

DRAFT Threatened & Endangered Species Takings Permit

Statutory Authority: 10 VSA § 5408

1. Permittee**Deerfield Wind, LLC****2. Permit Period****Effective Date:** X/XX/2018**Expiration Date:** 12/31/2022**Authorization #:** EH-2018-02**Amendment #** 0**3. Principal Officer:** Laura Beane.**4. Subpermittee(s):** Deerfield Wind staff and contractors; Stantec Consulting monitoring team.**5. Authorized Species:** Little Brown Bat (*Myotis lucifugus*), Northern long-eared bat (*Myotis septentrionalis*), Eastern small-footed bat (*Myotis leibii*), Tri-colored bat (*Perimyotis subflavus*), and for monitoring purposes all Threatened & Endangered migratory birds.**6. Authorized Activity:** Incidental take and monitoring of listed bats during operations of a 15-turbine (30 MW) wind energy facility.**7. Location of Authorized Activity:** 37 Putnam Road, Searsburg, VT, 05350.**8. Findings**

- A.** The Permittee seeks an Endangered and Threatened Species Takings Permit under 10 V.S.A. § 5408 to operate a 30 MW wind energy facility in Searsburg and Readsboro, Vermont. The Facility consists of 15 wind turbines of 2.5 MW each. The turbines have 78-meter masts and rotor diameters and approximate rotor-swept areas of 87-meters/6000-square meters, and 97-meters/7,400-square meters.
- B.** The Facility was issued a Certificate of Public Good (CPG) by the Vermont Public Service Board (PSB), in Board Docket 7250 on April 16, 2009. The Facility must operate in accordance with the issued CPG. The CPG specifically requires that the Permittee: file a plan to incorporate adjustments to the Project's operations, conduct three years of post-construction monitoring (years 1, 3 and 5) to ensure adjustments are working properly and inform the Vermont Agency of Natural Resources (VANR) whether additional adjustments are appropriate.
- C.** The Facility is also subject to the approval of the United States Forest Service (USFS). In 2012, the USFS issued an Environmental Impact Statement and Record of Decision mandating operational control measures to reduce risk of collision of bats consisting of curtailment of all turbines. The applicant states that curtailment will be implemented per the stipulations of a federal Special Use Permit.
- D.** In April 2015, the U.S. Fish and Wildlife Service (USFWS) listed the Northern Long-eared Bat as Federally Threatened. The final USFWS 4D rule for this species exempted take by wind energy facilities.
- E.** Pre-construction surveys were conducted by Stantec Consulting Services Inc. in 2005, 2006 and 2011 to measure bat activity at the Project site. The 2011 survey year was the most extensive. From April 15 to October 15, 2011 more than 1,385 detector-nights of bat acoustic data were surveyed and 2,263 call sequences were recorded at locations in the Project area. Approximately 55% of the calls were identified as High Frequency (i.e., > 35 kHz), a group that includes Myotids, red bats, and tri-colored bats, but only 4.5% of all calls were identified as the genus *Myotis*, which is comprised of the state endangered little brown bat and the northern long-eared bat.
- F.** In May 2005, Arrowwood Environmental identified the presence of suitable roosting habitat for small-footed bats within a 3-mile radius of the project site. Subsequent investigations in June 2005 by the Vermont Fish and Wildlife Department (VFWD) staff determined that acoustic surveys did not confirm the presence of a roosting colony of small-footed bats.
- G.** Since 2011, the Vermont Fish and Wildlife Department (VFWD) collected and documented maternity colony information on the two species of bats that typically roost during the summer in buildings and structures—both Little Brown Bats and Big Brown Bats. To date, the VFWD has documented approximately 4500 adult females and juvenile Little Brown Bats in 34 summer maternity colonies in Vermont, nearly all of which have been in

western Vermont. The actual number is likely significantly larger due to the number bats that were not actually observed and counted by VFWD staff. While there are undocumented Little Brown Bat maternity colonies remaining, current information suggests the distribution of Vermont's Little Brown Bat population is heavily weighted to the western region of the state.

- H. Consequently, the Vermont Agency of Natural Resources has determined that there is a reasonable likelihood that wind energy facilities in Vermont may incidentally take a listed bat species during operation. Therefore, a state Endangered Species Permit is required in accordance with the state's endangered species law.

Incidental Takings

- I. There is a likelihood that the operation of turbines of the size utilized by the Facility will result in the incidental taking of a bat species listed in Section 5 of this permit. Fatalities of bats have been recorded at wind facilities worldwide (Erickson et al. 2002, Durr and Bach 2004, Kunz et al. 2007, Arnett et al. 2008). Bat fatalities at wind energy facilities are considered especially likely at wind facilities on forested ridges in the eastern U.S. such as the Facility proposed for Searsburg/Readsboro (Arnett et al. 2008).
- J. The level of take of each species will vary based on both abundance and possible species-specific characteristics that influence their vulnerability to collisions with wind turbines.
- K. Prior to WNS-driven population declines, Little Brown Bats have been killed at 19 of 20 wind energy facilities for which data is available in the Northeast. Little Brown Bats comprised approximately 15% of bat fatalities in the Northeast and 17% of observed bat fatalities at wind facilities in New England. Following population declines, Little Brown Bat, fatalities from wind turbines have been observed at more than 11 wind facilities, none of which are in Vermont. Should populations of Vermont state endangered bats increase over time, the likelihood of collisions with wind turbines will increase.
- L. Fatality monitoring conducted at wind energy facilities in New York and New England since 2010, the year by which bat populations were devastated due to White-nose Syndrome (WNS), continue to observe fatalities of bat species which are listed as endangered in Vermont—primarily Little Brown Bats.
- M. The Tri-colored Bat is shown to be susceptible to collisions with wind turbines in the eastern United States.
- N. Recent research on the use of the operational adjustments to reduce bat fatalities indicate that operational adjustments such as those described in Section 11 of this permit result in an estimated 44% to 93% reduction in bat fatalities (Arnett et al. 2010). Studies conducted at Vermont Wind's Sheffield facility indicated that operational adjustments of cut-in wind speeds of 6.0 meters/second resulted in a 60% decline in the number of bats killed.
- O. Other threats to the listed bat species, including the Little Brown Bat, include loss of summer and winter roosts, pesticides, and persecution (Kunz and Fenton 2003). From January through August 2012, there were nine reported takings of Little Brown Bats in Vermont residences because of exposure, or potential exposure, to rabies. WNS has become the most significant threat to bat species, particularly the Little Brown Bat (Frick et al. 2010).

Impact

- P. The PSB found that subject to a number of conditions, the proposed project will promote the general good of the State of Vermont by providing clean, renewable power that is needed in the New England market.
- Q. The reasonable likelihood of taking a threatened or endangered bat is incidental to an otherwise legal activity. In addition, as noted below, the applicant has taken reasonable steps to avoid and minimize takings and this permit provides for additional mitigation for any takings which may occur. The Permittee will conduct bat fatality monitoring in accord with the *Deerfield Wind Project Post-Construction Monitoring Plan: Birds and Bats* (September 29, 2017) during years 1 (2018), 3 (2020), and 5 (2022). This monitoring will be conducted from April 15 to October 15 for all turbines at a 3-day search interval.
- R. As stated in the USFS Record of Decision (January 2012), if post-construction monitoring demonstrates that the project is having an undue adverse impact, the permit holder will be required to submit an adaptive management plan to the USFS, VANR, and the PUC.

Avoidance and Minimization

- S. The Permittee will implement operational adjustments (i.e., curtailment) during the period from June 1 through September 30 at cut-in wind speeds of 6.0 m/sec and ambient temperatures at hub height exceeding 50

degrees Fahrenheit as a means of reducing fatalities of listed bat species.

- T. The Permittee will curtail the operation of all turbines in accord with the USFS Record of Decision for the period June 1 to September 30 when wind speeds are equal to or below 6.0 m/s (13.4 mph) and ambient temperatures at hub height are greater than 50 degrees Fahrenheit. Curtailment shall occur during nights (½ hour before sunset to sunrise). This is the time when bats are active.
- U. The specific turbines at this Project shall not rotate at increasing speeds as wind speed approaches the curtailment cut-in speed. Instead, rotors will typically approximate 1 RPM or less to further reduce the potential for fatalities below cut-in speed.

Mitigation

- V. The VFWD has conducted an evaluation of mitigation alternatives to offset the expected take of listed bats and determined that, except for WNS, the greatest threat to remaining populations of listed bats is the disturbance of maternity colonies. With the average Little Brown Bat colony size of over 125 bats, the impacts of the loss of a single colony greatly exceeds the estimated take of Little Brown Bats at this wind facility.
- W. The Permittee proposes making annual contributions of \$7,500 to the Maternity Colony Technical Assistance Program established by the Vermont Fish & Wildlife Department for the duration of this permit. The sum is a function of the estimated annual cost of the technical assistance program pro-rated by the proportion of Vermont's number of expected operating turbines within the permit period.

Advice of the Endangered Species Committee

- X. On February 16, 2018, the Secretary received the advice of the Endangered Species Committee. That advice has been considered and incorporated, in large part, into this permit.

9. Statutory Determination

- A. 10 V.S.A. § 5408(a) and (b) provide that the Secretary may permit the taking of a threatened or endangered species, after obtaining the advice of the Endangered Species Committee, for the following purposes: scientific purposes; to enhance the propagation or survival of a species; zoological exhibition, educational purposes; noncommercial cultural or ceremonial purposes; special purposes consistent with the purposes of the federal Endangered Species Act, and incidental take.
- B. The Permittee requests an Endangered & Threatened Species Takings Permit for incidental take purposes.
- C. The state of Vermont recognizes the value which plants, fish and wildlife in their natural environment have for public enjoyment, ecological balance, and scientific study. See 1981, No. 188 (Adj. Sess.), § 1(a).
- D. The state of Vermont recognizes the need for protection and preservation of these plants, fish and wildlife in their natural environment. *Id.*
- E. The General Assembly of Vermont intends that the species of wildlife and wild plants normally occurring within this state which may be found to be threatened or endangered within the state should be accorded protection as necessary to maintain and enhance their numbers. *Id.* at § 1(b).
- F. The General Assembly of Vermont intends that the state should assist in the protection of species of wildlife and wild plants which are determined to be threatened or endangered elsewhere pursuant to the federal Endangered Species Act. *Id.*
- G. 10 V.S.A. § 5408(b) authorizes the Secretary to permit the incidental taking of a listed species if
 - i. the taking is necessary to conduct an otherwise lawful activity;
 - ii. the taking is attendant or secondary to, and not the purpose of, the lawful activity;
 - iii. the impact of the permitted incidental take is minimized; and
 - iv. the incidental taking will not impair the conservation or recovery of threatened or endangered species.
- H. 10 V.S.A. § 5408(i)(2) allows the Secretary to require mitigation strategies and mitigation funds, in addition to the permit fees, to mitigate the impacts of a taking or the destruction of or adverse impact on critical habitat. Mitigation may include compensation, including payment into the Threatened and Endangered Species Fund,

provided that any payment is commensurate with the taking or adverse impact proposed.

- I. Pursuant to 10 V.S.A. § 5408, the ANR Secretary hereby determines, based upon the findings detailed above and after receiving advice from the Endangered Species Committee, that the proposed activity is consistent the purposes of the 10 V.S.A. ch. 123. An Endangered and Threatened Species Takings Permit is authorized, as conditioned below.

10. General Conditions & Authorizations

- A. This permit is issued in accordance with 10 V.S.A. ch. 123. All activities authorized herein must be carried out in accord with and for the purposes described in the application submitted. Continued validity or renewal of this permit is subject to complete and timely compliance with all applicable conditions, including the filing of all required information and reports.
- B. This permit is expressly conditioned upon compliance with all applicable federal and state laws, regulations and permits.
- C. This permit does not confer upon the Permittee the authority to conduct research without the acquiring necessary landowner permission including, but not limited to, state lands.
- D. By acceptance of this permit, the Permittee and its heirs, successors and assigns agree to provide the Agency of Natural Resources with unrestricted access, at reasonable times to the animal or plant specimens and/or animal or plant parts collected and possessed under this permit, collection and monitoring records, and access to the premises as necessary to ensure compliance with this permit.
- E. The Agency maintains continuing jurisdiction over this activity, and may, at any time, order the Permittee to undertake remedial measures if necessary to ensure the protection and conservation of listed species.
- F. This permit is not valid for endangered and threatened species that are not listed in section 5.
- G. The permit is valid for use by the named Permittee and subpermittees(s) only and may be revoked by the Secretary at any time for cause, or violations of any terms or conditions of this permit or state law.
- H. The Permittee and subpermittees shall carry copies of this permit whenever performing authorized activities and shall make the permit available upon request.

11. Specific Conditions & Authorizations

Minimization

- A. The Permittee shall fully feather (adjust the rotor blade angle parallel to the wind, or turn the entire unit out of the wind, to slow blade rotation to less than 1 RPM) the blades of all wind turbines from June 1—September 30 during the permit period when wind speeds are at or below 6 m/s (13.4 mph) and ambient temperatures at hub height are greater than 50 degrees Fahrenheit. Curtailment shall occur during nights (from ½ hour before sunset to sunrise) when bats are active.

Mitigation

- B. The Permittee shall submit a contribution of \$7,500 to the Vermont Fish & Wildlife Department's Bat Maternity Colony Technical Assistance Program within 45 days of the granting of the permit; and annual contributions of the same amount shall be submitted by April 1st for each of the ensuing calendar years for the duration of permit period.

Authorizations

- C. This permit allows the total cumulative take of up to five (5) individual Threatened & Endangered bats for each species listed in Section 5 of this permit during the permit period.
- D. Should the take exceed the limits as established in this permit, the Secretary of the Agency of Natural Resources may require the implementation of additional actions to reduce take of listed species, up to, and including, the cessation of operation of the Facility when the species are active and vulnerable to take.
- E. The Permittee shall establish a protocol outlining how staff and visitors respond to observed bird and bat injuries and mortalities outside of the bird and bat fatality monitoring surveys. Needed equipment shall be readily available and easily accessible. Relevant employees shall be adequately trained in implementing the

protocol.

Bird & Bat Monitoring & Take Documentation

- F. Active Monitoring:** The Permittee's monitoring specialists shall conduct bird and bat fatality monitoring in accord with the conditions in this permit and the *Deerfield Wind Project Post-Construction Monitoring Plan: Birds and Bats* (September 29, 2017) (Monitoring Plan) during years 1 (2018), 3 (2020), and 5 (2022). This monitoring shall be conducted from April 15 to October 15 for all turbines at a 3-day search interval, unless otherwise approved by VANR based on site-specific data.
- G.** The Permittee shall hire qualified and experienced consultant and field personnel, approved by VANR, to conduct the fatality monitoring. Personnel trained in proper search techniques shall conduct the carcass searches. The VANR reserves the right to reject surveys and monitoring data that are not conducted by qualified individuals.
- H. Notifications:** At least 30-days prior to the start of each monitoring season, the Permittee shall submit the names and qualifications of all subpermittees to the VFWD Permits Specialist in writing (email preferred). The Permittee shall notify the Permits Specialist of any subpermittee changes taking place within any research season.
- I. Passive Monitoring:** During periods when active monitoring is not occurring, years 2 (2019) and 4 (2021) and between active search intervals, the Permittee's staff and contractors shall collect any bird or bat found injured or dead at the project site per conditions 11.J., 11.T and 11.U.
- J.** The Permittee shall notify the VFWD Biologist Noel Dodge (802-689-0000 noel.dodge@vermont.gov) within 72 hours of the discovery and collection of a bird or bat found dead. The specimen shall be frozen and retained until it can be collected by the VFWD.
- K.** The Permittee shall notify the USFWS and VFWD within 24 hours of the discovery of a federally endangered, threatened, or protected species. The specimen shall be frozen and retained until it can be collected by the VFWD or USFWS.
- L. Precautions and Training:** The Permittee and any subpermittees handling bats shall be vaccinated for rabies and shall maintain adequate titer levels during the permit period.
- M.** The Permittee and any subpermittees handling live specimens shall have appropriate training in the care and handling of those species to avoid further injuring the specimens.
- N. Collection:** The Permittee is authorized to collect and possess dead and injured specimens of the species listed in Section 5 of this permit found while implementing the Monitoring Plan.
- O.** The Permittee shall have a protocol in place to provide prompt veterinary care should a specimen be collected alive but injured. Injured bats may receive on-site rehydration, either subcutaneously (preferred) or orally followed by monitoring and transport to veterinary care. Specimens deemed incapable of recovering may be euthanized by cervical dislocation or other approved method to prevent prolonged suffering.
- P.** All specimens of species listed in Section 5 found dead shall be processed in accord with the Monitoring Plan.
- Q.** Specimens of species listed in Section 5 found dead may not be used for carcass removal or searcher efficiency trials until each carcass is digitally photographed and authorization is given by the VFWD (and USFWS in the case of federally listed species).
- R.** Those specimens that cannot be positively identified in the field shall be retained and frozen for later identification. If necessary to confirm the species identification, the Permittee shall submit such specimens to a lab approved by the VFWD for genetic analyses to identify the species.
- S.** All bats not fully utilized for the purposes of conducting the fatality monitoring shall be turned over to the VFWD.
- T.** For each injured bird or bat found, regardless of species, the Permittee shall:
- i. Contact a qualified and licensed rehabilitator as soon as possible and at least within 24 hours. http://www.vtfshandwildlife.com/learn_more/living_with_wildlife/injured_and_orphaned_wildlife
 - ii. If directed by the rehabilitator, the Permittee shall bring the animal to the rehabilitator to ensure that the animal has the best chance of survival. The Permittee is advised to wear gloves or other suitable protective equipment when collecting an injured animal.
 - iii. Collect all data and photographs identified in 11.F.
- U.** For each bird and bat found dead at the project site, regardless of species, the Permittee shall:

- i. Before moving an animal, take four digital photographs from different angles, consisting of close-up views of the whole animal, the head, and the face. All photos shall be stored safely until they can be transferred to the VFWD.
- ii. Record the date, time, number of the closest turbine and observer name.
- iii. Place each animal in an individual re-sealable plastic bag that is clearly labeled with the collection date, time, number of the closest turbine and observer name and place bag in a freezer until it can be transferred to the VFWD. The Permittee is advised to wear gloves or other suitable protective equipment when collecting dead animals.

12. Reporting Requirements

- A. The Permittee shall report via email to the VFWD Permits Specialist within 72-hours of incidentally finding a bird or bat species dead or injured. Reports shall include all information identified in condition 11.F.
- B. An annual report, due by January 30th following each year of the permit period, unless an extension is specifically requested and granted, shall be submitted to the VFWD Permits Specialist. At a minimum the reports shall:
 - i. Provide the results of the post-construction bird and bat fatality monitoring for those years in which they are conducted.
 - ii. List all bird and bat fatalities and injuries for the year by date, nearest turbine, and species.
 - iii. Provide sufficient evidence from the facility's Supervisory Control and Data Acquisitions (SCADA) system to show that the turbines were programmed as specified in 11A and operated as such. SCADA data on time, wind speed, temperature, and RPM on each turbine from one select week of each month of curtailment (July-September) will be provided by the Permittee. The specific week of each month shall be provided by the VFWD by November 30 of each year for the previous season's report.
- C. The Permittee shall promptly respond to requests by Vermont Agency of Natural Resources staff for additional information from turbine operations and collection activities including but not limited to: any raw data, copies of original field sheets, and computerized data in usable format. Reports of results of any subsequent analyses and copies of subsequent publications resulting from the collections made under this permit shall be forwarded to the VFWD Permits Specialist within 30 days of publication.

Issued by: _____ Date: _____

, Secretary
Agency of Natural Resources

Right to Appeal to Public Service Board

If this decision relates to a renewable energy plant for which a certificate of public good is required under 30 V.S.A. §248, any appeal of this decision must be filed with the Vermont Public Service Board pursuant to 10 V.S.A. §8506. This section does not apply to a facility that is subject to 10 V.S.A. §1004 (dams before the Federal Energy Regulatory Commission), 10 V.S.A. §1006 (certification of hydroelectric projects) or 10 V.S.A. Chapter 43 (dams). Any appeal under this section must be filed with the Clerk of the Public Service Board within 30 days of the date of this decision; the appellant must file with the Clerk an original and six copies of its appeal. The appellant shall provide notice of the filing of an appeal in accordance with 10 V.S.A. 8504(c)(2), and shall also serve a copy of the Notice of Appeal on the Vermont Department of Public Service. For further information, see the Rules and General Orders of the Public Service Board, available on line at www.psb.vermont.gov. The address for the Public Service Board is 112 State Street, Montpelier, Vermont, 05620-2701 (Tel. # 802-828-2358).