United States Department of the Interior

FISH AND WILDLIFE SERVICE

New England Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5087
http://www.fws.gov/newengland

October 31, 2012

Mr. David D. Dorocz
Environmental Division Director
Naval Station Newport
690 Peary Street
Newport, Rhode Island 02841-1522

Dear Mr. Dorocz:

This responds to your correspondence, dated March 14, 2012, in which you ask us to review and comment on documents submitted in support of a proposed wind project at Naval Station Newport (Naval Station) located in Newport, Rhode Island. We reviewed the following documents that were submitted: *Bird and Bat Biological Survey Report for Winter, Spring, Summer and Fall 2010*; the *Avian Radar Survey Report for the Development of Wind Energy Facilities at Naval Station Newport, Rhode Island, Fall 2010 and Spring 2011*; the *Bat Biological Survey Report Addendum for Spring and Summer 2011*; and the *Avian Risk Assessment for a Proposed Wind Project at Naval Station Newport* (Risk Assessment). Our comments are provided in accordance with the Fish and Wildlife Coordination Act 16 U.S.C. 662, *et seq.*; the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531, *et seq.*) and the Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703-712).

The goal of the proposed project at the Naval Station is to produce nine megawatts (MW) of wind-generated energy. Twelve turbine locations have been sited along approximately five miles of the Narragansett Bay shoreline at the Naval Station. The number and size of the turbines constructed will be determined by the Federal Aviation Administration (FAA) maximum allowable turbine height.

We hereby provide information on some of the risks associated with wind power facilities to birds and we offer the following comments for your consideration in selecting sites that may minimize risk to bird and bat species.

General Comments

The U.S. Fish and Wildlife Service (Service) supports the development of wind power as an alternative energy source. However, wind facilities can have negative impacts on wildlife and

NOV 8 2012

their habitats if not sited and designed with potential wildlife and habitat impacts in mind. The *U.S. Fish and Wildlife Service Land-Based Wind Energy Guidelines* (Guidelines) were finalized in March of 2012. Using a tiered approach, the Guidelines provide a structured, scientific process for developers, federal and state agencies, and tribes to identify sites with low risk to wildlife, and to help them assess, mitigate, and monitor any adverse effects of wind energy projects on wildlife and their habitats. The voluntary Guidelines are designed to be used for all utility-scale, community-scale, and distributed land-based wind energy projects on both private and public lands to reduce potential impacts to fish and wildlife, regardless of whether they are proposed on private or public lands. The Guidelines are intended to promote compliance with relevant wildlife laws and statutes, including the Endangered Species Act, the Migratory Bird Treaty Act, and the Bald and Golden Eagle Protection Act. They were finalized after siting and pre-construction efforts had been initiated for this project; however, we are pleased that the Naval Station followed the approach described in the draft version.

Bats

Operational wind turbines pose a risk of killing and injuring migrating and resident bats. Risk of mortality from wind turbines appears to be a complex interplay between turbine characteristics and operations, environmental conditions and bat behavior. Migratory tree-roosting bats comprise the vast majority of bat fatalities, especially at facilities located along forested ridge tops in the eastern United States (Kunz 2006; Kunz *et al.* 2007), although fatalities of resident bats such as the little brown bat (*Myotis lucifugus*) have been documented at eastern wind turbine projects, including projects in New England.

Turbine characteristics that influence risk include turbine height and rotor diameter,[1] both of which are positively correlated with bat mortality (Arnett *et al.* 2008). The spinning turbine blades are primarily responsible for mortality, either when the bat directly encounters the blades or passes behind the spinning blades into an area where the pressure differential is so significant that it causes pulmonary hemorrhaging (barotrauma). No bat fatalities have been reported due to non-operational turbines (Kerns *et al.* 2005). Environmental factors that appear to influence risk to bats include geographic location, wind speed, weather patterns, surrounding habitat, and insect activity (Arnett *et al.* 2008; Horn *et al.* 2008). Bat mortality appears to be highest on low wind nights, after storms, and during periods of higher barometric pressure (Kerns *et al.* 2005). At wind farms in Pennsylvania, 82 to 85 percent of the bat fatalities occur when median wind speeds were less than 6 m/sec, and the highest numbers of bats were found following nights with median wind speeds of 4.1 to 4.2 m/sec (Arnett *et al.* 2008; Kerns *et al.* 2005).

We reviewed the pre-construction acoustic bat survey reports and Risk Assessment to understand the potential impacts that the proposed wind turbines might have on resident and migratory bats. As expected, the majority of echolocation detected during the acoustic surveys were comprised of migratory tree-roosting bats. However, acoustic surveys documented the presence of the Northern long-eared bat (*Myotis septentrionalis*) and the little brown bat at the Naval Station. Little brown bat calls recorded in June and July most likely indicate that this species is resident

[1] Rotor diameter is directly related to rotor swept area, which is the area through which the rotor blades of a wind turbine spin.

on or near the facility, while the two Northern long-eared bat calls recorded in August could either represent resident or migrating bats.

Currently, there are no federally listed or candidate bat species in Rhode Island; however, the Service was petitioned to list the small-footed bat (*Myotis leibii*) and the Northern long-eared bat, and is currently undertaking 12-month findings to determine whether listing is warranted. The Service is also conducting a rangewide candidate status assessment for the little brown bat.

The little brown bat and the Northern long-eared bat have declined significantly in the Northeast due to the recent epidemic of white-nose syndrome (WNS), a disease caused by the cold-loving fungus *Geomyces destructans* that attacks hibernating bats. Although WNS has not been confirmed in Rhode Island, Rhode Island Department of Environmental Management (RIDEM) staff is currently gathering data on population occurrences of little brown and Northern long-eared bats. Recent surveys indicate that a number of Rhode Island little brown bat maternity colonies have either declined or been extirpated, most likely due to WNS (C. Brown, RIDEM, pers. comm., September 4, 2012).

Since the precise number, location and type of turbines have not been determined, a clear determination of the level of risk to local and migratory bat populations cannot be reached. In general, the maximum number of proposed turbines (12) and the generally low index of acoustic activity could indicate that the long-term impact on migratory and resident bat populations may be small. Nevertheless, given that there is little information on coastal bat migration or the effect of coastal wind turbine development on resident or migratory bat populations, we recommend that post-construction fatality monitoring be implemented to estimate levels of bat mortality, spatial and temporal patterns of the fatalities, and post-construction levels of bat activity, as stated in the Risk Assessment (page 36). We are particularly interested in determining whether resident little brown or Northern long-eared bats may be killed at coastal wind turbines such as proposed at the Naval Station and if so, what the impacts to the local population would be.

We also recommend that the Navy, in consultation with the Service, consider implementing operational adjustments, such as wind turbine curtailment, in the event that any resident bats are killed (e.g., *Myotis* species), or unanticipated levels of migratory bat fatalities are documented (e.g., levels greater than the current New England average). For example, the State of Vermont draft wind mitigation guidelines require the implementation of operational adjustments in order to reduce the number of collisions with migratory bats and the take of state-endangered little brown bats. Vermont requires that projects with five or more turbines implement operational adjustments for the life of the project for the period of June 1 to September 30. The operational adjustments require rotor cut-in wind speeds of 6.0 m/sec when temperatures are greater than 50°F. Once the number, type and location of wind turbines have been determined, we would be available for additional discussion on implementing post-construction monitoring and operational adjustments.

Migratory Birds

The MBTA prohibits the taking, killing, collection, possession, and transportation (among other actions) of migratory birds, their eggs, parts, and nests, except when specifically permitted. While the MBTA has no provision for allowing unauthorized take, the Service realizes that some birds may be killed during wind energy operations even if all known reasonable and effective measures to protect migratory birds are used.

Two types of local impacts to birds have been demonstrated at existing wind facilities: 1) mortality from collisions; and 2) impacts from habitat disruption and displacement. Both migrating birds and resident birds collide with wind turbines. The majority of bird fatalities reported at wind farms are neotropical songbirds (Erickson *et al.* 2001). However, raptors also are susceptible to collisions with wind turbines. Low wind speed turbine technology requires much larger rotors, with blade tips often extending more than 420 feet above ground, and blade tip speed can reach in excess of 200 mph under windy conditions. Motion smear (the inability of the bird's retina to process high speed motion stimulation) makes the blades deceptively transparent at high velocities, increasing the likelihood that a bird will fly through the blade arc, be struck by a blade, and killed (Manville 2005). Birds may also become disoriented in poor weather, and may be forced to fly at lower altitudes during migration due to overcast weather, increasing the potential for birds to fly through wind turbine fields.

We appreciate the efforts that the Naval Station has undertaken to follow the Service's recommendations when considering pre-construction surveys and data analysis. The Naval Station has cooperated with this office throughout the pre-construction process and has committed to conducting post-construction studies to estimate project impacts. We do not anticipate that habitat disruption and displacement will be a factor at this project site because the proposed turbine locations are within or adjacent to highly developed areas.

Bird surveys conducted for the proposed project's avian risk assessment include point count bird surveys and avian radar surveys. A total of 101 bird species were observed in the project area from 2009 to 2011. The most frequently observed bird species were herring gulls (*Larus argentatus*), Canada geese (*Branta canadensis*), rock pigeon (*Columba livia*) and European starlings (*Sturnus vulgaris*). Other bird species documented include the osprey (*Pandion haliaetus*), state-listed peregrine falcon (*Falco peregrines*), and northern harrier (*Circus cyaneus*), as well as shorebirds, passerines, sea ducks and wading birds. Because state-listed birds are present, we recommend that you contact Chris Raithel at the Rhode Island Department of Environmental Management. He may be reached at (401) 789-7481.

The northern group of turbines would be located in early successional fields and woodlots that provide foraging and nesting habitat. The greatest abundance of songbirds, as well as the greatest species richness, was documented in parts of the project area consisting primarily of shrubland habitat. However, as noted in the conclusion of the Avian Risk Assessment (pages 38 and 39), more bird strikes overall are likely to occur in the southern group of turbines. The southern group of turbines would be located in a coastal area surrounded by buildings that are heavily used by birds for roosting, resting and nesting. We also agree with the Avian Risk Assessment conclusion that turbine 9 (page 39), located on the peninsula known as Bishop Rock, may pose the greatest

risk to birds. Due to its location within the developed landscape that provides roosting and nesting habitat on buildings, we anticipate a greater number and variety of birds would encounter the turbine during various behaviors and flight heights. We recommend that this turbine location be avoided in order to minimize the risk of collision to birds.

It is important to note that this facility differs from most locations where impact studies have been done because it is a near-shore wind project, with most turbines expected to be located within 100 feet of the shoreline. Post-construction monitoring at this facility will gather information on what groups of birds may be impacted by near-shore turbines and under what conditions impacts may occur.

Post-Construction

We recognize that the Naval Station will develop Bird and Bat Conservation Strategies (BBCS) in accordance with the Guidelines, and we anticipate that actions will be identified that may avoid, minimize and compensate for potential adverse impacts to birds and bats. We also understand that the Naval Station has committed to conducting post-construction studies to estimate project impacts (Tier 4 of the Guidelines), and may implement operational adjustments based on post-construction monitoring outcomes. We would be glad to offer our technical assistance in the review of the BBCS and development of a post-construction monitoring plan.

Thank you for your continued coordination on this project. For further information, please contact Maria Tur of this office at 603-223-2541. You may also visit the Wind Energy page on the New England Field Office's website for useful links, including guidance documents for avoiding and minimizing impacts to wildlife: (http://www.fws.gov/newengland).

Sincerely yours,

Thomas R. Chapman
Supervisor
New England Field Office

References

Arnett, E.B., W.K. Brown, W.P. Erickson, J. Fiedler, B.L. Hamilton, T.H. Henry, A. Jain, G.D. Johnson, J. Kerns, R.R. Koford, C.P. Nicholson, T. O'Connell, M. Piorkowski and R. Tankersley. 2008. Patterns of fatality of bats at wind energy facilities in North America. Journal of Wildlife Management 72: in press.

Erickson W.P., G.D. Johnson, M.D. Strickland, K.J. Sernka and R.E. Good. 2001. Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States. National wind Coordinating Committee Resource Document, August. Cheyenne, WY: Western Ecosystems Technology, Inc. 62 pp.

Horn, J.W., E.B. Arnett and T.H. Kunz. 2008. Behavioral responses of bats to operating wind turbines. Journal of Wildlife Management 72(1):123-132.

Kerns, J, W.P. Erickson and E.B. Arnett. 2005. Bat and bird fatality at wind energy facilities in Pennsylvania and West Virginia. Pp. 24–95 *in* E.B. Arnett (ed.), Relationships between bats and wind turbines in Pennsylvania and West Virginia: an assessment of bat fatality search protocols, patterns of fatality, and behavioral interactions with wind turbines. A final report submitted to the Bats and Wind Energy Cooperative. Bat Conservation International, Austin, Texas, USA.

Kunz, T.H. 2006. Bats at risk: why should we care. Toward Wildlife Friendly Wind Power Conference, June 27-29. Toledo, OH. www.fws.gov/modwest/greatlakes/windpowerconference.htm.

Kunz, T.H., E.B. Arnett, W.P. Erickson, A.R. Hoar, G.D. Johnson, R.P. Larkin, M.D. Strickland, R.W. Thresher and M.D. Tuttle. 2007. Ecological impacts of wind energy development on bats: questions, research needs, and hypotheses. Frontiers in Ecology and the Environment 5 (6): 315-324.

Manville, A.M. 2005. Bird strikes and electrocutions at power lines, communication towers, and wind turbines: state of the art and state of the science—next steps toward mitigation. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191: 1051-1066.