

Appendix G
Scoping and Coordination Letters

National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099



April 23, 2008

Reply to Attn of: 250.W

Mr. Tylan Dean
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Dear Mr. Dean:

Per our telephone conversation on April 10, 2008, we are providing you additional information regarding the NASA Wallops Flight Facility's (WFF) proposed Alternative Energy Project:

Background

Executive Order (EO) 13423, *Strengthening Federal Environmental, Energy, and Transportation Management* (effective January 24, 2007), instructs Federal agencies to conduct their respective missions in an environmentally, economically, and fiscally sound; integrated; continuously improving; efficient; and sustainable manner. Section 2 of EO 13423 directs Federal agencies to implement sustainable practices for energy efficiency and reductions in greenhouse gas emissions, and for the use of renewable energy.

The Federal Energy Policy Act (EPACT) (effective August 8, 2005) requires Federal agencies to lower energy consumption and to utilize specified percentages of renewable electricity - 3 percent between fiscal years 2007 and 2009, 5 percent between 2010 and 2012, and 7.5 percent for 2013 and beyond.

WFF has identified several goals that meet its mission while promoting environmental stewardship and accountability. Those goals include:

- Reducing impacts on the natural environment by consuming energy from a source that provides zero greenhouse gas emissions;

- Reducing WFF's annual operating cost by consuming continual, low-cost power from a renewable and sustainable natural resource; and
- Setting an example for responsible stewardship of natural resources by a Federal agency.

WFF currently obtains all of its electricity from the local electric cooperative. The electricity is produced primarily by the combustion of fossil fuels; at the present time, no renewable sources are offered.

Purpose and Need

The purpose of the proposed Alternative Energy project is to generate clean, renewable energy from a technologically proven source that will be used by WFF in order to exceed the requirements of the 2005 EPACT and EO 13423, along with WFF's goal of setting an example of leadership in environmental stewardship and accountability by a Federal agency. Project implementation would not only buffer a portion of WFF's utility costs from future increases associated with rising electrical rates (e.g., market changes, tariff adjustments), but it would also contribute up to one percent toward federal renewable energy requirements for NASA as an agency.

A Department of Energy – funded study conducted by James Madison University in 2005 determined that Wallops Island has adequate wind resources for operation of wind turbines and recommended the installation of a single 1.5 megawatt (MW) rated capacity model.¹ The study also found that one 1.5 MW wind turbine would account for approximately 16 percent of the electricity required to operate WFF, which would supplement the electricity that is currently supplied to WFF via the local electric cooperative.

The current peak electricity usage on Wallops Island can accommodate up to approximately 3.0 megawatts (MW) of electrical generation without having to store or sell excess power,² and would equate to the rated maximum capacity of two of the 1.5 MW turbines recommended in the JMU study. WFF estimates that each wind turbine would generate approximately 4.5 gigawatt-hours (GWh) of electricity per year for the duration of its 25 year lifespan based on power output of wind turbines in similar settings.

In addition to wind energy, WFF is evaluating the large scale implementation of solar panels to meet its alternative energy needs. The solar arrays would be located on rooftops of existing buildings and in open upland areas. Exact placement would require careful coordination with the WFF airfield to minimize the potential for solar reflection impacting incoming aircraft.

¹ Miles, Jonathan, Lotts, Mark, and Jeff Briggs. Wind Power Feasibility Study at NASA Wallops Space Flight Center-Final Report. June 2006.

²NASA. Wallops Flight Facility Fiscal Year 2007 Electrical Usage Analysis. January 2008.

Proposed Action and Alternatives

WFF has identified the desire for alternative energy sources that would be capable of generating up to 9.0 GWh per year (GWh/year) of power, the equivalent annual power generation of two 1.5 MW wind turbines. The Proposed Action consists of constructing up to two 1.5 MW wind turbines on Wallops Island to supplement the electricity that is currently supplied to WFF by the local electric cooperative.

Because the proposed wind turbines have the potential to interfere with WFF's active airfield and tracking/telemetry systems, the area available for their construction is extremely limited. The only available area at WFF for placement of wind turbines is restricted to the Proposed Action site (see enclosed maps); therefore WFF would not be able to operate more than two wind turbines. The Proposed Action would not lead to the installation of additional wind turbines in the future.

Under Alternative One, NASA would construct one 1.5 MW wind turbine on Wallops Island that would be capable of generating 4.5 GWh/year. In addition to the single wind turbine, NASA would install a system of solar panels that would be capable of generating up to 4.5 GWh/year (the equivalent of one 1.5 MW wind turbine). Approximately 14,000, 32 square feet (sq ft) solar panels, equaling an area of approximately 7 acres, would be needed to meet this power generating capability. Solar panels would be installed on building rooftops and in upland open spaces, with a total capacity for power generation of up to 1.5 MW.

Alternative Two consists of installing a system of solar panels that would be capable of generating 9.0 GWh/year of power, which is the estimated equivalent of two wind turbines. WFF would install approximately 28,000, 32 sq ft panels that would equal an area of approximately 14 acres. As with Alternative One, the panels would be installed on building rooftops and in upland open spaces, but with a total capacity for power generation of up to 3.0 MW.

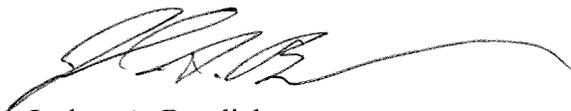
Avian and Bat Impact Studies

In compliance with the National Environmental Policy Act of 1969 (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA (40 Code of Federal Regulations [CFR] Parts 1500 through 1508), and the NASA Policy Requirements (NPR) for implementing NEPA (NPR 8580.1), NASA is preparing an Environmental Assessment (EA) to analyze the potential impact of this proposed action and alternatives on the natural and human environment.

Of particular concern are potential impacts to avian and bat species from the operation of the wind turbines. To further define and quantify potential impacts, WFF will perform avian and bat studies and complete the EA prior to selecting an alternative energy option. As such, we are requesting your expertise and input to this study plan. The WFF Environmental Office invites you join us at a meeting of federal and state regulators and local interest groups to assist in the preparation of the Avian and Bat Impact Study Plans.

The meeting will be held on April 30, 2008 at 10:00 a.m. in the Chincoteague National Wildlife Refuge's Herb Bateman Center. A meeting agenda is enclosed. If you have any questions please contact either myself at 757-824-2319 or Ms. Shari Silbert at 757-824-2327.

Sincerely,

A handwritten signature in black ink, appearing to read 'J. A. Bundick', with a long, sweeping horizontal flourish extending to the right.

Joshua A. Bundick
NEPA Program Manager

2 Enclosures

National Aeronautics and Space Administration

Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099



October 20, 2008

Reply to Attn of: 250.W

Ms. Karen Mayne
Supervisor
Virginia Field Office
U.S. Fish and Wildlife Service
6669 Short Lane
Gloucester, VA 23061

Dear Ms. Mayne:

Enclosed please find a copy of Wallops Flight Facility's (WFF) Alternative Energy Project Final Avian and Bat Study Plan. The proposed alternative energy project considers the installation of both wind turbines and photovoltaic systems at WFF. If selected as WFF's final preferred alternative, the wind energy development on Wallops Island would consist of constructing and operating no more than two 1.5 MW wind turbines with associated underground electrical power collection lines, new access roads, and an interconnection with the existing WFF electrical power distribution system.

WFF is currently preparing an Environmental Assessment for the project in accordance with the National Environmental Policy Act. The results of this avian and bat study will support the EA and will provide valuable insight into the level of impact that could result if wind energy were selected.

This study plan document was first submitted to you as a draft on June 5, 2008 following the project stakeholder group meeting held on April 30, 2008 at the Chincoteague National Wildlife Refuge. Written comments on the draft plan were provided by the Virginia Department of Game and Inland Fisheries (David Whitehurst, July 3, 2008) and the U.S. Fish and Wildlife Service (USFWS) (Karen Mayne, July 8, 2008). Based on stakeholder input received and subsequent internal review, NASA has revised and finalized its plan. As requested during the consultation process, the plan now provides:

- more detail regarding field survey observation and study transect locations, specific Anabat equipment installation locations and heights, and specific mortality search areas;
- additional discussion of field survey methods and associated data collection forms;
- specific information concerning the time of day, survey observation duration and time of year that field surveys will take place; and
- a detailed literature cited section

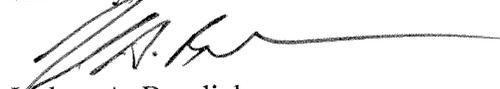
After careful review and consideration of the comments received on the draft study plan, WFF does not plan to conduct any radar-based pre-construction surveys. Although the 2003 USFWS guidance document does suggest the use of remote sensing techniques to assess avian and bat mortality risk at wind power facilities, this recommendation was based on a few preliminary radar studies that had been conducted at prospective or existing wind energy facilities. Since the 2003 guidance was issued, some 30 radar studies have now been conducted across the U.S. at prospective wind power facilities and, to date, none have proven to be a reliable and precise predictor of risk. As radar has yet to be validated as a risk assessment tool for such projects, WFF is undertaking a more readily quantifiable methodology based upon field observation by trained biologists and analysis of actual avian and bat mortality on Wallops Island.

As stated in the study plan, WFF intends to perform one year of pre-construction field observation and mortality searches in the project vicinity. The presence of two 47.2 meter (155 feet) tall boresight towers near the proposed wind turbine sites along with a 102.1 meter (335 feet) tall meteorological tower south of the project site present a unique opportunity to study avian and bat collisions at these surrogate structures. WFF plans to conduct mortality searches three times per week during the spring and fall migration seasons and one time per week during the remainder of the year. The results of these intensive field surveys will provide important site-specific data for assessing avian risk at the height of the proposed rotor swept area and will greatly contribute to assessing potential risk from the operation of the two proposed wind turbines.

WFF understands that if the preferred alternative energy choice includes installing either one or two wind turbines, this would present additional research opportunities for studying the potential environmental impacts of turbines within a coastal setting. NASA would promote partnering with other government agencies and/or non-governmental stakeholders for such research projects.

We appreciate your interest and input to date as we proceed with these studies. Please contact me at (757) 824-2319 or Ms. Shari Silbert at (757) 824-2327 if you have any questions or require additional information.

Sincerely,



Joshua A. Bundick
NEPA Program Manager

Enclosure

cc:

200/Ms. C. Massey
228/Mr. P. Smith
250/Ms. C. Turner
USFWS/Mr. T. Dean



Federal Aviation Administration
 Air Traffic Airspace Branch, ASW-520
 2601 Meacham Blvd.
 Fort Worth, TX 76137-0520

Aeronautical Study No.
 2008-WTE-2533-OE

Issued Date: 10/16/2008

Philip Smith
 NASA Wallops Flight Facility
 Wallops Flight Facility
 BLDG N-161, Code 228
 Wallops Island, VA 23337

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure: Wind Turbine (2) Wind Turbines at Wallops Flight Facility
 Location: Chincoteague, VA
 Latitude: 37-51-21.79N NAD 83
 Longitude: 75-28-07.60W
 Heights: 380 feet above ground level (AGL)
 391 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

As a condition to this Determination, the structure is marked and/or lighted in accordance with FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be completed and returned to this office any time the project is abandoned or:

- At least 10 days prior to start of construction (7460-2, Part I)
- Within 5 days after the construction reaches its greatest height (7460-2, Part II)

This determination expires on 04/16/2010 unless:

- (a) extended, revised or terminated by the issuing office.
- (b) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE POSTMARKED OR DELIVERED TO THIS OFFICE AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE.

This determination is based, in part, on the foregoing description which includes specific coordinates, heights, frequency(ies) and power. Any changes in coordinates, heights, and frequencies or use of greater power will void this determination. Any future construction or alteration, including increase to heights, power, or the addition of other transmitters, requires separate notice to the FAA.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

A copy of this determination will be forwarded to the Federal Communications Commission if the structure is subject to their licensing authority.

If we can be of further assistance, please contact our office at (770) 909-4329. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2008-WTE-2533-OE.

Signature Control No: 592405-103447185

(DNE)

Michael Blaich
Specialist



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

December 23, 2009

WFF Alternative Energy Project
Eastern Virginia Regulatory Section

Goddard Space Flight Center
Ms. Caroline R. Massey
Assistant Director of Management Operations
Wallops Flight Facility
Wallop Island, VA 23337-5099

Dear Ms. Massey,

The Norfolk District Corps of Engineers agrees to be a cooperating agency in the preparation of documents for the WFF Alternative Energy Project, in accordance with the National Environmental Policy Act. Mr. Robert Cole will be the contact for the Norfolk District. Please forward to him any requests for participation, notices of meetings, requests for information, and written material to review. Mr. Cole may be contacted at 757-787-7567, by e-mail at "robert.h.cole@usace.army.mil", or by mail at Norfolk District Corps of Engineers, Eastern Shore Field Office, 22545 Center Parkway, Accomac, VA 23301-1330.

Sincerely,

Kimberly A. Prisco-Baggett

Kimberly A. Prisco-Baggett
Acting Chief, Eastern Virginia Regulatory Section



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6669 Short Lane
Gloucester, VA 23061



July 8, 2008

Mr. Joshua A. Bundick
National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

Re: NASA Wallops Flight Facility's
Proposed Alternative Energy Project,
Accomack County, Virginia

Dear Mr. Bundick:

The U.S. Fish and Wildlife Service (Service) has reviewed the project description provided in the National Aeronautics and Space Administration (NASA) April 23, 2008 letter and the Draft Wind Energy Avian and Bat Study Plan provided in your June 5, 2008 letter. The purpose of the project is to generate clean, renewable energy that will be used by the Wallops Flight Facility (WFF) in order to exceed the requirements of the 2005 Federal Energy Policy Act and Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*, along with WFF's goal of setting an example in environmental stewardship and accountability by a Federal agency. The proposed action consists of constructing up to two 1.5 megawatt (MW) wind turbines on Wallops Island. Alternatives also include installing a system of solar panels on building rooftops and upland open spaces. This letter provides comments on the draft avian and bat study plan and the alternatives and project scope described in NASA's April 23, 2008 letter. Additional comments on the project will be provided by the Service in further discussion and upon our receipt of the environmental assessment when a more detailed alternatives analysis is provided. This letter constitutes the preliminary report of the Service and the Department of the Interior on the proposed project and is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), the Migratory Bird Treaty Act (MBTA) of 1918 (40 Stat. 755, as amended; 16 U.S.C. 703-712), and the Bald and Golden Eagle Protection Act (BGEPA) of 1940 (54 Stat. 250, as amended; 16 U.S.C. 668-668d).

Based on our review of the referenced project, it appears that the proposed project may affect species under the jurisdiction of the Service, including migratory birds and endangered species. Wind energy facilities can adversely impact wildlife populations, particularly birds and bats, and

Mr. Bundick

2

their habitats. Because of this potential harm to wildlife, in May 2003, the Service developed an *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* (<http://www.fws.gov/habitatconservation/wind.pdf>). This guidance includes recommendations for the proper evaluation of potential wind energy sites, proper location and design of turbines and associated structures within sites selected for development, and pre- and post-construction research and monitoring to identify and/or assess impacts to wildlife. We encourage NASA to review these guidelines in the preparation of the Environmental Assessment (EA) and address any deviations from the interim guidelines, including why deviations are required.

The Service is concerned about the proposed wind turbine locations. A site development recommendation in the guidance states, "Avoid locating turbines in known local bird migration pathways or in areas where birds are highly concentrated . . ." Examples noted in the guidance included wetlands and Federal refuges. The proposed wind turbines at Wallops Island are located in an extensive wetland system, within approximately 3 miles of the Assawoman Island Division of the Chincoteague National Wildlife Refuge (NWR) and within approximately 4 miles of the Chincoteague NWR, a nationally recognized bird migration pathway, a Western Hemisphere Shorebird Reserve, a World Biosphere Reserve, a National Natural Landmark, and an Important Bird Area (IBA).

The Chincoteague NWR was originally established in 1943 to provide habitat for migratory birds. Today, this refuge provides habitat for waterfowl, wading birds, shorebirds, and song birds, as well as other species of wildlife and plants. The refuge also supports several threatened and endangered species. According to results from the International Shorebird Surveys east of the Rocky Mountains, Chincoteague ranks second in species diversity during spring and fall shorebird migrations, and is among the top ten sites with greatest maximum counts. The Manomet Observatory organized the International Shorebird Surveys, which began in 1974 to collect information on shorebirds during migration. Chincoteague NWR is part of the barrier island system that constitutes the largest stretch of undeveloped barrier islands on the East Coast of North America, having been preserved through a combination of Federal, State, and privately owned (The Nature Conservancy) islands. These barrier islands extend from Assateague Island to Fisherman Island, and provide habitat for numerous species of birds throughout the year, as well as providing important aquatic habitat for numerous species of finfish and shellfish. These barrier islands in Maryland and Virginia have been designated a Western Hemisphere Shorebird Reserve due to the area's international importance as shorebird nesting, feeding, and resting habitat. Such designation is given where over 100,000 shorebirds use an area on an annual basis. The United Nations has designated these islands and lagoon systems as a World Biosphere Reserve due to their great ecological value. The U.S. Department of Interior has also designated these barrier islands as a National Natural Landmark due to their outstanding natural values. This project location is located within the Barrier Island/Lagoon System IBA. The Important Bird Area Program is administered by the National Audubon Society and identifies sites that provide essential habitat to nesting, migrating, or wintering birds. This IBA includes the seaward margin of the lower Delmarva Peninsula from the mouth of the Chesapeake Bay to the Maryland-Virginia border. This IBA is identified as the most important bird area in Virginia and supports the highest diversity and density of birds of

Mr. Bundick

3

conservation concern in Virginia. For additional information on this IBA see:
<http://www.audubon.org/bird/iba/virginia/>.

The Phase I Avian Risk Assessment prepared by Curry & Kerlinger, L.L.C. for this site, dated September 2004, concluded that, "Significant migration by hawks, songbirds, waterfowl, shorebirds, or other species occurs adjacent to and over the project site. This site is located at a major ecological magnet that attracts large numbers of migrants." The study also indicated that habitat on and adjacent to the site supports large concentrations of wintering waterfowl and is close to important wildlife habitat and protected lands that support large numbers of birds. The report indicated that the proposed turbine sites presented a "relatively high risk to various types of birds."

Endangered Species Act

The piping plover (*Charadrius melodus*), federally listed threatened, currently nests on Wallops Island and the neighboring Assateague Island, Assawoman Island, and Metompkin Island, and occurs in these areas during migration. Plovers also occur on several other barrier islands south of Metompkin Island.

The red knot (*Calidris canutus rufa*), a Federal candidate, occurs on the Virginia barrier islands during migration. Chincoteague NWR and other barrier islands in Virginia provide a stopover site and important feeding areas for the red knot. Candidate species are those being considered for possible listing pursuant to the ESA. While these species are not legally protected pursuant to the ESA, the Service provides this information for consideration in your environmental review process and to encourage efforts to avoid adverse impacts to these species. Please coordinate with us regarding impacts to candidate species to avoid potential project modifications or delays if a candidate species is federally listed before the project is completed.

Pre-construction studies should be designed to inform the analysis of the likely effects of the action on listed species or their habitat. If a Federal agency is involved with the permitting, funding, or carrying out of the project, as in this case, and listed species may be adversely affected, initiation of formal consultation between that agency and the Service pursuant to Section 7 of the ESA is required. Such consultation would result in a biological opinion addressing the anticipated effects of the project to the listed species, and may authorize a limited level of incidental take. The Service looks forward to early continued coordination with NASA to determine what studies/evaluations may be needed to allow our agencies to fulfill our mutual responsibilities under the ESA.

Migratory Bird Treaty Act

All native migratory birds (e.g., waterfowl, shorebirds, passerines, hawks, owls, vultures, falcons) are afforded protection under the MBTA. The list of migratory birds can be found at 50 CFR 10.13. The MBTA provides that it is unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped,

Mr. Bundick

4

exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. While the MBTA has no provision for allowing unauthorized take, we recognize that some birds may be killed at structures such as wind turbines even if all reasonable measures to avoid it are implemented.

The Service's Migratory Bird Program promotes bird conservation and has developed guidelines to assist individuals and organizations to comply with the MBTA. While it is not possible under the MBTA to absolve individuals, companies, or agencies from liability (even if they implement mortality avoidance or similar conservation measures), the Office of Law Enforcement has used enforcement and prosecutorial discretion in the past regarding individuals, companies, or agencies who have made good faith efforts to avoid the take of migratory birds.

In addition, Executive Order 13186 entitled, Responsibilities of Federal Agencies to Protect Migratory Birds (FR Vol. 66, No. 11, Jan. 17, 2001) states in part that federal agencies shall:

- o support the conservation intent of the migratory bird conventions by integrating bird conservation principles, measures, and practices into agency activities and by avoiding or minimizing, to the extent practicable, adverse impacts on migratory bird resources when conducting agency actions;
- o restore and enhance the habitat of migratory birds, as practicable.

Bald and Golden Eagle Protection Act

The bald eagle (*Haliaeetus leucocephalus*) and the golden eagle (*Aquila chrysaetos*) are likely to migrate through this area based on records from nearby hawk watch sites in Kiptopeke, Virginia, and Cape Helopen, Delaware. The bald eagle was removed from the Federal List of Endangered and Threatened Wildlife, effective August 8, 2007; however, both the bald eagle and golden eagle are protected by the MBTA and the BGEPA. The BGEPA prohibits the taking of bald and golden eagles or their nests and eggs. Under the BGEPA, taking is defined as "to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest or disturb."

Specific Comments on Draft Avian & Bat Study Plan

- We recommend that the project sponsor provide a detailed description of all survey methods selected for this site to our office for review. We also recommend that all studies be completed and data analyzed prior to the release of a Draft Environmental Assessment.
- In order to determine the potential collision-hazard for a particular site, the spatial and temporal uses of the airspace by birds and bats needs to be defined during a multi-year period. This can best be accomplished by using remote sensing technology (radar, acoustic, and infrared monitoring) to collect data in various spatial and temporal scales (day and night, season to season, and year to year). For this project site, we recommend that a combination of acoustic monitoring and vertical and horizontal beam radar be used at night during both the spring and fall migration period to account for all birds and bats

Mr. Bundick

5

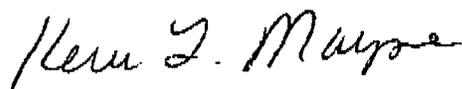
moving through the site. Recommended monitoring time periods for avian species is from April-May and September- October. Bats should be monitored from June through October. Visual observation of eagles and raptors should occur from August through early December. Information collected from the radar study should include flight direction, altitude, and migration passage rates. This technology will give accurate data on whether individuals are moving through the rotor swept area of the proposed turbines.

- Bat detectors should be placed up as high as possible, for example, on one or more of the launch structures. If bats are migrating through the area they are likely to investigate such tall, tree-like structures.
- The guidance recommends three years of data as a standard for determining the presence and/or magnitude of bird and bat migration in areas of high seasonal concentrations. We believe risk at this site is sufficiently high to warrant three years of data collection.
- Survey results should be submitted to us for review and comment, along with proposed project-specific avoidance and minimization methods to reduce the risk of bat and bird mortality.

We commend NASA's efforts to develop renewable energy sources for the Wallops facility. We are concerned, however, about the potential impacts of turbines on protected species and trust resources. Such structures are known to have significant impacts on wildlife, including these protected species. The proposed location of the structures on a barrier island within an internationally important bird migration corridor potentially exacerbates potential impacts in this case. For these reasons, we recommend that NASA consider and further develop alternatives to the proposed two turbines. These alternatives should include your previous consideration of solar, but also consider other means of electrical generation and/or implementing or developing wind turbines that effectively reduce impacts to avian species and bats. The Service looks forward to working with NASA to develop a project that meets NASA's renewable energy goals while protecting the significant migratory bird resources of the Delmarva barrier system.

If you have any questions, please contact Kimberly Smith of this office at (804) 693-6694, extension 126.

Sincerely,



Karen L. Mayne
Supervisor
Virginia Field Office

cc: Chincoteague National Wildlife Refuge (Lou Hinds)



COMMONWEALTH of VIRGINIA

L. Preston Bryant, Jr.
Secretary of Natural Resources

Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

July 3, 2008

Joshua A. Bundick
NEPA Program Manager
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

RE: WFF Alternative Energy Plan
& Wind Energy Avian and
Bat Study Plan.

Dear Mr. Bundick:

Thank you for the opportunity to comment on the NASA Wallops Flight Facility (WFF) Alternative Energy Plan and the Wind Energy Avian & Bat Study Plan. The Department of Game and Inland Fisheries (DGIF), as the Commonwealth's wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over those resources, inclusive of state or federally endangered or threatened species, but excluding listed insects. We are a consulting agency under the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), and we provide environmental analysis of projects or permit applications coordinated through the Virginia Department of Environmental Quality (DEQ), the Virginia Marine Resources Commission, the Virginia Department of Transportation, the U. S. Army Corps of Engineers, the Federal Energy Regulatory Commission, and other state or federal agencies. Our role in these procedures is to determine likely impacts upon fish and wildlife resources and habitats, and to recommend appropriate measures to avoid, reduce, or compensate for those impacts.

As outlined in the April 23, 2008 letter to Ruth Boettcher (VDGIF Wildlife Diversity Biologist), NASA Wallops Flight Facility is reviewing two alternative energy options and proposes to conduct avian and bat studies to further define and quantify potential impacts before selecting an option. As follow-up, WFF has developed a Wind Energy Avian & Bat Study Plan. As part of this plan, WFF "is proactively seeking input from federal and state agency personnel and interested non-governmental stakeholders regarding pre-construction and post-construction assessments of potential impacts to birds and bats." We appreciate WFF involving "stake holders" early in the decision making process and look forward to working with all interested parties. In addition to the material provided,

Mr. Joshua A. Bundick
July 3, 2008
Page 2

we reference the U.S. Fish and Wildlife Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines (2003) in providing comments for your consideration.

As part of the pre-construction assessment, WFF contracted a Phase I Avian Risk Assessment with Curry & Kerlinger, L.L.C. In reviewing this assessment and in light of the high bat fatalities occurring at wind facilities in the east, the VDGIF believes that Alternative One (wind turbines) will result in the take of birds, bats, and potentially state and/or federally listed species as well as the loss of wetland habitat. Alternative Two (solar panels), while requiring a larger area, will utilize existing rooftops thus reducing the impact to wildlife resources through loss of upland habitat. In addition, the use of solar panels will not likely involve the actual "take" of wildlife. Therefore, a more complete evaluation of Alternative Two (solar panels) should be performed.

As noted in the draft Phase I Avian Risk Assessment for the James Madison University-NASA Wind Power Project, Wallops Island, Accomack County, Virginia (Kerlinger 2004), "the two project sites will have significant bird use," that may "involve Section 7 ESA consultation." In the Executive Summary Kerlinger states "The birds that nest, migrate and make stopovers in the adjacent habitats, and wintering birds are very diverse and numerous, indicating that the general area is a very important area for birds. Extraordinarily large numbers of migrating raptors, waterfowl, shorebirds, other waterbirds, and songbirds migrate through the general, as well as winter in the area. Nearby there is a globally significant flightline for fall migrating Peregrine Falcons, Merlins, and some other species. The area is known for its waterfowl and shorebird migrations, which classify as world class. The migrations of these species are the reason so many national and state wildlife management areas, wildlife refuges, and even a national seashore are present nearby acting as ecological magnets for these species. Together these facts strongly suggest that the two project sites will have significant bird use." Kerlinger further recommends "Meet with the U.S. Fish and Wildlife Service...Such a meeting would involve potential Section 7 ESA consultation and a discussion of the expected scope of work."

While there is little information on bat use and movements through this area, anecdotal information suggest this may be a migration corridor. The presence of tree bats (hoary, red, and silver-haired) on the Bay Bridge Tunnel as well as flocks of bats landing on vessels off the Atlantic Coast suggests the coast may be used as a migration corridor. In addition, wind facilities in the east are recording the highest bat fatalities in the world. While these facilities are primarily located on mountain tops, high fatality rates have been documented from Tennessee, West Virginia, Pennsylvania, New York, and over to Quebec. The wind facilities in Quebec are located in flat agricultural fields away from mountains and apparent bat habitat.

The first three recommendations under the "Site Development Recommendations" in the USFWS guidance document recommend avoidance of sites similar to Wallops Island. Recommendation 1 states, "Avoid placing turbines in documented locations of any

species of wildlife, fish, or plant protected under the Federal Endangered Species Act.” Recommendation 2 states, “Avoid locating turbines in known local bird migration pathways or in areas where birds are likely concentrated, unless mortality risk is low (e.g., birds present rarely enter the rotor-swept area). Recommendation 3 states, “Avoid placing turbines near known hibernation, breeding, and maternity nursery colonies, in migration corridors, or in flight paths between colonies and feeding areas. As documented in the Phase I Avian Assessment, the WFF site meets all three of these criteria.

While the issues above demonstrate that Alternative One is a high risk alternative and will result in take of birds, bats, and potentially state and/or federally listed species, the degree to which take will occur is not quantified. Because the WFF site will have significant bird use and likely bat use, any pre or post-construction studies should focus on determining the level of use by taxa and factors that influence use including, but not limited to temporal variation and meteorological data. These data will be helpful in selecting an alternative and developing mitigation strategies to avoid or minimize impacts to wildlife. To this end the VDGIF offers the following comments and recommendations concerning the Wind Energy Avian and Bat Study Plan.

General Comments:

The VDGIF recommends that WFF reference the USFWS Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines in assessing the two alternative energy options. If WFF selects Alternative One as their energy option, the VDGIF recommends that WFF consult with both state and federal regulatory agencies that govern the take of wildlife early in the decision making process. Under both state and federal laws, the take of birds and/or bats is prohibited unless specifically permitted.

Overall we find the study plan lacks sufficient detail in order to provide appropriate comments. While the plan provides primary objectives and general approaches to objectives, it fails to provide the methodology that will be used to achieve these objectives. For example, the first objective of the avian study plan includes inventory of habitat, but no methods for inventorying habitat are provided. As part of the second objective, nesting activity is to be identified in the vicinity of the development site. Again, it is unclear as to the methods that will be used to address this objective? Under the “field investigations,” point counts appear to be the method to achieve this objective with “Nests of rare, threatened or endangered species...located (approximately) and mapped with a Global Positioning System unit.” The use of point counts as a method for finding nests is at best atypical, if not impractical to achieve this objective as point counts are typically “fixed points.” In lieu of the methodology to be used to address objectives, we provide the following comments and look forward to seeing a more detailed proposal that includes the methods for achieving the stated objectives.

Specific Comments:

Page 1, paragraph 1: “NASA currently plans to build one wind turbine in early 2010, assess its performance and subsequently install a second similar wind turbine at a later date.”

Comment: This statement appears to contradict the statement in the April 23, 2008 letter to Ruth Boettcher where it states “To further define and quantify potential impacts, WFF will perform avian and bat studies and complete the EA prior to selecting an alternative energy option.” If the statement on page one is correct and a wind turbine will be built in 2010 followed by a second turbine, then it appears that an alternative energy option has already been chosen and avian and bat studies designed to help select an energy option is a moot point. If this is true, then avian and bat studies should be designed to gather data that will minimize and mitigate for take of birds and bats. These studies should be geared to quantify bird and bat use in the rotor swept area along with meteorological conditions associated with use.

Page 4, Existing Avian and Bat Baseline Information: NASA is “...closely monitoring the post-construction monitoring effort underway at the New Jersey Board of Public Utilities 5-turbine installation in Atlantic City, NJ. This wind energy facility uses wind turbines that are very similar to those that NASA is proposing and the project is also on a coastal site with many site characteristics that are similar to NASA’s. The New Jersey Audubon Society recently prepared a draft report of the post-construction monitoring conducted from July-December 2007 and NASA and its contractors will analyze the results.”

Comment: The review of avian studies in the US (Appendix IV) emphasized facilities with site characteristics that are not comparable (e.g., rangeland/farmland/agricultural, forested ridge/strip mine mountain, and desert) to the site characteristics of the WFF site. We would like a copy of the New Jersey Audubon Society’s post-construction monitoring report for the installation in Atlantic City, NJ, for review.

Page 4, Avian Field Studies: “The proposed pre-construction avian field study will be performed in the 12-month period commencing July 1, 2008 and ending June 30, 2009.”

Comment: While a single year of data will provide greater insight into bird and bat activity at the proposed site, the greatest threat for take will likely occur as birds and bats pass through the site. Because of temporal variation, the use of this air space will be difficult to quantify with one year of data. The USFWS Interim Guidance recommends “High seasonal concentrations of birds may cause problems in some areas. If, however, power generation is critical in these areas, an average of three years monitoring data (e.g., acoustic, radar, infrared, or observational) should be collected and used to determine peak use dates for specific sites.”

Page 5, Item 4: “There is currently no plan to study nocturnal avian migration with radars, given the small number...”

Comment: While the lack of site specific monitoring for nocturnal migrants will make it difficult at best to determine potential risk to nocturnal species, recent radar studies on the Eastern Shore (Mabey et. al. 2007, Watts et. al. 2007) may provide some insight into potential risk.

Page 6, 5.0 Bat Field Studies: “The intended study plan is to record observations over an eight-week period between mid-July and mid-September 2008 when both resident and migrant bat activity can best be witnessed.”

Comment: Acoustical bat data should be collected from April 1 through October 30 and preferably over multiple years. Because so little is known about bat use and migration along the coast a minimum of one full season of data collection is warranted. These data will help identify key activity periods where mitigation measures can be applied.

Ibid: “NASA also considered installing the recorders at the US Navy building “mast” tower, located just east of the northern-most turbine, at a height of approximately 170 feet above ground level.”

Comment: If still feasible, recorders should be placed on the US Navy building “mast” tower as this will sample activity closest to the rotor swept area.

Ibid: “...and a second recorder will be located below vegetative canopy height in the same location.”

Comment: Unless there is an objective to correlate below canopy activity with either rotor swept activity or fatality rates, the second recorder (below canopy level) is not necessary. The important data will be activity in the rotor swept area and not activity below the canopy. We recommend that in place of “below canopy recorders,” additional recorders be placed to quantify activity in the rotor swept area.

Page 6; 6.0 Mitigation and Post-Construction Monitoring: “After the avian/bat pre-construction study is completed, NASA will collaborate with federal and state wildlife regulatory agencies and involved stakeholders to develop an avian/bat mitigation and post-construction monitoring plan.”

Comment: This further implies that Alternative One has been chosen as the preferred energy plan and that any studies designed to assist in the selection of an option are moot. If Alternative One has already been selected, then because of the issues identified above including “... the general area is a very important area for birds. Extraordinarily large numbers ...migrate through...a globally significant flightline for fall migrating Peregrine Falcons, Merlins,...waterfowl and shorebird migrations, which classify as world class...the two project sites will have significant bird use” we recommend that initial discussions concerning the development of the mitigation and post-construction

Mr. Joshua A. Bundick
July 3, 2008
Page 6

monitoring plan not wait for the pre-construction study. Issues such as potential take of state and/or federally listed species, mitigation measures, etc. can be addressed without the pre-construction data.

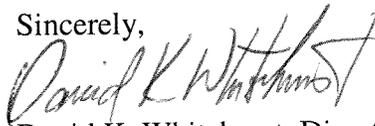
Page 7; first paragraph: “The study protocol for these mortality surveys will be developed with input from the regulatory agencies and stakeholder groups to ensure that proper methods...”

Comment: We welcome the opportunity to work with all interested parties in developing post-construction monitoring and mitigation strategies.

We support the use of alternative energy sources, including wind energy. However, we feel the full impacts of such alternatives upon wildlife must be assessed. Once again, we encourage a more complete evaluation of solar panels and other potential alternative energy sources be performed. Potential adverse impacts should be avoided and minimized where possible. This should be through proper siting of power generating facilities and use of the best available technology. For those impacts that are unavoidable, appropriate mitigation should be implemented.

Thank you for the opportunity to comment on the alternative energy proposal and bird and bat study plan. Please contact Ernie Aschenbach (telephone (804) 367-2733) if we can be of further assistance.

Sincerely,



David K. Whitehurst, Director
Wildlife Diversity Division

cc: Kim Smith, USFWS
Rene Hypes, VDCR-DNH

Literature cited

- Kerlinger, P. 2004. Draft phase I avian risk assessment for the James Madison University-NASA wind power project, Wallops Island, Accomack County, Virginia. Prepared for NASA Wallops Flight Facility. 52pp.
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COMMONWEALTH of VIRGINIA

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Secretary of Natural Resources

Department of Game and Inland Fisheries

Robert W. Duncan
Executive Director

April 29, 2009

Joshua A. Bundick
NEPA Program Manager
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337-5099

RE: WFF Alternative Energy
Project Final Avian and Bat
Study Plan.

Dear Mr. Bundick:

Thank you for the copy of the "Wallops Flight Facility Alternative Energy Project: Final Wind Energy Avian & Bat Study Plan" (Final Plan). As stated in our comments dated July 3, 2008 (attached), we felt the original study plan "lacked sufficient detail in order to provide appropriate comments" and that we "look forward to seeing a more detailed proposal that includes the methods for achieving the stated objectives" for our review. While the Final Plan provides greater detail on fatality searches at existing towers, the overall plan continues to lack sufficient detail to understand sampling protocols and determine how risk assessment will be based on the proposed sampling effort. Some of the objectives do not appear to have associated sampling protocols while the Bat Field Studies lack objectives altogether. The following comments elaborate on our concerns and provide recommendations to strengthen sampling efforts in order to gather the appropriate data needed to assess risks.

General Study Design

We presume the means for assessing risk will be the data from the sampling efforts that represent presence, absence, and activity of species in the study area. In order to effectively determine these parameters, sampling efforts need to have a certain precision in their ability to detect a species. Typically, study designs are based on site specific pilot efforts or local studies that provide variance on the sample data. The variance in these data is the basis for determining sample sizes that can provide the precision to predict a certain event or occurrence; in this case the presence, absence, or probability of a species occurring within the study area. In both plans the degree of precision to which the

sampling efforts can or cannot predict bat and avian activity in order to assess risk is not clear. This will be important in assessing both general wildlife risk and risk to state and federally listed species such as peregrine falcons and piping plovers. In addition, the ability to assess risk should incorporate environmental co-variants (tides, seasons, time of day, annual variation, prey, etc.) that influence species occurrence. We are greatly concerned that the reduction in sampling effort for avian field observations, lack of sampling for environmental co-variants, short sample period for bats, and lack of pre-data will lead to a Type II Error (concluding no impact when in fact impact does exist, i.e., a false negative) (NWCC 1999). In addition, and in light of the Phase I Avian Risk Assessment (Kerlinger 2004), the recent report from the Jersey Atlantic Wind Power Facility (New Jersey Audubon Society 2008), and comments from VDGIF (July 3, 2008) and the U.S. Fish and Wildlife Service (July 8, 2008), we believe the Final Plan should include species specific studies to determine risk for state and federally listed species.

Recommendation: Coordinate with VDGIF, U.S. Fish and Wildlife Service, The Nature Conservancy, and The Center for Conservation Biology at The College of William and Mary to identify existing data and design pilot studies that will provide baseline data to develop appropriate studies to address risk assessment where data gaps exist. This should include specific efforts to address state and federally listed species. Consult with a biostatistician to help design studies that increase the precision of the sampling efforts.

Study Duration

Because site specific data derived from pre-construction surveys will be the basis for determining risk, we find the proposed duration of the study to be inadequate for both birds and bats. Due to the biological importance of this area and the current findings from the post-construction monitoring at the Jersey Atlantic Wind Power Facility (New Jersey Audubon Society 2008), and Casselman Wind-Energy Study (E.B. Arnett, Bat Conservation International, unpublished data), the duration of the proposed study plan, 1-year for birds and 8 weeks for bats, is insufficient to assess use and determine risk. In addition, the three major publications that provide guidance on assessing impacts of wind-energy development all recommend multi-year preconstruction surveys for areas with high biological significance.

Service Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines (USFWS 2003).

Page 4: "Turbine Design and Operation Recommendations:

5. High seasonal concentrations of birds may cause problems in some areas. If however, power generation is critical in these areas, an average of three years monitoring data (e.g., acoustic, radar, infrared, or observational) should be collected and used to determine peak use dates for specific sites. Where feasible, turbines should be shut down during periods when birds are highly concentrated at those sites."

Assessing Impacts of Wind-Energy Development on Nocturnally Active Birds and Bats: A Guidance Document (Kunz et. al. 2007).

Page 2462: “best strategy for assessing potential interaction between bats and wind turbines is to implement a long-term acoustic monitoring program, best conducted throughout an entire annual cycle (April through November in temperate North America) to account for all potential variables and ideally covering ≥ 3 years to assess both within-year and inter-annual variability.”

Environmental Impacts of Wind-Energy Projects (NRC 2007).

Chapter 3, Page 94: “Pre-Construction Studies: Conduct multi-year studies when appropriate to assess daily, seasonal and interannual variability of bird and bat populations.”

Recommendation: Due to the biological significance of this area and the potential risk for take of both state and federally listed species, we recommend a minimum of three years of pre-construction studies.

Specific Comments

It is not clear which field studies are designed to address a particular objective. Therefore, we have based our comments and recommendations on the following assumptions:

Avian Objective 1: Perform a pre-construction inventory of resident avian species and habitat in the vicinity of the proposed wind energy development site:

The revised Final Plan shows a significant reduction in time and effort to assess avian activity in the area without supporting documentation for the change. In the first draft the avian sampling effort included the following: “During nesting and winter seasons, as well as peak migration periods in both Fall 2008 and Spring 2009, biologists will conduct diurnal surveys of avian migration activity in the project vicinity. Observations will be conducted at a set of point count locations (likely 3-4 points) within and adjacent to the project development site to be visited three to four times per week for no less than four hours per day by a biologist to record avian activity.” In the revised Final Plan, the avian sampling effort is reduced to: “Throughout the 52-week period, biologists will visit both observation sites at least once per week for a minimum of 15 minutes per day at each location to record avian activity. These field surveys will be conducted in the morning between 7:00 am and 9:00 am.” While this effort is increased to twice per week during the migration seasons, the overall effort to assess avian activity is significantly reduced without explanation or justification. In a simple comparison, the sampling effort has been reduced from 12-16 hours/point/week to 15-30 min./point/week, and a reduction from 3-4 points to two. We are concerned that the probability of the revised survey will not be sufficient to detect species occurrence, especially for rare species and considering that the sampling effort is not based on pre-existing data.

This objective also states that habitat will be inventoried in the vicinity of the project site, but no mention is made in the methods on how the habitat will be assessed and quantified, which habitat parameters will be measured, and how much area will be inventoried (e.g., will it include adjacent beaches, marshes, and tidal flats?). Based on the lack of protocols, it is our interpretation that habitat will not be inventoried. This appears to be inconsistent with the stated objective.

Recommendation: To address this objective, work with VDGIF, U.S. Fish and Wildlife Service, The Nature Conservancy, and the Center for Conservation Biology at the College of William and Mary to identify existing data, design pilot studies that will provide baseline data, and to develop appropriate inventory studies that incorporate environmental co-variants and probability of detection. Develop appropriate sampling protocols to identify habitat for resident and migratory species. Consult with a biostatistician to help design studies that increase the precision of the sampling efforts.

Avian Objective 2: Identify pre-construction migratory, nesting, and winter avian activity, including use of stopover, resting, or feeding areas in the vicinity of the development site;

Part of this objective is to document the use of stopover, resting, or feeding areas in the vicinity of the development site; however, we were unable to identify protocols to achieve this objective other than through limited observations made from the U.S. Navy building mast tower. Based on the location of the mast tower as shown in Figures 2 and 4, this observation platform will probably offer good views of the beach (it should be noted, however, that the portion of beach closest to the mast tower is not suitable for birds because of the rock revetment that has caused the berm seaward of the rocks to erode away) and will enable observers to detect avian movement between the beach and the marsh, but views of potential nesting, resting and foraging areas in the marsh are likely to be obstructed by dense vegetation or obscured by distance. Even if key nesting, resting and feeding areas are successfully identified, the study plan includes no explanation on the level of data that will be collected at these sites to help characterize their relative importance throughout the annual cycle.

Recommendation: To address this objective, coordinate with VDGIF, U.S. Fish and Wildlife Service, The Nature Conservancy, and the Center for Conservation Biology at The College of William and Mary to identify existing data and develop appropriate surveys to sample these parameters.

Avian Objective 3: Assess potential risk from wind turbine operation to known avian species, primarily through pre-construction monitoring of avian mortality near existing tall structures on Wallops Island;

This objective appears to be the primary focus for assessing avian risk. The rationale for this effort is based on two sites where similar numbers of bird fatalities were observed between towers and turbines. While this is a plausible hypothesis, we have great concern

that an untested sampling effort would be the major tool for assessing risk. It should be noted that while similarities were noted at the two sites, this was not a hypothesis that was tested at these sites. Caution should be used in assuming that this approach will be predictive of fatality rates at wind turbines until it is tested, especially considering that the technique is based on a sample size of two. However, we do see where this information can be useful for refining post-construction fatality surveys and identifying local conditions that are conducive to tower collision mortality.

The Final Plan has no contingency to use radar as a tool to assess risk because “no more than two wind turbines may ultimately be installed, there is no accepted radar methodology for assessing avian risk, and there is a lack of conclusive evidence demonstrating a correlation between radar data and avian risk.” However, we do not believe these are legitimate reasons to exclude radar for the following reasons. It is not only the number of wind turbines that will determine the impact to wildlife. Wildlife impacts will be determined by a combination of variables including the number of turbines, ecological significance of the area, the species that will be impacted, and the probability of impact. Although the number of proposed turbines is small, the proposed site and species known from this area that can be impacted by these turbines is significant, including state and federally listed species. Though there is no accepted radar methodology for assessing risk, this can also be said for all sampling efforts used at wind facilities including point counts, visual observations, thermal infrared imaging, acoustic monitoring, as well as comparing fatality rates between towers and turbines. Because we lack standardized surveys, the guidance documents identified above all recommend the use of multiple strategies to best assess the species, activity, and potential risk at a site. Lastly, the reason there is a lack of conclusive evidence correlating radar data and avian risk is due to incomplete studies to test this hypothesis and not because the correlation does or does not exist. One of the objectives of the study at the Jersey Atlantic Wind Power Facility is to investigate correlations between mortality and flight dynamics using radar.

Recommendation: Employ a variety of survey methods that includes the use of radar. Long-range surveillance radar such as NEXRAD can provide information on stopover sites while marine radar can provide site specific information on passage rates and heights.

Bat Field Studies

Unlike the avian studies, there are no objectives defined for bat studies. In lieu of objectives, the Final Plan proposes installing acoustical detectors at three locations and sample for a period of eight weeks between July 28th and September 22nd with a lack of explanation and justification for the selected time period. As stated earlier, we believe this an insufficient time period to assess bat activity and potential risk. Because little to no work has been conducted on bat migration and movements on the coast, and because the Final Plan notes that “bats are typically present on Wallops Island from May to October,” it is important to conduct surveys for an entire annual cycle (April through

Mr. Joshua A. Bundick
April 29, 2009
Page 6

October) in order to understand activity and assess risk. Under the current sampling effort, risk can only be assessed for the sampling period of July 28th through September 22nd. In addition, new data from the Casselman study (Arnett, pers. comm.) demonstrates significant annual variation in bat activity supporting the need for multi-year surveys.

The bat studies include a field review of bat habitat conditions within the proposed project development site, but no protocols or methodology are presented to describe how this will be accomplished.

Recommendations: For the reasons identified above, acoustical surveys should be conducted for an entire cycle (April through October) for three years. Protocols for conducting "bat habitat conditions" should be developed with input from VDGIF and the U.S. Fish and Wildlife Service.

We support the use of alternative energy sources, including wind energy. However, we feel the full impacts of such alternatives upon wildlife must be assessed. Once again, we encourage a more complete evaluation of solar panels and other potential alternative energy sources be performed. Potential adverse impacts should be avoided and minimized where possible. This should be through proper siting of power generating facilities and use of the best available technology. For those impacts that are unavoidable, appropriate mitigation should be implemented.

Thank you for the opportunity to comment on the alternative energy proposal and bird and bat study plan. Please contact Ernie Aschenbach (telephone (804) 367-2733) if we can be of further assistance.

Sincerely,



Raymond T. Fernald, Manager
Environmental Services Section

cc: Kim Smith, USFWS
Rene Hypes, VDCR-DNH

Attachment.

Literature Cited

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COMMONWEALTH of VIRGINIA

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Director

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January 25, 2010

Mr. Randall M. Stanley
Facility Historic Preservation Officer
NASA / WFF FMB, Code 228
Building N-161, Room 127
Wallops Island, VA 23337

Re: Proposed Alternative Energy Program
NASA Wallops Flight Facility, Wallops Island, Accomack County
DHR File #: 2009-1883
Date Received: December 14, 2009

Dear Mr. Stanley:

We have received your request for our review and comment regarding the above referenced project. Unfortunately, at this time we are unable to make an informed decision concerning the effects of the proposed undertaking. We do not have the enough information needed to adequately evaluate the effects of the undertaking, specifically the lack of exact location and configuration of alternatives two and three.

If possible, in the future consultation please include additional photo simulations similar to Figure 5 but to scale to assist in our review of this undertaking.

Additionally, please seek comments of the National Park Service, specifically the Assateague Island National Seashore.

We will review the review the project again when an alternative is determined. If you have any questions about our comments, please contact me at: ron.grayson@dhr.virginia.gov or (804) 367-2323, Ext. 105.

Sincerely,

Ronald Grayson, RPA, Archaeologist
Office of Review and Compliance

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From: [Adam Duerr](#)
To: [Bundick, Joshua A. \(GSFC-250.0\)](#)
Cc: [Bryan Watts](#)
Subject: Wallops Island Alternative Energy Project
Date: Friday, May 16, 2008 1:56:03 PM

Joshua –

I wanted to get back to you regarding assessment of potential for impacts to birds and bats at the proposed Wallops Island Alternative Energy Project. First, following the logic that Dr. Kerlinger established, the physical setting of coastal Virginia and the extensive wetland habitats surrounding Wallops Island certainly suggests that there may be great risk of bird strikes in this environment. Bird use of coastal Virginia varies greatly by season, with extensive use by a wide variety of taxonomic groups during spring and fall migration including shorebirds, secretive marsh birds, passerines, raptors, colonial waterbirds, and waterfowl. Additionally, different suites of species use this area during summer breeding and winter seasons. Because of the high biodiversity of species using the Virginia Barrier Island and Lagoon systems, this area has been designated an Important Bird Area for Virginia and has been accepted as an international IBA. Some of the sensitive and/or endangered species of birds that use or may use the specific project site include Roseate Terns, Piping Plovers, and Black Terns.

I believe that monitoring beyond the proposed 5 consecutive days of diurnal point counts is warranted so that species that use the area and therefore might be at risk can be identified. Because of the seasonal variability of use by birds, monitoring should be done throughout the year. As I suggested at the meeting, sampling to capture temporal variation in numbers and diversity of species cannot be completed in the time allotted before proposed construction of this facility in 2009. Therefore, I suggest sampling at areas beyond the immediate construction location to capture spatial variation. Such spatial variation may reflect temporal variation that can be expected at the proposed site.

In addition to expanded point counts, nighttime work should also be completed to quantify numbers of birds and bats that use or move through the proposed site and neighboring areas. Such night work should include use of radar to identify both the number of individuals moving through the area as well as characteristics of such movements. That is, radar studies can be implemented to determine the height above land that birds move through wetland and coastal habitats at the proposed and similar sites. Data on height of movements should further elucidate the potential risk that birds and bats face if this project is constructed.

The nighttime monitoring by radar should also be coupled with nocturnal surveys for birds and bats so that relative proportions and thus numbers of these species can be quantified. This will provide additional information to assess the overall risk to sensitive species that

may use the site. Such surveys should be completed while keeping in mind that all species cannot be detected at night. Therefore, the diurnal surveys described above must be integrated into this overall monitoring scheme to fully describe those species using or moving through the area. By combining radar with nocturnal and diurnal surveys, a comprehensive picture of bird and bat use of the site and the potential risk that the wind-power project poses to these species can be developed. Only after such surveys have been completed can the potential impacts of this project be fully assessed.

If you have any questions about my recommendations, please feel free to contact me.

Sincerely,

Adam Duerr

Adam E. Duerr, Ph.D.

The Center for Conservation Biology

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