommend coordinating with the local Field Office to discuss these records and potential for summer risk to the species. Also, in general we assume the presence of (and potential

⁴ Hibernacula is defined as a roost site, usually a cave or mine, where bats hibernate during the winter, including the surface entrance(s) and subterranean passages. In the western portion of its range, NLEB hibernacula may include topographic features such as talus slopes or limestone cliffs.

⁵ Buffers are based around NLEB records in a 10-mi or 3-mi radius. We typically use a 5-mi buffer for swarming/staging for NLEBs; however, the risk of operating wind facilities in areas where the species are concentrated (i.e., hibernacula) is higher. We used a 10-mi buffer which is consistent with the 10-mi buffer around P3-P4 hibernacula we recommend for Indiana bat (USFWS 2011).

⁶ This is a change to the NLEB Interim Wind Technical Assistance.

risk to) migrating NLEB throughout the wind range of NLEB⁷

- ii) Projects with existing or planned turbines within the current range for the NLEB, should coordinate with the local Field Office to determine if your project or action area ([50 CFR § 402.02](#)) contains confirmed presence of NLEB summer occurrence during the summer maternity season (see Bat Activity dates in the most recent version of the Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines (<https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>)), or is located within 3.0 mi (4.83 km) of recent summer occurrence (i.e., a bat capture, acoustic, roost, or wind fatality record collected during the accepted summer survey dates). Please coordinate with your local Field Office to determine if additional pre-construction surveys are recommended to understand summer risk to NLEBs and/or if you would like to assume NLEB summer presence for your project. If presence/probable absence (P/A) surveys will be conducted, facilities (new and existing) should follow the most current version of the Range-wide Indiana Bat and Northern long-eared Bat Survey Guidelines and have survey study plans approved by the local Field Office before implementing. If project proponents have previously completed pre-construction P/A bat surveys using the minimum level-of-effort (LOE) required for NLEB (or Indiana bat) at the time of the surveys, results should be submitted to the local Field Office along with the request for the TAL. Note: we assume the presence of migrating NLEBs throughout the wind range of the species because bats may use the airspace affected by wind turbines while migrating, even if the species is not detected onsite during summer surveys.

2) Optional Operating Approach:

- a) Projects can use the blanket curtailment approach outlined below, or a more protective streamlined approach. Please coordinate with your local Field Office to discuss your proposed avoidance strategy⁸.
- b) In general, all turbines should be feathered below the manufacturer's cut-in speed for the turbine model(s) or the curtailment wind speeds (stated below) starting 30 minutes before sunset to 30 minutes after sunrise when temperatures are above 40° Fahrenheit⁹ (°F; 4.44 degrees Celsius (°C)) when bats may be active on the landscape. See Appendix

⁷ The wind range of NLEB is larger than the current range delineation because NLEB bats may use the airspace affected by wind turbines while migrating and can be found here: <https://www.fws.gov/media/final-nleb-wind-avoidance-technical-assistance>.

⁸ There may be alternative curtailment strategies that may be accepted on a project-by-project basis for projects with data indicating lower risk to NLEB. These project(s) should provide the justification and data to the local Field Office which will coordinate with the Regional Office for consistency.

⁹ Temperatures should be measured at the nacelle and can be specific to individual turbines on a project. For example, if the temperature at the turbine's nacelle falls below 40°F then the turbine does not need to be curtailed as long as the temperature at the nacelle is below 40°F. We based this temperature threshold on data collected at a wind project in Missouri (Jordan 2020).

A for a table that outlines the specific dates based on the project location (i.e., state and zone).

- c) All proposed or existing wind projects, should feather turbines below 11.2 miles per hour (mph; 5.0 meters per second (m/s); at a minimum) during the fall migratory risk period (i.e., fall swarm, see Appendix A).
- d) For all proposed or existing wind projects that have confirmed summer presence or are assuming presence (have not demonstrated probable absence) of NLEB during the summer, feather all turbines below 11.2 miles per hour (mph; 5.0 meter per second (m/s); at a minimum) during the summer risk period. For the NLEB, this consists of the pup season (see Appendix A).
- e) For new or existing projects that have demonstrated probable absence of NLEBs in the summer or are outside the current range of NLEB (see #1 above), feather turbines below the manufacturer's cut-in speed during the summer risk period (see Appendix A).
- f) For projects occurring in the year-round active range¹⁰ where NLEB presence has been confirmed or is assumed, feather turbines below 11.2 mph (5.0 m/s; at a minimum) when the temperatures are above 40°F at turbine nacelle from November 16 to March 14 (see Appendix A). Projects should feather turbines below the manufacturer's cut-in speeds during this period when temperatures are below 40°F¹¹.
- g) Projects may also be able to use an algorithm-based informed curtailment (ABIC) approach or a real-time acoustic-activated smart curtailment approach that is at least as protective with approval from the local Field Office.

3) Standardized Post-Construction Mortality Monitoring:

- (i) *Monitoring*—Conduct one year of post-construction mortality monitoring(PCMM)¹² during the entire active season. For projects within the year-round active zones, monitoring should occur throughout the year when temperatures are above 40°F (4.44 °C). In coordination with the local Field Office, design and implement a PCMM plan to reach a detection probability (g-value) of at least 0.2 using Evidence of Absence (EoA; Dalthorp et al. 2017) or design an alternative sampling design for ridgelines or mountains where the landscape precludes the search area needed to reach a g-value of at least 0.2. Proposed or existing wind energy facilities with existing PCMM can submit the data to the Field Office for determination of sufficiency. Field Offices that

¹⁰ A map depicting where NLEBs hibernate and are active year-round can be found in the Service's Range-wide Indiana Bat and Northern Long-eared Bat Survey Guidelines, Appendix J, available here: <https://www.fws.gov/media/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines>.

¹¹ Manufacturer's cut-in speed is defined as the cut-in speed at which the turbine begins to generate power as it rotates and is determined for each specific turbine model by the manufacturer (i.e., Vestas, GE Renewable Energy, PacWind, etc.).

¹² The Service is currently developing a monitoring framework for wind projects with a low risk of taking listed bat species. We intend to use the new framework in place of these monitoring requirements when completed.

receive requests for different minimum g-values or existing data will coordinate with Regional Offices for consistency.

- (ii) *Monitoring Reports*—Annual reports must be sent to the Field Office by January 31. Annual reports will reaffirm that operational commitments were implemented (i.e., operating at cut-in wind speeds and implementing PCMM as designed¹³). Annual reports with PCMM will include compiled bat fatality data for all bat species using this Reporting form ([Region 3 Wind Post-Construction Monitoring Bat Reporting Form | FWS.gov](#)), unless another format is requested by the local Field Office if the project is outside of Region 3¹⁴ of the Service. The Service will provide an email confirming if the TAL is still valid within 90 days after a report is received.
- (iii) *Bat Identification*—Bats found during PCMM must be identified by a qualified biologist. However, initial fatality searches may be carried out by nonqualified biologists. In this context, a qualified biologist is one who has demonstrated experience correctly identifying bat species that occur in the area where the surveys are occurring and possesses or is authorized by a valid ESA section 10(a)(1)(A) permit. If potential bat remains cannot be visually ruled out as NLEB (or another federally listed species), a tissue sample should be taken and submitted to a qualified lab for generic determination of the individual's species identification.
- (iv) *Modifying PCMM*—If no NLEBs are found during the first year of PCMM, and PCMM was implemented as designed, even if the g-value was not achieved, the PCMM can be reduced to once every 7 years¹⁵ during the entire active bat season (summer risk through fall migratory risk periods, see Appendix A), at a g value of 0.08 or otherwise agreed-upon alternative sampling design with your local Field Office and Regional Office. Long-term PCMM is necessary because risk can change as environmental variables change over time. Coordinate with your local Field Office on the sampling design for these surveys using EoA or alternative tools.

4) Reporting Take

If any NLEB or any other federally listed species carcasses are found during mortality monitoring or incidentally, the company must report the fatality within 24 hours of discovery to the local Field Office and the USFWS Office of Law Enforcement (OLE). It is not possible to absolve individuals or companies from liability for unpermitted take of listed species, even

¹³ The Service will accept the monitoring results if the report demonstrates that post-construction mortality monitoring was implemented as designed, even if targeted g-values fell short due to unavoidable circumstances).

¹⁴ Region 3 is the Midwest region of the Service. Information can be found here: <https://www.fws.gov/about/regions>

¹⁵ The Service is currently developing a monitoring framework for wind projects having a low risk of taking listed bat species. We intend to use the new framework in place of these monitoring requirements when completed.

if such take occurs despite the implementation of appropriate minimization strategies to which take is not reasonably certain to occur, such as described in this technical assistance. However, the OLE focuses its enforcement resources on individuals and companies that take listed species without identifying and implementing all reasonable, prudent, and effective measures to minimize take to the level that take is not reasonably certain to occur. To be in compliance with the take prohibitions of the ESA, the facility must work with the Field Office to implement avoidance measures (e.g., not operating at night during the period of risk, etc.) and consider applying for an Incidental Take Permit under 10(a)(1)(B) or reinstate consultation under section 7(a)(2) of the ESA.

SUPPORTING DOCUMENTS

Land-based Wind Energy Voluntary Operational Avoidance Technical Assistance for the Northern Long-eared Bat (*Myotis septentrionalis*): FAQ Supplement
Technical Assistance Letter Template for the Northern Long-eared Bat
Appendix A. Curtailment Strategy by Location and Date

LITERATURE CITED

- Dalthorp, Daniel, Huso, Manuela, and Dail, David, 2017, Evidence of absence (v2.0) software user guide: U.S. Geological Survey Data Series 1055, 109 p., <https://doi.org/10.3133/ds1055>.
- Jordan, G.W. 2020. Status of an anomalous population of northern long-eared bats in coastal North Carolina. *Journal of Fish and Wildlife Management*, 11(2): 665-678.
- U.S. Fish and Wildlife Service. 2011. Indiana Bat Section 7 and Section 10 Guidance for Wind Energy Projects, revised October 26, 2011. Bloomington, MN.
- U.S. Fish and Wildlife Service. 2022. Species Status Assessment Report for the Northern long-eared bat (*Myotis septentrionalis*), Version 1.1. March 22, 2022. Bloomington, MN.