

Appendix F
Comments on the Draft EA

Comments Received from Federal Agencies



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

April 12, 2010

Joshua Bundick
WFF NEPA Manager
National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

Re: Draft Environmental Assessment (DEA) - Wallops Flight Facility Alternative Energy Project, Wallops Island, Virginia, March 2010

Dear Mr. Bundick:

In accordance with the National Environmental Policy Act (NEPA) of 1969, the U.S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Assessment (DEA) for the Wallops Flight Facility (WFF) Alternative Energy Project. The proposed action involves the construction of alternative energy sources on WFF property. The preferred alternative involves the construction of two 2.0 MW, utility-scale wind turbines and up to five 2.4 kW, residential scale wind turbines in order to generate 10 GWh of electricity per year. Based on review of the DEA, EPA recommends that NASA not proceed with the stated preferred alternative, and suggests additional investigation and planning.

The DEA examines three alternatives as well as the required No Action Alternative, in which no alternative energy projects would be constructed at WFF. The action alternatives are: the Preferred Alternative, in which two 2.0 MW wind turbines would be constructed on Wallops Island, and up to five 2.4 kW wind turbines would be constructed at the Main Base and Mainland; Alternative One involves the construction of one 2.0 MW wind turbine on Wallops island, up to five 2.4 kW wind turbines at the Main Base and Mainland, and installing solar panels capable of generating 5 GWh/year; Alternative Two involves installing up to five 2.4 kW wind turbines at the Main Base and Mainland, and a solar panel system capable of generating 10 GWh/year. The Preferred Alternative has the greatest amount of adverse environmental impacts, resulting in the filling of 0.895 acres of tidal wetlands, essential fish habitat, potential impacts on birds and bats, and effects on threatened and endangered species.

EPA encourages NASA to consider Alternative Two as their preferred alternative, which meets the needs of project and has fewer adverse impacts. Should NASA choose to continue to develop their currently proposed preferred alternative, EPA would strongly advise additional study. This could be done through preparation of an Environmental Impact Statement (EIS), which could provide additional alternatives for detailed analysis and a substantive study of



impacts. Alternately, a supplemental study to the EA could be completed, after which, the potential for significant impacts (and the need for an EIS) could be determined. Of particular concern is evaluation of impacts along the migratory bird corridor. A study to comply with recommendations from the US Fish and Wildlife Service (FWS) should be completed to allow collection and evaluation of appropriate data. While the desire to reduce greenhouse gas emissions is a worthy goal, it would be unfortunate that other environmental resources should be lost in order to accomplish this, particularly when alternatives exist.

The need for the proposed action is to meet requirements set in the 2005 Federal Energy Policy Act and EOs 13423 and 13514, and to reduce greenhouse gas emissions by reducing the fossil fuels to generate electricity, while also reducing WFF's annual operating costs. Based on information provided in the DEA, the purpose and need does not clearly define why an alternative energy project is needed, and thus why the wind turbines in the preferred alternative should be installed. An alternatives analysis should describe how each alternative addresses the needs of the proposed action. Without a clear purpose and need statement, analysis of alternatives is difficult. We recommend that the 1.5 MW wind turbine be carried forward for detailed environmental analysis and evaluation, since it is a viable alternative that meets the needs of the project. Additionally, the DEA lacks sufficient detail on the proposed locations of the 2.4 kW wind turbines, and clarification is needed. Specific comments associated with the issues are presented in the Detailed Comments included as an attachment to this letter.

EPA is concerned about the placement of utility scale wind turbines within intertidal wetlands. Avoidance and minimization of impacts to aquatic resources should be more fully considered, as required under the CWA Section 404 (b) (1) Guidelines. Alternative Two would not involve the filling of any wetlands in the construction of the proposed solar panels, as such could be identified as the Least Environmentally Damaging Practicable Alternative. It would be appropriate for the EA to supply or reference additional information about wetlands at the proposed preferred alternative location including total acreage, size, type, protections, previous mitigation sites and functional assessments of the proposed impact areas. If a comprehensive inventory and assessment of wetlands has been prepared, as stated in the document, it should be included, particularly in relation to cumulative impacts. If impacts to wetlands are determined to be unavoidable, more information will be needed regarding area of proposed compensatory mitigation. Cumulative impacts to resources, both historical and with proposed and foreseeable future projects, should be considered, in a longer timeframe and more detail than the DEA discussion. This will assist in understanding stresses to the natural environment, prioritize avoidance and help identify comprehensive mitigation that would be beneficial to water quality and habitat on the island and mainland. Recommendations for evaluation of cumulative impacts are included in the attached Detailed Comments.

EPA is also concerned about potential impacts to birds and bats within the surrounding area. WFF is in very close proximity to a nationally recognized bird migration pathway as well as an Important Bird Area, and is neighbored by Chincoteague National Wildlife Refuge, which provides habitat for migratory birds. We recommend that impact studies to birds and bats be conducted in accordance to FWS instruction and guidance. Based on information found in Appendix G, FWS and the State gave recommendations on how impact studies should be



conducted and guidelines for avoiding impacts. Studies conducted by NASA went against these recommendations and are not adequate to determine the potential adverse affects to wildlife.

EPA cannot adequately assess the effects of the proposed undertaking on cultural resources since the location of the residential-scale wind turbine component and the exact location and configuration of the solar panel component has not been defined. In addition, there are 80 unevaluated resources within the area of potential effect (APE), 13 of which are over 50 years of age which are subject to Section 106 review. Since construction of the proposed wind turbines could have an adverse effect on the yet-to-be identified NRHP-eligible resources, a thorough evaluation of impact cannot be complete until resources are evaluated. Comments specific to the Draft EA can be found in an attachment to this letter. A review of Environmental Justice (EJ) portion of the document was completed by EPA's Regional Environmental Justice Coordinator, and comments provided in the enclosed attachment.

Please consider the issues, questions and comments included in this letter and attachment. We would appreciate the opportunity to discuss the comments at your convenience. We recommend that, as issues overlap agencies, it would be beneficial to meet jointly with the other agencies involved. Thank you for allowing EPA with the opportunity to review and comment on the DEA. If you have questions regarding these comments, the staff contact for this project is Ms. Barbara Rudnick; she can be reached at 215-814-3322 or Rudnick.barbara@epa.gov.

Sincerely,



Jeffery D. Lapp
Associate Director
Office of Environmental Programs

Attachment



Detailed Comments

Purpose and Need, Alternatives Analysis

- The need for the action should identify and describe the underlying problem or deficiency; and facts and analyses should support and describe the problem. The analysis should explain why the need for action for this particular location at this particular time. The purpose should be defined in relationship to addressing the need for action. The project need should support the desired 10 GWh/yr generation capacity for this project, and explain how this capacity was reached. What is the future projected annual electricity and cost? And how much results from expanding operations at WFF? Provide information on the potential consequences, if any, of not increasing renewable energy at WFF, with respect to NASA as a whole and in terms of sited regulations and EOs. **#20**
- Multiple times throughout the document ‘residential scale’ turbines are stated to be placed on the Mainland and Main Base, showing possible locations on Figure 4. Yet, Section Three for the Affected Environment states that “the Proposed Action activities that could affect the environment would take place on Wallops Island and the Main Base, and not on Wallops Mainland, this section does not provide a comprehensive description of conditions... for Wallops Mainland.” It appears that a proposed location for one of the residential scale turbines is in fact on the Mainland, and the Mainland should be evaluated and described in detail in Section Three Affected Environment. The rationale for the inclusion of the five 2.4 kW turbines in the alternatives should be explained since they do not contribute a significant amount of power, and power generation goals are met without their inclusion in any of the alternatives. **#21**
- As the EA states that small turbines are to be used for educational purposes, please describe the intended outreach, educational programs and viewing area. It would be helpful if an accurate map showing the potential locations of all five proposed residential scale turbines was included in the DEA. **#22**
- Initial considerations for the proposed project involved the construction of 1.5 MW wind turbines, which met the goals of the project. Although it was eliminated from a detailed analysis, the 1.5 MW turbines were similar in design, configuration and cost to the 2.0 MW turbines. However, no discussions on potential environmental impacts from these smaller turbines were included. We recommend that the 1.5 MW wind turbine be carried forward for detailed environmental analysis and evaluation, since it is a viable alternative that meets the needs of the project. Without undergoing this analysis, it can not be assumed that the 1.5 MW and 2.0 MW turbines are interchangeable. **#23**
- It is also unclear why alternative renewable energy, such as turbines, could not be developed elsewhere, but contributes to the power grid effectively, to avoid or minimize environmental impacts. **#24**
- **#25**



Environmental Impacts

Wetlands/Cumulative impacts

- Please explain why the same wetlands criterion was not used for siting both utility and residential scale turbines. #26
- For mitigation, it would be appropriate to describe the location, current community composition, current ecosystem type, and connection to hydrology of proposed mitigation. It would also be appropriate to look at mitigation of the multiple projects being proposed by NASA and prepare comprehensive mitigation. #27
- Clarify whether the proposed mitigation involves the creation of wetlands on uplands, or is a modification/enhancement of existing wetlands on WFF property. Please discuss the timing of compensatory mitigation with respect to the timing of impacts. The inclusion of the referenced NASA, 2009a Wetland Delineation would be helpful as an appendix to the DEA. Official correspondence with the Army Corps of Engineers confirming the delineation should also be included. #28
- The EA mentions that “NASA is currently preparing a wetlands inventory and assessment for WFF. The goal of this effort is to provide strategic regulatory, environmental, and land use analysis of all wetlands on the Main Base, Wallops Mainland, and Wallops Island in order to develop a comprehensive long-term wetland management plan for the facility.” This investigation should be part of the NEPA documentation being prepared for the WFF. This should be reviewed and coordinated with agencies responsible for providing expertise and support to NASA on issues of wetlands and Waters of the US. #29
- EPA recommends a thorough evaluation of the resources, particularly aquatic, bird and bat population, their historic baseline and cumulative impacts. A historic baseline is often set at a major event changing the local environment. In the case of WFF, this could be the start of the facility in the 1940’s. Analysis of the trend of the value and quantity of the resources of interest should be developed and considered as part of cumulative impacts. #30
- The EA does provide a summary of information on foreseeable projects and four historical projects, from the past 13 years, mostly attempting to quantify affected resources. CEQ and EPA guidance on preparation and review of Cumulative Effects Analysis (CEQ, January 1997, Considering Cumulative Effects and EPA, May 1999, Consideration of Cumulative Impacts in EPA Review of NEPA Documents) states that the document should present analysis of lost value from the loss of resources, over time and projected into the future. #31

Other impacts

- How would major storms, nor’easters and floods affect the proposed action? How will potential impacts from sea level rise impact the proposed action? Please discuss facility adaptation, such as is directed by CEQ draft NEPA guidance (2010) on Considerations of the Effects of Climate Change and Greenhouse Gas Emissions. #32

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| Please discuss potential impacts from staging areas. Describe the vegetation/habitat that is currently found in the staging areas. | #33 |
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| Clarify how the installation solar panels adversely affect land use characteristics. How were impacts associated with panels determined to be long term and adverse? Describe the shallow excavation activities required for the construction of solar panels. Will panels be accessed by using existing infrastructure or will new access roads be constructed? | #34 |
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| More clearly describe the above ground non-turbine components of the proposed projects, including switch gears, lines, etc. Discuss the impacts from these components. | #35 |
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| The Draft EA states that local construction crews would be used during the construction process. Have any local contractors who have the specialized expertise in installing wind turbines been identified? | #36 |
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| A discussion of the timing and schedule for construction would be helpful to include in the DEA. Will any time of year/seasonal restrictions be placed to reduce impact to area wildlife? | #37 |
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| Discuss road closures expected to result from the project, how these closures will affect local populations, and how these closures could potentially impact hurricane evacuation routes? Has any coordination occurred with Accomack County, local police, or VDTARO? Please include these letters in appendix G. | #38 |
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| Explain how viewshed vantage points were selected and how the use of five different points to characterize the aesthetics is supported. Explain how this analysis was conducted. Visible wind turbines should be analyzed to determine if the viewshed would be affected, without the proper analysis affects on the viewshed should not be assumed. Potential impacts resulting from the installation of residential scale turbines should also be examined. It was assumed in the DEA that these turbines would not have an affect on aesthetics, although no supporting analysis was given, nor was an exact location of the turbines given. Potential impacts to aesthetic viewsheds to users of local fisheries and recreational boaters should be included. | #39 |
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| What is the impact of shadow flickering on wildlife? The document discusses potential impacts of this effect on WFF employees, but does not discuss how wildlife will be affected. | #40 |
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| Groundwater, MECs, and health and safety were determined by NASA to have no impacts and analysis of these resources was not included in the DEA. Without the proper analysis being included in the document, it should not be assumed no impact will occur. A discussion of groundwater resources and known contaminants, and known locations of MECs should be included in the DEA. This should also include any history of known Superfund sites and activities at WFF. | #41 |
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Environmental Justice Comments

- The EJ assessment should assure the protection and appropriate level of consideration for the potential adverse impacts that may have an effect on minority and low income populations living in the area near the site. The document should identify where such populations are located, and what potential impacts may occur. #42
- A definition of a minority community can be found on page 78 of the DEA. An exact definition of what constitutes a minority has not been released by EPA or the EJ Coordinators, this definition is inaccurate. We recommend, along with the removal of this statement, that minority and low income populations be compared to state and local demographics, defining minority and low income populations in relation to the state, county or local averages. More comprehensive demographic information regarding the minority and low-income populations of each community should be supplied along with maps highlighting the localization of those communities in relation to the site and any and all work that will be conducted. #43
- Please describe the efforts to ensure the protection of minority and low-income populations. Describe which communities were identified as potential EJ concern and how these populations are being involved through outreach in the decision making process. #44
- Residential displacements are not the only concern that should have been taken into consideration for potential EJ issues. Describe what other types of impacts were considered and include them in the DEA. Potential concerns that were not included may be noise, air and water quality issues, changes in employment opportunities, and subsistence fishing impacts. #45

Cultural Resource Detailed Comments

- Page 80 of the Draft EA, states that in 2003 a *Cultural Resources Assessment of Wallops Flight Facility, Accomack County, Virginia* (CRA) was conducted. The study focused on aboveground resources at WFF and "...the CRA established a predictive model for understanding the archaeological potential over the entire WFF property. "...VDHR accepted the predictive model for archaeology at WFF, noting that many of the areas with moderate to high archaeological potential are unlikely to be disturbed by future construction or site use (NASA, 2003b)." The Final EA should provide information supporting the VDHR conclusion that potential archaeological areas would unlikely be disturbed by future construction or site use. This is a definitive statement that most likely describes the potential archaeological areas that would not likely be affected by construction or use even without knowing future actions. Detailed information would be helpful in understanding the area and the derivative of this conclusion by VDHR. #46
- In addition, a letter from VDHR dated December 4, 2003 is referenced stating their concurrence with the findings of the CRA. A copy of the letter from VDHR should be provided in the Appendix. It would also be helpful to include the *Cultural Resources* #47

Assessment for Wallops Flight Facility in the Appendix of the Final EA or EIS since this document serves as the baseline for identifying potential archaeological resources.

#47

- Page 80 states that an *Historic Resources Survey and Eligibility Report for Wallops Flight Facility (NASA, 2004)* was prepared in which two resources, the Wallops Coast Guard Lifesaving Station and the Coast Guard Observation Tower were determined to be eligible for listing in the NRHP and Virginia Landmarks Register. In a letter dated November 4, 2004, VDHR concurred with the findings and determinations in the report. The November 4, 2004 letter from VDHR should be provided in the Appendix of the Final EA and the report as well since it serves as the baseline for the identification of the aboveground historic properties at WFF.

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- In addition, the two resources eligible for listing on the NRHP should be identified on a map as well as the two historic archaeological sites referenced on page 80 and their association and proximity to the two utility-scale turbines located on Wallops Island.

#49

- As stated on page 80, “Since the 2004 report, no additional large-scale identification and evaluation of historic properties have been conducted at WFF. Survey updates at WFF may reveal aboveground historic properties not identified in the 2004 report, including properties that have achieved 50 years of age since 2006 and properties that are less than 50 years of age that meet NRHP Criteria Consideration G, which states that properties may be eligible for listing in the NRHP if they possess exceptional importance.” Considering the magnitude of the proposed project and other projects planned for WFF, it would be prudent to update the survey during the planning and environmental analysis phase of the proposed action to consider and evaluate all resources that may have the potential to be impacted.

#50

- Page 130 states, “In December 2009, NASA WFF initiated Section 106 consultation with VDHR for the Alternative Energy Project.” It also states, “Since initiation of the Section 106 process, NASA has revised its alternatives to include a residential-scale wind turbine component. The Section 106 process remains ongoing pending further development of the solar panel and residential-scale wind turbine components.” Adding the solar panels and residential-scale wind turbine components and not knowing the locations of them, makes it difficult to properly assess the impacts of the proposed action on cultural resources. This information is necessary in providing a thorough analysis of the impacts from the proposed actions.

#51

- As stated on page 131, utility-scale turbines, uses cell tower guidance to assess visual impacts. Visual impacts is one aspect of impact, the Draft EA did not address whether the operation of the turbines would have an effect on the integrity of the cultural resources. Please discuss in the Final EA or EIS.

#52

- Page 131 states, “Eighty unevaluated resources exist within the APE, 13 of which are over 50 years of age.” The eighty resources should be evaluated for NRHP eligibility and is subject to a Section 106 review.

#53



- As stated on page 132, “WFF is characterized by numerous towers, test stands, and antennae from various periods of construction.” Given this context, the construction of the residential-scale turbines is not likely to have an adverse effect on the setting or feeling of any yet-to-be identified NRHP-eligible resources, if present, within the boundaries of the WFF.” Again, impacts to cultural resources should be looked at beyond visual. EPA questions whether operation of the turbines could affect the integrity of the resources. **#54**
- Page 132, “Indirect visual effects on historic properties outside of the WFF property cannot be determined at this time. Once the locations of the residential-scale wind turbines are determined, NASA would consult with VDHR.” It is important to note that the Environmental Assessment (EA) is the vehicle for evaluating the impacts of a proposed action on various resources. In essence, the EA is also the vehicle to evaluate citing locations and impacts from the proposed action. The possible and very probable locations for the residential-scale wind turbines should be addressed in the Final EA or EIS. **#55**
- In 1996, Executive Order 13007 was issued to protect Native American religious practices. This Executive Order directs Federal land-managing agencies to accommodate Native Americans use of sacred sites for religious purposes and to avoid adversely affecting the physical integrity of sacred sites. Federal agencies are directed to consult with tribal governments prior to taking actions that affect federally recognized tribes and to ensure that Native American concerns receive consideration during the development of Federal projects and programs. It is not clear if WFF has had any past association with Native American, but the Final EA or EIS should state whether or not NASA considered this in their evaluation. **#56**





UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

MAR - 8 2010

Joshua A. Bundick
National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, Virginia 23337
Attn: 250.W

Dear Mr. Bundick,

This is in response to your letter dated March 1, 2010 regarding the National Aeronautics and Space Administration's (NASA) Wallops Flight Facility's Alternative Energy Project, located on Wallops Island in Accomack County, Virginia. The proposed project would involve the installation of wind turbines and power collection lines on Wallops Island and the Mainland; however, no in-water work will be required. NASA requested NMFS concurrence that the proposed project will have "no effect" on listed species under NMFS jurisdiction. As NMFS does not offer concurrence with no effect determinations, on March 8, 2010, NMFS requested that NASA revise its effects determination to "may affect, not likely to adversely affect listed species" in order to initiate Section 7 consultation; however, in response to this request, NASA explained that the agency was in fact requesting technical assistance, not informal consultation pursuant to Section 7. Based on NMFS conversation with NASA on March 8, 2010, NMFS will offer technical assistance on the project proposed by NASA.

Several species of sea turtles listed by NOAA's National Marine Fisheries Service (NMFS) as threatened and endangered occur seasonally in the coastal waters of Virginia. However, as no in water work is proposed, no listed species will be affected by the proposed project. As such, no consultation pursuant to Section 7 of the Endangered Species Act of 1973, as amended, is required. Should project plans change or new information become available that changes the basis for this determination, consultation should be reinitiated. If you have any questions about these comments, please contact Danielle Palmer at (978)-282-8468.

#110

Sincerely,

Mary A. Colligan
Assistant Regional Administrator
for Protected Resources

File Code: Sec 7 Technical Assistance 2010-no in-water work



From: Cole, Robert H NAO [mailto:Robert.H.Cole@usace.army.mil]
Sent: Tuesday, April 13, 2010 2:42 PM
To: Bundick, Joshua A. (WFF-2500); David Aho; Silbert, Shari A. (WFF-200.C)[EG&G, Inc. (WICC)]
Cc: Cotnoir, Audrey L NAO
Subject: Wallops Alternative Energy EA

ALCON,

I have attached my comments regarding the Draft EA

<<Alternative Energy Project EA Comments.doc>>

Robert Cole

Environmental Scientist

Norfolk District Corps of Engineers

Eastern Shore Field Office

22545 Center Parkway

Accomac, VA 23301-1330



757-787-7567 Alternative Energy Project EA Comments.doc

Alternative Energy Project

I concur with the comments submitted by the Fish and Wildlife Service regarding Purpose and Need

#103

Section 4.5 Cumulative Impacts.

a) Lacks sufficient detail to address the impacts. The project descriptions are overviews and do not address specific impacts. Additional tables should be added to show: (1) the conversion of porous land to impervious/pavement and how the impacts were mitigated, (2) Energy consumption and what steps have been implemented to minimize impacts, (3) the areas NASA and tenant missions limit or restrict land, water, and aerial uses, and (3) energy consumption associated with the new structures

#104

b) Future impacts are not adequately addressed. For Example: (1) Several areas of Wallops Island were reserved from NASA's recent Mitigation Bank Proposal for future development/mission needs; (2) NASA has indicated that an electrical loop will be installed along the southern end of Wallops Island in part to facilitate future development;

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and (3) the Flight Facility Expansion project lists several structures and processes to be constructed/implemented but there are no impacts detailed.

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c) Past activities seem to be missing several impacts. For Example (1) There have been several attempts to stabilize the ocean shoreline, but only the current proposal is named; (2) There is an existing runway on the southern end of the island, but it is not included in the past actions, (3) NAPALM testing was accomplished on the Island but the impacts associated with the testing are not listed.

#106

The examples provided for Cumulative Impacts is not a complete listing of all NASA impacts.

#107



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
6669 Short Lane
Gloucester, Virginia 23061



APR 12 2010

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

Re: Draft Environmental Assessment,
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 referenced draft Environmental Assessment (EA) dated March 2010. The purpose of the proposed project is to generate clean, renewable energy that will be used by the Wallops Flight Facility (WFF) to meet the requirements of the 2005 Federal Energy Policy Act; Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; and Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*. The WFF project would also support National Aeronautics and Space Administration's (NASA) goal of setting an example in environmental stewardship and accountability by a Federal agency. The preferred alternative consists of constructing two 2.0-megawatt (MW) "utility-scale" wind turbines on Wallops Island that would be capable of generating approximately 10 gigawatt hours (GWh) of electricity per year, and up to five 2.4 kilowatt (kW) "residential-scale" wind turbines at the Main Base and Mainland. The utility-scale wind turbines would be located on Wallops Island west of the U.S. Navy V-10/V-20 complex. One of the residential-scale wind turbines would be installed near the WFF Visitor Center, and a second would be installed near the security guard station at the Mainland. The locations of the remaining three residential-scale wind turbines are unknown at this time, but would be placed within the areas that NASA has identified as potential suitable locations at WFF Main Base.

This letter provides our comments on the draft EA. Additional comments on the project will be provided by the Service upon our receipt of the final EA. This letter constitutes the report of the Service on the proposed project and is submitted in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e, 48 Stat. 401) as amended, the Migratory Bird Treaty Act of 1918 (16 U.S.C. 703-712, 40 Stat. 755), as amended (MBTA), and the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c, 54 Stat. 250) as amended (BGEPA). NASA

Mr. Bundick

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has also requested formal consultation under section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended. We will address section 7 consultation in separate correspondence, and endangered species comments provided herein are provided to the extent that they contribute to the evaluations under the other authorities mentioned.

The Service provided comments to your agency July 8, 2008 on a proposal to build up to two 1.5 MW wind turbines on Wallops Island. We provided information on the resources that would likely be affected by the proposal and encouraged NASA to consider alternatives that would minimize impacts to these species. We also encouraged NASA to review the Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* <http://www.fws.gov/habitatconservation/wind.pdf> in the preparation of the EA and to address any deviations from the interim guidelines, including why deviations are required.

We commend NASA WFF for your intent to pursue renewable energy and promote environmental stewardship. However, after review of the draft EA and the preferred alternative, the Service continues to have concerns about the potential impacts of the proposed utility scale turbines on federally listed species, migratory birds, other fish and wildlife species, and wetlands. The draft EA does not appear to consider the Service's *Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines* based on the proposed siting locations of the turbines. We are particularly concerned about the installation of utility scale wind turbines on a barrier island within an internationally important bird migration corridor. The placement of utility scale wind turbines at the proposed locations may present a high risk to birds, and potentially bats. The proposal to place the turbines and associated infrastructure in wetlands is also a concern.

We have the following specific comments/recommendations on particular sections of the draft EA:

Section 1.4 Purpose and Need

The Federal Energy Policy Act requires Federal agencies to reduce energy consumption and cost. The WFF plan to lower electricity consumption through improved energy efficiency programs should be included in the project need. WFF should outline their current and future efforts to reduce energy consumption at the facility, and if energy consumption is lowered at the WFF, renewable energy needs would also be reduced.

#69

It is not clear where the goal to generate up to 10 GWh per year from alternative energy sources at WFF was derived. The Federal Energy Policy Act requires that of the total amount of electric energy consumed by the Federal Government during any fiscal year, renewable energy shall not be less than 5 percent in fiscal year 2010 through 2012 and not less than 7.5 percent in fiscal year 2013 and each fiscal year thereafter. As provided in Table 2 in the draft EA, NASA's annual electricity usage is approximately 30 GWh per year. Therefore, to meet the goals of the Act, NASA would need 2.25 GWh from renewable energy by fiscal year 2013. Since the Act allows the actual production calculation to be doubled on federal facilities, the actual amount needed is

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Mr. Bundick

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1.125 GWh. These calculations do not include further reductions that should occur by implementing an energy consumption reduction plan at WFF.

The proposed 10 GWh contributes 33 percent of renewable energy, which is actually a 66 percent contribution according to the Act. This far exceeds the requirements of the Act. Because the preferred alternative will result in impacts to federally listed species, trust resources, and wetlands at WFF, the Service recommends that NASA provide additional information that demonstrates the need for 10 GWh of renewable energy at this site. The draft EA does not currently provide adequate information to justify the need for 10 GWh, particularly at the proposed location.

#70

The need for five residential turbines is not clearly articulated in the draft EA. WFF states that the residential turbines will be built for educational purposes. There is no rationale provided for five and NASA has only identified two locations where the residential turbines will be located. This suggests a lack of need for the remaining three.

#71

Section 2.1 Range of Alternatives Considered for Renewable Energy

No alternatives were considered at offsite locations. The Service recommends that NASA expand its alternatives analysis to include the installation of solar and/or wind at offsite locations in the vicinity of WFF. This alternative would appear to meet the project purpose, and represent improvements in environmental stewardship by adhering to siting guidelines and reducing environmental impacts. A location on the mainland farther from the water's edge within the vicinity of WFF could avoid wetland impacts and reduce likelihood of bird mortality by avoiding placement within high-quality bird habitat. Some impacts to birds and bats would still likely occur, but we would expect it to be reduced compared to the preferred alternative.

#72

Section 2.1.1.3 Solar Power

Page 17 of the draft EA states that "There is an insufficient amount of buildings . . . to allow for a majority of the panels to be installed on rooftops." The Service recommends that the alternatives analysis include the installation of solar panels on all available rooftops at the WFF, including Main Base, Mainland, and Wallops Island. Placing solar panels on available rooftops will minimize the amount of land required for solar panel installation. The draft EA should provide the amount of rooftop space currently available for solar panel installation. Another alternative that should be considered is placing solar panels above parking lots. This will also minimize additional impacts to habitat and natural and cultural resources.

#73

Section 2.3.1.2 Residential-Scale Turbines

All five locations of these turbines should be identified in the draft EA so that effects can be analyzed.

#74

Section 2.3.4 Comparison of Costs among the Action Alternatives

Table 6 on page 29 provides a comparison of costs for the alternatives. We recommend that NASA provide a breakdown or description of how these costs were derived and what was considered in these estimates. In addition, mitigation and monitoring costs should be included in

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Mr. Bundick

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the cost estimates if they are not already included. For example, the preferred alternative and alternative one will likely require compensation for wetland impacts and monitoring for impacts to birds, bats, and listed species. Lifetime monitoring may be a requirement of the preferred alternative and alternative one. Alternative two will likely have no mitigation or minimal monitoring costs.

#75

Section 3.2.3.1 Birds

The draft EA does not adequately characterize the affected environment. We previously provided this information in our 2008 letter and recommend that it be incorporated into the draft EA to ensure an accurate description of baseline conditions.

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The proposed activities are 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 and includes diverse habitats such as barrier beaches, maritime forests, salt marsh, inter-tidal mudflats, and open water. This IBA is identified as the most important bird area in Virginia and supports the highest diversity and density of birds of conservation

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

Section 4.2.2.2 Wetlands

The Service does not support the placement of wind turbines and associated infrastructure in wetlands. It is our opinion that the applicant has not provided sufficient information to demonstrate that this project is in compliance with the Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material (40 CFR 230.10). Section 404(b)(1) regulations state that "Where the activity associated with a discharge which is proposed for a special aquatic site (as defined in Subpart E) does not require access or proximity to or siting within the special aquatic site in question to fulfill its basic purpose (i.e., is not "water dependent"), practicable alternatives that do not involve special aquatic sites are presumed to be available, unless clearly demonstrated otherwise." We recognize the constraints posed by NASA equipment and operations, but recommend considering offsite alternatives that avoid impacts to wetlands while still avoiding interference.

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Section 4.5.6.5 Terrestrial Wildlife and Migratory Birds

In evaluating the cumulative effects of the WFF's proposed activities on terrestrial wildlife and migratory birds, NASA did not adequately analyze the significance of the effects. Of particular concern is that the majority of the proposed activities at WFF are not one-time events or temporary effects as suggested in the draft EA. The proposed wind turbines will be in operation for 25 years, the beach renourishment project may occur every five years over a 50-year time period, one hundred and two rocket launches may occur each year, and other proposed launches will occur at the launch range and unmanned aerial system airstrip. The significance of effects should be determined based on the intensity of effects. Therefore, the magnitude, duration, frequency, and geographic extent of the effect should be considered when determining significance. We recommend that NASA provide additional detail on the criteria and thresholds that were used to determine the significance of effects to terrestrial wildlife and migratory birds.

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Section 5.1.2 Birds and Bats

Due to the significance of this region for birds and to support NASA's goal of setting an example in environmental stewardship, the Service recommends that NASA provide a detailed description of the mitigative measures that will be implemented to avoid or minimize impacts to birds and bats if the utility scale turbines are constructed. Such measures may include changing cut-in speed and the operational curtailment of the turbines.

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Section 5.2 Monitoring

If NASA continues to pursue the preferred alternative, the Service recommends that long term monitoring for the life of the project be conducted to determine the impact to federally listed species, migratory birds, and other trust resources. Based on past monitoring studies, the location of the proposed turbines relative to adjacent waterbird habitat, and the large numbers of birds that occur within these areas, mortality may be episodic as a result of season, winds, and other meteorological conditions, and consequently, long-term monitoring may be necessary to both estimate impacts to allow appropriate mitigation and to provide useful information for

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adaptive management of turbine operations. In addition to the utility scale turbines, monitoring may be warranted for the residential turbines depending on the location and number being built. We will provide more substantive comments on the monitoring plan upon receipt of the final EA.

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If you have any questions, please contact Kimberly Smith of this office at (804) 693-6694, extension 124.

Sincerely,


Cindy Schulz
Supervisor
Virginia Field Office

cc: Chincoteague National Wildlife Refuge (Lou Hinds)
U.S. Army Corps of Engineers (Robert Cole)
USEPA, Carole Petrow

Comments Received from State Agencies



COMMONWEALTH of VIRGINIA

DEPARTMENT OF ENVIRONMENTAL QUALITY

Street address: 629 East Main Street, Richmond, Virginia 23219

Mailing address: P.O. Box 1105, Richmond, Virginia 23218

TDD (804) 698-4021

www.deq.virginia.gov

Douglas W. Domenech
Secretary of Natural Resources

David K. Paylor
Director

(804) 698-4000
1-800-592-5482

April 29, 2010

Mr. Joshua A. Bundick
250/NEPA Program Manager
WFF Alternative Energy Project
NASA Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

RE: Draft Environmental Assessment and Federal Consistency Determination for
NASA Wallops Alternative Energy Project (DEQ 10-037F)

Dear Mr. Bundick:

The Commonwealth of Virginia has completed its review of the above-referenced draft supplemental environmental assessment (EA), which includes a federal consistency determination (FCD). The Department of Environmental Quality (DEQ) is responsible for coordinating Virginia's review of federal environmental documents prepared pursuant to the National Environmental Policy Act and responding to appropriate federal officials on behalf of the Commonwealth. DEQ is also responsible for coordinating state reviews of FCDs submitted under the Coastal Zone Management Act. The following agencies and locality joined in this review:

Department of Environmental Quality
Department of Game and Inland Fisheries
Department of Conservation and Recreation
Department of Health
Department of Transportation
Marine Resources Commission
Department of Historic Resources
Accomack County
Department of Aviation

The Department of Mines, Minerals and Energy and the Accomack-Northampton Planning District Commission also were invited to comment.

PROJECT DESCRIPTION

The National Aeronautics and Space Administration (NASA) submitted a draft EA and FCD for an alternative energy project at Wallops Flight Facility in Accomack County. The purpose of the proposed project is to implement a technologically proven renewable energy source to meet requirements under the federal Energy Policy Act of 2005 and federal executive orders. The EA considers the proposed action, two alternatives and the no action alternative. The proposed action, NASA's preferred alternative, includes constructing two 2.0-megawatt utility-scale wind turbines on Wallops Island and five 2.4-kilowatt residential-scale wind turbines on the main base and mainland. Under alternative one, NASA would construct one utility-scale wind turbine and five residential-scale turbines as proposed in the preferred alternative. This alternative also includes the installation of solar panels at the main base. Alternative two proposes the installation of five residential-scale turbines and solar panels. Under the no action alternative, the alternative energy project would not be implemented. According to the document, the EA encompasses a 25-year planning horizon, which is the expected life span of the proposed wind turbines and solar panels. The FCD finds the proposed project to be consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management Program (previously called the Virginia Coastal Resources Management Program) (VCP).

SUMMARY OF COMMENTS

In general, the Commonwealth of Virginia supports NASA's effort to expand its alternative energy sources at NASA Wallops Flight Facility. The development of alternative energy is consistent with the goals of the Virginia Energy Plan, which was developed in accordance with 2006 legislation (Title 67 of the Code of Virginia) that determined energy policy statements and objectives. One of its recommendations (page 11, 2007 Virginia Energy Plan) states that the federal government should expand its efforts to support energy efficiency and conservation, including increasing its investment in alternate energy development. Accordingly, reviewers support alternative energy development in general. However, reviewers indicated that Alternative 2 would have less impact than the preferred alternative. A summary of concerns expressed by reviewers is below:

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- The proposed project location on the Eastern Shore is within a significant migratory bird area that also supports breeding populations of numerous federally- and state-listed species. Conducting a more complete evaluation of solar panels and other potential alternative energy sources; avoiding and minimizing potential adverse impacts, where possible, through proper siting of power generating facilities and use of the best available technology, and implementing appropriate mitigation for those impacts that are unavoidable are recommendations that may help alleviate protected species concerns.
- The Atlantic Coast of North America south to Florida is one of the major migratory corridors for neotropical migrant songbirds, as well as waterfowl and shorebirds.

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- Some of the most significant migration and stopover areas for landbirds in the Atlantic Flyway are the Eastern Shore of Maryland and Virginia.

• The proposed construction of wind turbines, especially those of utility scale, has the potential to adversely impact bats.

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• Each of the proposed site locations may overlap active or closed Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. In addition, military munitions may be present in some locations.

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- The proposed utility-scale wind turbines will have an indirect effect on the National Register of Historic Places-eligible Coast Guard Life Saving Station and associated Observation Tower.

• Numerous projects are planned for NASA Wallops, which cumulatively could result in significant impacts.

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ENVIRONMENTAL IMPACTS AND MITIGATION

1. Subaqueous Lands Management. The EA (page 96) states that the proposed construction (including underground cables and access roads) of the industrial-scale wind turbines would necessitate the filling of up to 0.88 acre of tidal wetlands.

1(a) Agency Jurisdiction. The Virginia Marine Resources Commission (VMRC) regulates encroachments in, on or over state-owned subaqueous beds as well as tidal wetlands pursuant to *Virginia Code* § 28.2-1200 through 1400.

The VMRC serves as the clearinghouse for the Joint Permit Application (JPA) used by the:

- Corps for issuing permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act;
- DEQ for issuance of a Virginia Water Protection (VWP) permit;
- VMRC for encroachments on or over state-owned subaqueous beds as well as tidal wetlands; and
- local wetlands board for impacts to wetlands.

The VMRC will distribute the completed JPA to the appropriate agencies. Each agency will conduct its review and respond.

1(b) Agency Finding. The VMRC has the following findings:

- The proposed action and alternatives will not fall within VMRC's jurisdiction; therefore, no authorization would be required from VMRC.
- The proposed action would require a wetlands permit from Accomack County for the filling of 0.88 acre of tidal wetlands.
- Alternative 2, which describes the installation of up to five 2.4 kilowatts (kW) wind turbines and a system of solar panels at the Main Base and Mainland, would appear not to impact tidal wetlands. This alternative would help alleviate VMRC's concerns related to tidal wetland impacts.

1(c) Agency Comments. VMRC requires a permit for any activities that encroach upon or over, or take use of materials from the beds of the bays, ocean, rivers and streams, or creeks which are property of the Commonwealth.

See item 16 for additional information regarding the Accomack County Wetlands Board.

2. Water Quality and Wetlands Management. The EA (page 96) states that a wetland delineation determined that both tidal and non-tidal wetlands are within the project area. The construction of the proposed turbines could affect up to 0.71 acre of estuarine intertidal emergent wetlands, 0.14 acre of palustrine emergent wetlands and 0.03 acre of palustrine scrub-shrub wetlands. The potentially affected wetlands are considered jurisdictional. The EA (page 97) also states that NASA would coordinate with the Corps, the Department of Environmental Quality, VMRC and Accomack County through the JPA process.

2(a) Agency Jurisdiction. The State Water Control Board promulgates Virginia's water regulations, covering a variety of permits to include Virginia Pollutant Discharge Elimination System Permit (VDPES), Virginia Pollution Abatement Permit, Surface and Groundwater Withdrawal Permit, and the VWP Permit. The VWP Permit is a state permit which governs wetlands, surface water and surface water withdrawals and impoundments. It also serves as § 401 determination of the federal Clean Water Act § 404 permits for dredge and fill activities in waters of the United States. The VWP program is under the Office of Wetlands and Water Protection and Compliance, within the DEQ Division of Water Quality Programs. In addition to central office staff members who review and issue VWP permits for transportation and water withdrawal projects, the six DEQ regional offices perform permit application reviews and issue permits for the covered activities.

2(b) Agency Finding. The DEQ Tidewater Regional Office (TRO) states that this project will require a permit from the VWP Permit Program. As such, a JPA should be submitted to VMRC for distribution and review by interested regulatory parties, including DEQ.

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2(c) Agency Comments. DEQ TRO is concerned that numerous projects are planned for this facility and that it may not be appropriate to review them as individual, single and complete projects. This issue has been discussed with the project proponents previously and will need to be resolved prior to permit issuance.

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2(d) Agency Recommendations.

- See item 16 for additional recommendations regarding wetlands.
- Contact VMRC regarding the submittal of a JPA.

• In general, DEQ recommends that stream and wetland impacts be avoided to the maximum extent practicable. To minimize unavoidable impacts to wetlands and waterways, DEQ recommends the following practices:

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- Operate machinery and construction vehicles outside of stream-beds and wetlands; use synthetic mats when in-stream work is unavoidable.
- Preserve the top 12 inches of material removed from wetlands for use as wetland seed and root-stock in the excavated area.
- Erosion and sedimentation controls should be designed in accordance with the most current edition of the Virginia Erosion and Sediment Control Handbook. These controls should be in place prior to clearing and grading, and maintained in good working order to minimize impacts to state waters. The controls should remain in place until the area is stabilized.
- Place heavy equipment, located in temporarily impacted wetland areas, on mats, geotextile fabric, or use other suitable measures to minimize soil disturbance, to the maximum extent practicable.
- Restore all temporarily disturbed wetland areas to pre-construction conditions and plant or seed with appropriate wetlands vegetation in accordance with the cover type (emergent, scrub-shrub or forested). The applicant should take all appropriate measures to promote revegetation of these areas. Stabilization and restoration efforts should occur immediately after the temporary disturbance of each wetland area instead of waiting until the entire project has been completed.
- Place all materials which are temporarily stockpiled in wetlands, designated for use for the immediate stabilization of wetlands, on mats or geotextile fabric in order to prevent entry in state waters. These materials should be managed in a manner that prevents leachates from entering state waters and must be entirely removed within thirty days following completion of that construction activity. The disturbed areas should be returned to their original contours, stabilized within thirty days following removal of the stockpile, and restored to the original vegetated state.
- All non-impacted surface waters within the project or right-of-way limits that are within 50 feet of any clearing, grading or filling activities should be clearly flagged or marked for the life of the construction activity within that area. The project proponent should notify all contractors that these marked areas are surface waters where no activities are to occur.
- Measures should be employed to prevent spills of fuels or lubricants into state waters.

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2(e) Requirements. A VWP permit will be required from DEQ.

2(f) Conclusion. Assuming adherence to the VWP Permit and the tidal wetlands permit issued by the Accomack County Wetlands Board (Item 16), the project would be consistent with the wetlands management enforceable policy of the VCP.

3. Nonpoint Source Pollution Control. The EA (page 95) states that NASA would develop and implement a site-specific stormwater pollution prevention plan (SWPPP) and an erosion and sediment control plan.

3(a) Agency Jurisdiction. The Department of Conservation and Recreation (DCR) Division of Soil and Water Conservation (DSWC) administers the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R) and Virginia Stormwater Management Law and Regulations (VSWML&R).

3(b) Erosion and Sediment Control, and Stormwater Management. NASA and its authorized agents conducting regulated land-disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R) and Virginia Stormwater Management Law and Regulations, including coverage under the General Permit for Discharges of Stormwater from Construction Activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles and related land-disturbance activities that result in the land-disturbance of 10,000 square feet would be regulated by VESCL&R.

Accordingly, NASA must prepare and implement an erosion and sediment control plan to ensure compliance with state law and regulations. The erosion and sediment control plan is submitted to the DCR regional office that serves the area where the project is located for review for compliance. NASA is ultimately responsible for achieving project compliance through oversight of on-site contractors, regular field inspection, prompt action against non-compliant sites and other mechanisms consistent with agency policy.

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3(c) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities. According to the DCR DSWC, the operator or owner of construction activities involving land-disturbing activities equal to or greater than 1 acre are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project-specific SWPPP. The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit, and it must address water quality and quantity in accordance with the VSMP Permit Regulations. General information and registration forms for the General Permit for Discharges of Stormwater from Construction Activities are available on DCR's website at www.dcr.virginia.gov/soil_and_water/vsmp.shtml.

4. Air Pollution Control. According to the EA (page 101), there may be short-term air quality impacts due to construction equipment, and vehicle emissions would be minimal. The EA (pages 102 and 104) also states that although there are no direct air emissions from operating wind turbines or solar panels, maintenance activities requiring vehicular traffic may cause minimal emissions.

4(a) Agency Jurisdiction. The DEQ Air Division, on behalf of the Air Pollution Control Board, is responsible for developing regulations that become Virginia's Air Pollution Control Law. DEQ is charged with carrying out mandates of the state law and related regulations as well as Virginia's federal obligations under the Clean Air Act as amended in 1990. The objective is to protect and enhance public health and quality of life through

control and mitigation of air pollution. The division ensures the safety and quality of air in Virginia by monitoring and analyzing air quality data, regulating sources of air pollution, and working with local, state and federal agencies to plan and implement strategies to protect Virginia's air quality. The appropriate regional office is directly responsible for the issue of necessary permits to construct and operate all stationary sources in the region as well as to monitor emissions from these sources for compliance. As a part of this mandate, the environmental documents of new projects to be undertaken in the state are also reviewed. In the case of certain projects, additional evaluation and demonstration must be made under the general conformity provisions of state and federal law.

4(b) Ozone Attainment Area. According to DEQ's Division of Air Program Coordination, the project site is located within an ozone attainment area.

4(c) Fugitive Dust. During implementation of the project, fugitive dust must be kept to a minimum by using control methods outlined in 9VAC5-50-60 *et seq.* of the Regulations for the Control and Abatement of Air Pollution. These precautions include, but are not limited to, the following:

- Use, where possible, of water or chemicals for dust control;
- Installation and use of hoods, fans and fabric filters to enclose and vent the handling of dusty materials;
- Covering of open equipment for conveying materials; and
- Prompt removal of spilled or tracked dirt or other materials from paved streets and removal of dried sediments resulting from soil erosion.

4(d) Open Burning. If project activities include the burning of vegetative debris, this activity must meet the requirements under 9VAC5-130 *et seq.* of the regulations for open burning, and it may require a permit. The regulations provide for, but do not require, the local adoption of a model ordinance concerning open burning. The project developer should contact officials with Accomack County to determine what local requirements, if any, exist.

5. Chesapeake Bay Preservation Act. The EA (page 35) indicates that surface waters are influenced by the tides and drain to the ocean.

5(a) Agency Jurisdiction. The DCR Department of Chesapeake Bay Local Assistance (DCBLA) administers the coastal lands management enforceable policy of the VCP, which is governed by the Chesapeake Bay Preservation Act (*Virginia Code* §10.1-2100-10.1-2114) and Chesapeake Bay Preservation Area Designation and Management Regulations (9VAC10-20 *et seq.*).

5(b) Agency Comments. DCR DCBLA reviewed the proposed development of wind turbines at the Wallops Island facility in Accomack County. The subject property is located on property specifically excluded from Accomack County's designated Chesapeake Bay Preservation Areas (CBPA) when the County extended their CBPA's

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to include areas which drain to the Atlantic Ocean in 2009. Therefore, there are no requirements necessary for consistency with the Chesapeake Bay Preservation Act.

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6. Solid and Hazardous Waste Management. The EA (page 107) states that construction activities would include the use of hazardous materials and generate hazardous waste. In addition (page 108), the operation and maintenance of utility- and residential-scale wind turbines would result in the use of hazardous materials (including oil and solvents). Small amounts of harmful toxins are present inside solar cells. NASA would require a site-specific SWPPP that would include best management practices related to spill prevention and clean-up procedures (page 107). After the 25-year life span of the solar panels, NASA would recycle them as appropriate (page 109).

6(a) Agency Jurisdiction. Solid and hazardous wastes in Virginia are regulated by DEQ, the Virginia Waste Management Board and the U.S. Environmental Protection Agency. They administer programs created by the federal Resource Conservation and Recovery Act, Comprehensive Environmental Response Compensation and Liability Act, commonly called Superfund, and the Virginia Waste Management Act. DEQ administers regulations established by the Virginia Waste Management Board and reviews permit applications for completeness and conformance with facility standards and financial assurance requirements. All Virginia localities are required, under the Solid Waste Management Planning Regulations, to identify the strategies they will follow on the management of their solid wastes to include items such as facility siting, long-term (20-year) use and alternative programs such as materials recycling and composting.

6(b) Database and Data File Searches. The Waste Division states that the report addresses solid and hazardous waste issues but does not include a search of waste-related data bases. A Geographic Information System (GIS) database search did not reveal any waste sites within a half-mile radius that would impact or be impacted by the subject site. The Waste Division staff performed a cursory review of its data files and determined that there are several hazardous and formerly used defense sites (FUDS) located within the same zip code; however, their proximities to the subject site are unknown:

Hazardous Waste

- NASA GSFC Wallops Flight Facility, VA8800010763 LQG (Active), VA7800020888 LQG (Active) and VA7800020888 TSD (Active)

FUDS

- Wallops Island (C03VA0301, VA9799F1697)

The following website may prove helpful in locating additional information for these identification numbers: www.epa.gov/enviro/html/rcris/rcris_query_java.html.

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6(c) Federal Facilities Program. The DEQ Federal Facilities Program states that the document describes the proposed action (NASA's preferred alternative) to be the installation of two utility-scale and up to five residential-scale wind turbines; however,

only two proposed utility-scale locations and two proposed residential-scale locations are identified with several areas presented as suitable. This review focuses only on the proposed locations.

The proposed locations for each type of wind turbine are situated on each of the three distinct portions of the NASA installation: Main Base, Mainland and Wallops Island. The “utility-scale” turbines are proposed for Wallops Island while the “residential-scale” turbines are proposed for locations at both the Mainland and Main Base. Each of the proposed locations may overlap active or closed Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites. Each proposed location is discussed further in the paragraphs below. Locations identified as suitable areas for turbines are not addressed in this review.

- *Wallops Island: Proposed Utility-Scale Wind Turbine(s)*

The locations for the proposed utility-scale wind turbines are on the west side of Wallops Island adjacent to the tidal wetland as shown on Figure 3. With regards to CERCLA, there are no active or closed CERCLA sites in the areas immediately surrounding the proposed locations for the turbines.

However, be advised, in years past low-lying areas on the island have been filled with soil in order to improve them for development. As the proposed utility-scale turbine locations are close to wetlands, the ground in each area may contain fill material. In some cases the fill material may have been excavated from elsewhere on the island. In the 1940s and 1950s, the north end of Wallops Island was used for military training and included bombing targets, strafing targets, machine gun ranges and rocket ranges. If any fill material was excavated from elsewhere on the island, it may have contained military munitions or munitions constituents associated with historic military training operations. Care should be taken when excavating in the locations proposed for the utility-scale wind turbines as military munitions may be present.

Also, the location of the project staging area appears to be close to an area designated as a “blast facility” on a 1958 aerial photo. This area has not been investigated by NASA or the Corps under CERCLA, but it may contain munitions or munitions constituents associated with historic military training operations or munitions disposal.

- *Mainland: Proposed Residential-Scale Wind Turbine(s)*

The Mainland location for the proposed residential-scale turbine is just south of Route 303 near the property line for the base. There are no active or closed CERCLA sites in this area. Also, no evidence of military munitions has appeared over the years on the Mainland portion of the base.

- *Main Base: Proposed Residential-Scale Wind Turbine(s)*

The location proposed for a residential-scale wind turbine on the Main Base is near the NASA Visitors Center. During the 1940s and 1950s, this area was used to test aircraft machine guns. A firing-in butt, or target, was located in the vicinity of the location proposed for the turbine. Since its use as a firing-in butt, the entire area including the firing points and firing in butts has been reworked and re-graded. In 2005 spent 20 mm rounds were found scattered about the rocket display area 400 feet southeast of the Visitors Center prompting NASA to conduct an investigation into the extent of munitions present.

In May 2006, NASA finalized a document entitled "Visitor Center Unexploded Ordnance Clearance Report" which documents the investigation and clearance of military munitions and munitions related items from the top 1 foot of soil. The investigation included the area around the proposed location for the residential-scale turbine but did not address metallic detections found deeper than 1 foot below the ground's surface. A total of 1, 113 munitions items were removed. Excavation in this area extending deeper than 1 foot may encounter military munitions.

6(d) Asbestos-Containing Materials and Lead-Based Paint. If structures are proposed to be demolished, they should be checked for asbestos-containing materials (ACM) and lead-based paint (LBP) prior to demolition. If these materials are found, in addition to the federal waste-related regulations mentioned above, state regulations 9VAC20-80-640 for ACM and 9VAC20-60-261 for LBP must be followed.

6(e) Agency Comments. The DEQ TRO states that multiple petroleum releases have been reported at the Wallops Flight Facility. One of the closed petroleum cases (PC# 1995-2405) is located about 1,000 feet south of the proposed utility scale wind turbines site. This release, associated with Building V-10, should not impact this proposed wind turbine site.

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6(f) Agency Recommendations. DEQ has the following recommendations:

- Report evidence of a petroleum release, if discovered during construction of this project, to Lynne Smith at (757) 518-2055 or Gene Siudyla at (757) 518-2117 with the DEQ TRO.
- Petroleum-contaminated soils generated during construction of this project must be characterized and disposed of properly.
- DEQ encourages all construction projects and facilities to implement pollution prevention principles, including:
 - the reduction, reuse and recycling of all solid wastes generated; and
 - the minimization and proper handling of generated hazardous wastes.
- Direct questions regarding this project to Tom Madigan at (757) 518-2115 or submitted documentation, if necessary, at DEQ TRO, 5636 Southern Blvd., Virginia Beach, Virginia 23462.

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- Care should be taken when excavating in the locations proposed for the utility-scale wind turbines as military munitions may be present.
- Prior to initiating any construction, excavation or dredging activities on Wallops Island, Mainland or Main Base property, contact
 - T.J. Meyer, NASA WFF Manager of Environmental Restoration (available by phone at 757-824-1987), for information concerning any CERCLA or Military Munitions Response Program (MMRP) obligations at or near areas adjacent to Facility CERCLA/MMRP sites and
 - Sher Zaman, Corps Remediation Project Manager for Wallops FUDS (available by phone at 410-962-3134), for information concerning CERCLA/MMRP obligations at or near Wallops FUDS sites.

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6(g) Requirements.

- Any soil that is suspected of contamination or wastes that are generated during construction-related activities must be tested and disposed of in accordance with applicable federal, state and local laws and regulations.
- The installation of any regulated petroleum storage tank(s) as part of this proposed project must be conducted in accordance with the requirements of the Virginia Storage Tank Regulations 9VAC25-580-10 *et seq.* (underground tanks) and / or 9VAC25-91-10 *et seq.* (aboveground tanks).

7. Natural Heritage Resources. The EA (pages 109 and 110) indicates that there would be short-term, construction-related impacts and long-term impacts to vegetative habitats.

7(a) Agency Jurisdiction. The mission of DCR is to conserve Virginia's natural and recreational resources. DCR supports a variety of environmental programs organized within seven divisions including the Division of Natural Heritage (DNH). DNH's mission is conserving Virginia's biodiversity through inventory, protection and stewardship. The Virginia Natural Area Preserves Act, 10.1-209 through 217 of the Code of Virginia, was passed in 1989 and codified DCR's powers and duties related to statewide biological inventory: maintaining a statewide database for conservation planning and project review, land protection for the conservation of biodiversity, and the protection and ecological management of natural heritage resources (the habitats of rare, threatened and endangered species, significant natural communities, geologic sites, and other natural features).

7(b) Agency Findings. The DCR DNH searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. According to the information currently in DCR's files, the proposed project location at the Wallops Flight Facility on the Eastern Shore of Virginia is within a significant migratory bird area that also supports breeding populations of numerous federally- and state-listed species including: Piping Plover (*Charadrius melodus*, G3/S2B, S1N/LT/LT), Least Tern (*Sterna antillarum*, G4/S2B/NL/SC), Wilson's Plover, (*Charadrius wilsonia*, G5/S1B/NL/LE), Peregrine falcon (*Falco peregrinus*, G4/S1B,S2N/NL/LT) and Bald

Eagle, (*Haliaeetus leucocephalus*, G5/S2S3B,S3N/NL/LT). In addition, this area supports populations of wading birds such as the Great Egret (*Ardea alba*, G5/S2B,S4N/NL/SC), Tricolored heron (*Egretta tricolor* G5/S2B,S3N/NL/SC) and Little Blue Heron (*Egretta caerulea*, G5/S2B, S3N/NL/SC). One of the major migratory corridors for neotropical migrant songbirds, as well as waterfowl and shorebirds, is the Atlantic Coast of North America south to Florida (Salathe, 1991; Watts and Mabey, 1994). It has been demonstrated that some of the most significant migration and stopover areas for landbirds in the Atlantic Flyway is the Eastern Shore of Maryland and Virginia (Mabey et al, 1993; Watts and Mabey, 1994).

Many species of migratory birds, particularly neotropical migrant songbirds that breed in North America and spend the non-breeding season in the sub-tropics and tropics, are experiencing population declines. For southbound migrants, the Chesapeake Bay is one of the largest physical barriers along the east coast. A combination of geographical, biological and meteorological conditions serves to concentrate birds and keep them bottled up for short periods of time on the Eastern Shore. Habitats within these stopover concentration areas should be considered critical to the persistence of bird populations that depend on them in passage (Watts and Mabey, 1994).

The proposed construction of wind turbines, especially those of "utility scale," has the potential to adversely impact resident and migratory birds and bats.

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7(c) Agency Comments. DCR states that it strongly supports the use of alternative energy sources in the Commonwealth. Because the proposed project site is an area of global ecological significance, DCR supports sound planning as the project moves forward. However, DCR is concerned that 200-250 foot towers may have an adverse impact on the migratory birds, especially when the significance of the Delmarva peninsula to the Atlantic Flyway is considered. Potential impacts to birds and bats can result from collisions with wind turbine monopoles and blades. Indirect impacts can result from alteration of habitat causing changes in foraging, breeding and migratory behaviors (Kunz et al, 2007).

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7(d) Threatened and Endangered Plant and Insect Species. The Endangered Plant and Insect Species Act of 1979, Chapter 39, §3.1-102- through 1030 of the *Code of Virginia*, as amended, authorizes VDACS to conserve, protect and manage endangered species of plants and insects. VDACS Virginia Endangered Plant and Insect Species Program personnel cooperates with the U.S. FWS, DCR DNH and other agencies and organizations on the recovery, protection or conservation of listed threatened or endangered species and designated plant and insect species that are rare throughout their worldwide ranges. In those instances where recovery plans, developed by FWS, are available, adherence to the order and tasks outlined in the plans should be followed to the extent possible. VDACS has regulatory authority to conserve rare and endangered plant and insect species through the Virginia Endangered Plant and Insect Species Act. Under a Memorandum of Agreement established between the VDACS and DCR, DCR has the authority to report for VDACS on state-listed plant and insect species. The current activity will not affect any documented state-listed plants or insects.

7(e) State Natural Area Preserves. DCR states that there are no State Natural Area Preserves in the immediate project vicinity. State Natural Area Preserves do exist on the seaside, mainland and bayside of the Eastern Shore in part to help protect natural resources.

7(f) Agency Recommendations.

- Contact Rene Hypes with DCR DNH at (804) 371-2708 to secure updated information on natural heritage resources if a significant amount of time passes before the project is implemented since new and updated information is continually added to the Biotics Data System.
- If the “No Build” alternative is not feasible, DCR recommends Alternative Two (smaller residential scale turbines and solar panels) as the preferred alternative since it would have the least impact on natural heritage resources. The smaller turbines and the ability of the hybrid system to produce energy utilizing the solar panels instead of the turbines during low wind speeds would potentially reduce bird/bat mortality.
- Should Alternative 1, the “utility scale” wind turbines be installed on Wallops Island, DCR supports the two year post-construction monitoring study of bird/bat mortality and appropriate mitigation for impacts, possibly including seasonal low wind shutdowns.
- Due to the legal status of natural heritage resources documented in this area, DCR also recommends coordination with the U.S. Fish and Wildlife Service (FWS).

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8. Fish and Wildlife Resources, and Protected Species. The EA (page 122) states that protected species may be adversely affected by the implementation of the proposed action.

8(a) Agency Jurisdiction. The DGIF, as the Commonwealth’s wildlife and freshwater fish management agency, exercises enforcement and regulatory jurisdiction over wildlife and freshwater fish, including state- or federally-listed endangered or threatened species, but excluding listed insects (Virginia Code Title 29.1). DGIF is a consulting agency under the U.S. Fish and Wildlife Coordination Act (16 U.S.C. sections 661 *et seq.*) and provides environmental analysis of projects or permit applications coordinated through DEQ and several other state and federal agencies. DGIF determines likely impacts upon fish and wildlife resources and habitat, and recommends appropriate measures to avoid, reduce or compensate for those impacts. Furthermore, DGIF and the VMRC administer the fisheries management enforceable policy of the VCP.

8(b) Agency Finding. DGIF responded directly to NASA on April 12, 2010. The comments are attached for your convenience. DGIF states that the proposed action and alternative 1 have a high likelihood of violating state and federal species protection laws, including the Federal Endangered Species Act, Virginia’s endangered species law, Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. DGIF also

is concerned that the EA does not include proper consideration of the FWS' 2003 recommendations for identifying appropriate areas for wind development or of the FWS Wind Turbine Advisory Committee (2009). In addition, DGIF has concerns related to impacts of residential-scale wind turbines. The agency believes that implementing on the solar portion of the proposed project would alleviate violation concerns regarding state and federal laws, and that the no action alternative also has positive implications.

8(c) Agency Comments. DGIF supports the use of alternative energy sources, including wind energy. However, DGIF states that the full impacts upon wildlife must be better assessed. While the current movement toward renewable energy is a valuable and needed progression in energy development, alternatives under considerations much be better evaluated so that they can be implemented in a manner that includes management steps needed to protect regionally sensitive environmental resources.

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8(d) Agency Recommendations. DGIF recommends:

- Conducting a more complete evaluation of solar panels and other potential alternative energy sources.

- Avoiding and minimizing potential adverse impacts, where possible, through proper siting of power generating facilities and use of the best available technology.

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- Implementing appropriate mitigation for those impacts that are unavoidable.

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9. Virginia Coastal Zone Management Program.

9(a) Program Mission. The VCP was established in 1986 to protect and manage Virginia's coastal resources. It is part of a national coastal zone management program, a voluntary partnership between the National Oceanic and Atmospheric Administration (NOAA) National Ocean Service Office of Ocean and Coastal Resource Management (OCRM) and U.S. coastal states and territories authorized by the Coastal Zone Management Act. The program mission is to create more vital and sustainable coastal communities and ecosystems.

9(b) Agency Comments. The VCP states that while NASA's efforts to demonstrate the use of alternative energy are laudable, the proposed alternative, which would put two utility-scale turbines on a barrier island, presents coastal resource conflicts. During the past seven years, the VCP has invested significantly in a multi-partner "Seaside Heritage Program" designed to restore various types of seaside habitats. One aspect of this program focused heavily on restoring shorebird habitats through controls on mammalian predators and public education efforts about the importance of not disturbing beach-nesting birds.

These efforts have been very successful, increasing the hemispheric, ecological importance of the Seaside of Virginia's Eastern Shore. The Seaside hosts a vast array of migratory species, including 40 species of waterbirds and shorebirds on these beaches and marsh habitats for breeding grounds. Migratory shorebirds (24 species)

use these areas as a stop where they congregate, rest, feed and gain weight that allows them to fly long distances – in the fall some travel as far as Central America and some as far as the southern tip of South America and in the spring they travel as far north as Canada. Some species (such as whimbrels) even fly from the Eastern Shore to the Great Lakes and Alaska. In short, likely millions of birds are flying in or through the airspace of Wallops Island and the rest of this barrier island lagoon system. Several species (such as red knots and piping plovers) are listed as endangered or threatened. Almost all migratory bird populations have declined precipitously over recent decades. Placing wind turbines in this Western Hemisphere Shorebird Reserve/Audubon Important Bird Area/Nature Conservancy Last Great Place/DGIF Essential Wildlife Habitat/UVA Long Term Ecological Research Reserve would appear to have additional effects to migratory bird populations.

According to the VCP, Alternative Two appears to have fewer impacts than the preferred alternative. Demonstrating the use of solar panels would achieve both a reduction in greenhouse gases and an energy source with virtually no impacts on this hemispherically important bird habitat. Other locations in Virginia may be more suitable for wind energy production (see attached comments for details), according to the VCP. Erecting wind turbines on a barrier island within such an important bird habitat may cause a conflict with ongoing preservation efforts.

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Contact Laura McKay with the VCP at (804) 698-4323 for additional information or questions about these comments.

10. Historic Structures. The EA (page 130) states that NASA initiated Section 106 consultation with the Department of Historic Resources (DHR) regarding the Wallops Alternative Energy Project and the process remains ongoing.

10(a) Agency Jurisdiction. DHR conducts reviews of projects to determine their effect on historic structures or cultural resources under its jurisdiction. DHR, as the designated Historic Preservation Office for the Commonwealth, ensures that federal actions comply with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and its implementing regulation at 36 Code of Federal Regulations Part 800. The NHPA requires federal agencies to consider the effects of federal projects on properties that are listed or eligible for listing on the National Register of Historic Places (NRHP). Section 106 also applies if there are any federal involvements, such as licenses, permits, approvals or funding. DHR also provides comments to DEQ through the state environmental impact report review process.

10(b) Agency Comments. DHR states based on information received regarding the proposed project, including the EA distributed by DEQ, it is unable to make an informed decision concerning all effects of the proposed undertaking. In addition, the Area of Potential Effect for the proposed residential-scale wind turbines has not been identified.

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10(c) Agency Findings. DHR concurs with the determination that the proposed utility-scale wind turbines will not directly affect historic properties and with the determination

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that the proposed utility-scale wind turbines will have an indirect effect on the NRHP-eligible Coast Guard Life Saving Station and associated Observation Tower.

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10(d) Agency Recommendations.

- DHR requests a detailed description of what alternatives NASA has explored to avoid and/or minimize the effect to above-ground historic properties.
- DHR recommends that NASA consult with DHR to fully identify and assess the effects of the proposed residential-scale wind turbines.
- DHR requests a list of Native American tribes (recognized by the state and federal governments) that have an ancestral interest in Virginia that NASA contacted regarding this proposed project.

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Ron Grayson may be contacted at 804-367-2323, ext. 105, or ron.grayson@dhr.virginia.gov regarding the above recommendations.

11. Transportation Impacts. The EA (page 135) states that there would be temporary impacts to traffic flow during construction activities. A utility-scale wind turbine's tower and blades would be considered an oversized load if they are delivered via public roads, as proposed.

11(a) Agency Jurisdiction. The Virginia Department of Transportation (VDOT) provides comments pertaining to potential impacts to existing and future transportation systems.

11(b) Agency Comments. The VDOT Hampton Roads District Planning Section states that there is one transportation improvement project (UPC #1896- Route 175- Chincoteague Bridge Replacement) in the vicinity of the Wallops Flight Facility Launch Range in the Fiscal Year 10-15 Six Year Improvement Program or the Secondary Six Year Program.

11(c) Agency Findings. VDOT finds that a preliminary review does not indicate any negative impacts to the transportation system at this time and has no objections to the proposed improvements. VDOT concludes that any additional traffic or traffic disruptions regarding the proposed project are negligible.

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11(d) Requirement. If there are any impacts, temporary or permanent, to VDOT's right-of-way or if roadway closures are necessary, coordination with VDOT's Accomac Residency (available by phone at 757-787-1550) is required.

12. Aviation Impacts. The EA (page 79) states a sponsor proposing any type of construction or alteration of a structure that may affect the National Airspace System is required under the provisions of 14 CFR 77 to notify the Federal Aviation Administration (FAA) by completing the Notice of Proposed Construction or Alteration form (FAA Form 7460-1).

12(a) Agency Jurisdiction. The Virginia Department of Aviation (DOAv) is a state agency that plans for the development of the state aviation system; promotes aviation; grants aircraft and airports licenses; and provides financial and technical assistance to cities, towns, counties and other governmental subdivisions for the planning, development, construction and operation of airports, and other aviation facilities.

12(b) Agency Recommendation. DOAv suggests that the turbines and their locations be studied in order to determine impacts to the airspace or on the safety and utility of aircraft operations at the Wallops Flight Facility.

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12(c) Agency Comments. DOAv states that it intends its recommendation to prevent the creation of any hazards to air navigation by the construction of the turbines.

Contact Rusty Harrington (available by phone at 804-236-3624) for information regarding DOAv's recommendation.

13. Energy and Geologic Resources. The EA (pages iii and iv) states that there would be minor long-term impacts to the local geology. The EA (page 5) also states that the purpose of the project is to implement a technologically proven renewable energy source.

13(a) Agency Jurisdiction. The Virginia Department of Mines, Minerals and Energy (DMME), through its six divisions, regulates the mineral industry, provides mineral research and offers advice on wise use of resources. The Department's mission is to enhance the development and conservation of energy and mineral resources in a safe and environmentally sound manner in order to support a more productive economy in Virginia.

In addition, legislation passed in 2009 requiring DEQ to develop one or more permits by rule for the construction and operation of small renewable energy projects with rated capacity not exceeding 100 megawatts. The legislation mandated that the permit-by-rule (PBR) for wind energy be effective by January 1, 2011. As of April 2010, the proposed rule is not final.

13(b) Agency Comments. DMME did not respond to DEQ's request for comments.

The DEQ Office of Regulatory Affairs also states that under statute projects that begin under the current State Corporation Commission (SCC) rules may choose to continue under that regime. If NASA chooses to apply to DEQ once the PBR wind energy regulation becomes final, the two 2-MW turbines would be required to notify DEQ and to certify compliance with local government land-use requirements. In addition, the residential-scale turbines would likely have no PBR requirements. The solar regulatory advisory panel (RAP) will begin in the near future.

According to the April 14, 2010, letter from the SCC to NASA, the proposed facility may require approval by the Virginia State Corporation pursuant to the Code of Virginia §56-580 D if it does not qualify as a net metering facility pursuant to the Code of Virginia

§56-594 (see attached comments for web address information). Based on NASA's representation that the wind facility will have a capacity of 4 MW, it would appear to exceed the 500 kW net metering threshold. As such, the facility may be subject to the Code of Virginia §56-580 D. If so, the facility must comply with 20VAC5-302-10. Specifically, the facility would have to satisfy the following requirement:

- Construction of electric generating facilities with rated capacities of 5 MW or less may be undertaken without complying with the filing requirements established by this chapter. Persons desiring to construct such facilities shall
 - (i) submit a letter to the Director of the SCC Division of Energy Regulation stating the location, size and fuel type of the facility, and
 - (ii) comply with all other requirements of federal, state and local law.

13(c) NASA's Comments. NASA Wallops states that it has not consulted with Federal Energy Regulatory Commission (FERC) regarding this project since it is a community scale project.

14. Water Supply.

14(a) Agency Jurisdiction. The Virginia Department of Health (VDH) Office of Drinking Water (ODW) reviews projects for the potential to impact public drinking water sources (groundwater wells, springs and surface water intakes).

14(b) Agency Findings. VDH states that no groundwater wells are within a one mile radius of the project site. There are no surface water intakes are located within a 5-mile radius of the project site. Project does not fall within Zone 1 or Zone 2 of any public surface water sources. There are no apparent impacts to public drinking water sources due to this project.

14(c) Agency Comment. VDH states that potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

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Contact Barry E. Matthews with VDH at (804) 864-7515 for additional information on water supply sources.

14(d) Water Conservation Recommendations. DEQ recommends that to the extent practicable, NASA consider the following water conservation measures:

- Grounds should be landscaped with hardy native plant species to conserve water as well as minimize the need to use fertilizers and pesticides.
- Convert turf to low water-use landscaping such as drought resistant grass, plants, shrubs and trees.

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15. Pesticides and Herbicides. Should maintenance activities require the use of herbicides or pesticides, these chemicals should be used in accordance with the principles of integrated pest management. The least toxic pesticides that are effective in

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controlling the target species should be used. Contact the Virginia Department of Agriculture and Consumer Services (VDACS) at (804) 786-3501 for more information.

16. Local and Regional Comments. Accomack County and the Accomack-Northampton Planning District Commission (ANPDC) were invited to comment on this project.

16(a) Jurisdiction. In accordance with the Code of Virginia, Section 15.2-4207, planning district commissions encourage and facilitate local government cooperation and state-local cooperation in addressing, on a regional basis, problems of greater than local significance. The cooperation resulting from this is intended to facilitate the recognition and analysis of regional opportunities and take account of regional influences in planning and implementing public policies and services. Planning district commissions promote the orderly and efficient development of the physical, social and economic elements of the districts by planning, and encouraging and assisting localities to plan for the future.

16(b) Local Comments. Accomack County states that on March 5, 2010, it sent comments to NASA. According to the County, Wallops Island and the majority of the NASA Main Base are in an agricultural zoning district as opposed to being in an industrial zone, as indicated by the EA. Only the area near the Marine Science Consortium (part of the Wallops Research Park) is zoned Industrial.

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Accomack County will forward the reviewed information to the Accomack County Wetlands Board when a JPA is submitted for the project. The Accomack County Wetlands Board will consider action on the parts of this project that will impact tidal wetlands (because the tidal wetlands are not owned by the Commonwealth or a political subdivision thereof). The Accomack County Wetlands Board will consider the geo-boring and temporary road crossings associated with the location of the wind turbines at a scheduled Wetlands Board meeting on April 29, 2010. If the Wetlands Board approves the geo-borings and temporary road crossings and NASA decides to proceed with the location of the wind turbines in the proposed location, another JPA would be required to be submitted at another Wetlands Board meeting required with a public hearing for the permanent location of the towers and access road.

Accomack County also states that it does not have jurisdiction over federal land and the County's zoning requirements, including the locally-implemented Chesapeake Bay Preservation Act and erosion and sediment control requirements, do not apply to federal land. The proposed project area is not in Accomack County's Chesapeake / Atlantic Preservation Area Zoning Overlay District. The Accomack County Wetlands Board is handling the required wetlands permitting process for the project.

Accomack County supports development of alternative energy sources and is looking forward to seeing this project proceed. Detailed comments are attached for your convenience Contact David Fluhart, Accomack County Building and Zoning Director, (available by phone at 757-787-5721) or Jim McGowan, Accomack County Director of

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Planning (available by phone at 757-787-5726) for additional information regarding these comments.

16(c) Regional Comments. The ANPDC did not respond to DEQ's request for comments.

FEDERAL CONSISTENCY UNDER THE COASTAL ZONE MANAGEMENT ACT

Pursuant to the Coastal Zone Management Act of 1972, as amended, federal activities located inside or outside of Virginia's designated coastal management area that can have reasonably foreseeable effects on coastal resources or coastal uses must, to the maximum extent practicable, be implemented in a manner consistent with the VCP. The VCP consists of a network of programs administered by several agencies. DEQ coordinates the review of FCDs with agencies administering the enforceable and advisory policies of the VCP. The EA includes a FCD and accompanying analysis of the enforceable policies of the VCP. According to information in the FCD, the proposed activity would have not have a significant effect on the enforceable policies of the VCP.

PUBLIC PARTICIPATION

In accordance with 15 CFR §930.2, the public was invited to participate in the Commonwealth's review of the FCD. A public notice of this proposed action was published on the DEQ website from March 5, 2010 to March 26, 2010. No public comments were received in response to the notice.

CONSISTENCY CONCURRENCE

Based on the information provided in the EA and FCD, and the comments of reviewing agencies, DEQ concurs that the proposed activity is consistent with the VCP, provided that NASA complies with all requirements of applicable permits and other authorizations that may be required. DEQ also encourages NASA to consider the Advisory Policies of the VCP as well (attachment 2). However, there are other applicable state and federal requirements that are not include in the state's concurrence with the FCD.

REGULATORY AND COORDINATION NEEDS

1. Wetlands. A Virginia Water Protection (VWP) permit is required from the DEQ pursuant to Virginia Code §62.1-44.15:20 *et seq.* and Virginia regulations 9VAC25-210-10 *et seq.* A JPA may be obtained from and submitted to VMRC, which serves as a clearinghouse for the joint permitting process involving the VMRC, DEQ, Corps and local wetlands boards. Contact Bert Parolari with the DEQ TRO at (757) 518-2166 to ensure compliance with the VWP program prior to initiating impacts to surface waters and wetlands. Contact George H. Badger with the VMRC at (757) 414-0710 for information on the JPA.

2. Erosion and Sediment Control, and Stormwater Management.

2(a) Erosion and Sediment Control. NASA and its authorized agents conducting regulated land-disturbing activities of 10,000 square feet or more must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations. NASA must prepare and implement an erosion and sediment control plan to ensure compliance with state law and regulations. The erosion and sediment control plan should be submitted to the DCR Suffolk Regional Office at (757) 925-2468 (Reference: VESCL §10.1-567).

2(b) Virginia Stormwater Management Program General Permit for Stormwater Discharges from Construction Activities. For land-disturbing activities equal to or greater than 1 acre, NASA is required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit, and it must address water quality and quantity in accordance with the VSMP Permit Regulations. Specific questions regarding the Stormwater Management Program requirements should be directed to Holly Sepety with DCR at (804) 225-2613 (Reference: Virginia Stormwater Management Law Act §10.1-603.1 *et seq.*; VSMP Permit Regulations §4VAC-50 *et seq.*).

3. Air Quality Regulations. The state air pollution regulations that may apply to the project are:

- fugitive dust and emissions control (9 VAC 5-50-60 *et seq.*) and
- open burning restrictions (9VAC5-130 *et seq.*).

For information on any local requirements pertaining to open burning, contact officials with Accomack County. Contact Jane Workman with the DEQ TRO at (757) 518-2112 for information on air permit regulations or requirements.

4. Solid and Hazardous Wastes. All solid waste, hazardous waste and hazardous materials must be managed in accordance with all applicable federal, state and local environmental regulations. Some of the state laws and regulations are that may apply are:

- Virginia Waste Management Act (Code of Virginia Section 10.1-1400 *et seq.*);
- Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC20-60);
- Virginia Solid Waste Management Regulations (VSWMR) (9VAC20-80);
- Virginia Vegetative Waste Management Regulations (9VAC20-101 *et seq.*); and
- Virginia Regulations for the Transportation of Hazardous Materials (9VAC20-110).

Some of the applicable federal laws and regulations are:

- Resource Conservation and Recovery Act (RCRA) (42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations); and
- U.S. Department of Transportation Rules for Transportation of Hazardous materials (49 Code of Federal Regulations Part 107).

For additional information, contact Milt Johnston with the DEQ Northern Virginia Regional Office at (757) 518-2151.

4(a) Asbestos-Containing Material. It is the responsibility of the owner or operator of a renovation or demolition activity, prior to the commencement of the renovation or demolition, to thoroughly inspect the affected part of the facility where the operation will occur for the presence of asbestos, including Category I and Category II nonfriable asbestos-containing material. Upon classification as friable or non-friable, all asbestos-containing material shall be disposed of in accordance with the Virginia Solid Waste Management Regulations (9VAC20-80-640) and transported in accordance with the Virginia regulations governing Transportation of Hazardous Materials (9VAC20-110-10 *et seq.*). Contact the DEQ Waste Division for additional information at (804) 698-4021 and Ronald L. Graham with the Department of Labor and Industry at (804) 371-0444.

4(b) Lead-Based Paint. This project must comply with the U.S. Department of Labor Occupational Safety and Health Administration (OSHA) regulations and with the Virginia Lead-Based Paint Activities Rules and Regulations. For additional information regarding these requirements, contact David Dick with the Department of Professional and Occupational Regulation at (804) 367-8588.

5. Natural Heritage Resources. Contact the DCR DNH at (804) 786-7951 for an update on natural heritage information if a significant amount of time passes before it is utilized.

6. Protected Species Legislation. Due to the legal status of several resources documented in this area, coordinate with the U.S. Fish and Wildlife Service and DGIF to ensure compliance with federal (16 U.S.C. sections 1531 *et seq.*) and state (Virginia Code §29.1-563 *et seq.*) protected species legislation.

7. Storage Tanks.

- Report evidence of a petroleum release, if discovered during construction of this project, to Lynne Smith at (757) 518-2055 or Gene Siudyla at (757) 518-2117
- Direct questions regarding this project to Tom Madigan at (757) 518-2115 or submitted documentation, if necessary, at DEQ TRO, 5636 Southern Blvd., Virginia Beach, Virginia 23462.

8. Federal Facilities Program Concerns. Prior to initiating any construction, excavation or dredging activities on Wallops Island, Mainland or Main Base property, contact

Mr. Joshua A. Bundick
NASA Wallops Alternative Energy Project
10-037F

- T.J. Meyer, NASA WFF Manager of Environmental Restoration (available by phone at 757-824-1987), for information concerning any CERCLA or Military Munitions Response Program (MMRP) obligations at or near areas adjacent to Facility CERCLA/MMRP sites and
- Sher Zaman, Corps Remediation Project Manager for Wallops FUDS (available by phone at 410-962-3134), for information concerning CERCLA/MMRP obligations at or near Wallops FUDS sites.

9. Historic Resources. Coordinate with DHR (Ron Grayson available at 804-367-2323, ext. 105, or ron.grayson@dhr.virginia.gov) regarding DHR's requests for additional information and consultation.

10. Transportation Impacts. If there are any impacts, temporary or permanent, to VDOT's right-of-way or if roadway closures are necessary, coordinate with VDOT's Accomac Residency (available by phone at 757-787-1550).

11. Aviation Impacts. Contact Rusty Harrington (available by phone at 804-236-3624) for information regarding DOAv's recommendation on potential air navigation hazards.

12. Water Supply and Sewage Systems. Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

13. Coordination with SCC. According to the SCC, the facility may be subject to the Code of Virginia §56-580 D and if so, it must comply with 20VAC5-302-10. If applicable, coordinate with the SCC Director of the Division of Energy Regulation to ensure compliance.

Thank you for the opportunity to review the EA and FCD for this undertaking. Detailed comments of reviewing agencies are attached for your review. Please contact me at (804) 698-4325 or Julia Wellman at (804) 698-4326 for clarification of these comments.

Sincerely,



Ellie L. Irons, Manager
Office of Environmental Impact Review

Enclosures

cc: Steven B. Miner, Accomack County
Elaine Nachtrieb Meil, Accomack-Northampton PDC
Robert Cole, USACE
Roger Kirchen, DHR

Mr. Joshua A. Bundick
NASA Wallops Alternative Energy Project
10-037F

ec: Amy Ewing, DGIF
Robbie Rhur, DCR
Barry Matthews, VDH
Paul Kohler, DEQ ORP
Kotur S. Narasimhan, DEQ DAPC
Melanie Allen, VDOT
Cindy Keltner, DEQ TRO
George Badger, VMRC
Roger Kirchen, DHR
David Spears, DMME
Rusty Harrington, DOAv
Todd Groh, VOF
Laura McKay, Virginia CZM Program
Ronald Grayson, DHR
Carol Wampler, DEQ
Wayne Smith, SCC

Attachment 2

Advisory Policies for Geographic Areas of Particular Concern

- a. Coastal Natural Resource Areas - These areas are vital to estuarine and marine ecosystems and/or are of great importance to areas immediately inland of the shoreline. Such areas receive special attention from the Commonwealth because of their conservation, recreational, ecological, and aesthetic values. These areas are worthy of special consideration in any planning or resources management process and include the following resources:
 - a) Wetlands
 - b) Aquatic Spawning, Nursery, and Feeding Grounds
 - c) Coastal Primary Sand Dunes
 - d) Barrier Islands
 - e) Significant Wildlife Habitat Areas
 - f) Public Recreation Areas
 - g) Sand and Gravel Resources
 - h) Underwater Historic Sites.

- b. Coastal Natural Hazard Areas - This policy covers areas vulnerable to continuing and severe erosion and areas susceptible to potential damage from wind, tidal, and storm related events including flooding. New buildings and other structures should be designed and sited to minimize the potential for property damage due to storms or shoreline erosion. The areas of concern are as follows:
 - i) Highly Erodible Areas
 - ii) Coastal High Hazard Areas, including flood plains.

- c. Waterfront Development Areas - These areas are vital to the Commonwealth because of the limited number of areas suitable for waterfront activities. The areas of concern are as follows:
 - i) Commercial Ports
 - ii) Commercial Fishing Piers
 - iii) Community Waterfronts

Although the management of such areas is the responsibility of local government and some regional authorities, designation of these areas as Waterfront Development Areas of Particular Concern (APC) under the VCRMP is encouraged. Designation will allow the use of federal CZMA funds to be used to assist planning for such areas and the implementation of such plans. The VCRMP recognizes two broad classes of priority uses for waterfront development APC:

- i) water access dependent activities;
- ii) activities significantly enhanced by the waterfront location and complementary to other existing and/or planned activities in a given waterfront area.

Wellman, Julia (DEQ)

From: Wayne Smith [Wayne.Smith@scc.virginia.gov]
Sent: Wednesday, April 28, 2010 10:36 AM
To: Irons, Ellie (DEQ)
Cc: Wellman, Julia (DEQ)
Subject: RE: link to NASA Wallops Alternative Energy EA

Attachments: VA SCC Ltr Wallops Wind Facility.pdf



VA SCC Ltr
Wallops Wind Facili.

The Commission was contacted directly by NASA. Our Division of Energy Regulation responded. I have attached a copy of the Division's letter.

Wayne N. Smith
Office of General Counsel
Virginia State Corporation Commission
PO Box 1197
Richmond, VA 23218-1197

V: 804 371-9671
E-Mail : wayne.smith@scc.virginia.gov

-----Original Message-----

From: Irons, Ellie (DEQ) [mailto:Ellie.Irons@deq.virginia.gov]
Sent: Monday, April 19, 2010 11:10 AM
To: Wayne Smith
Cc: Wellman, Julia (DEQ)
Subject: FW: link to NASA Wallops Alternative Energy EA

Wayne:

NASA is proposing to construct 2 X 2.0 megawatt utility scale and 5 residential scale wind turbines, each generating 2.4 kilowatts (see link below). Does the SCC currently have any jurisdiction over these small turbines? NASA also proposes to install solar panels as well. If yes, please explain. Please copy Julia on your response since she is coordinating the review of the EA submitted by NASA. We would appreciate a quick response to facilitate us completing the review by tomorrow if possible. Thanks Ellie Ellie Irons Program Manager Office of Environmental Impact Review 629 East Main Street, Room 631 Richmond, VA 23219
Telephone: (804) 698-4325
Fax; (804) 698-4319
email address: Ellie.Irons@deq.virginia.gov <http://www.deq.virginia.gov>

-----Original Message-----

From: Wellman, Julia (DEQ)
Sent: Monday, April 19, 2010 10:57 AM
To: Irons, Ellie (DEQ)
Subject: link to NASA Wallops Alternative Energy EA

http://sites.wff.nasa.gov/code250/AltEnergy_DEA.html

At the top of the page, it is split into two files: the EA and the appendices.

COMMONWEALTH OF VIRGINIA

William F. Stephens
Director
(804) 371-9611
FAX (804) 371-9350

PO Box 1197
Richmond, Virginia 23218-1197

STATE CORPORATION COMMISSION DIVISION OF ENERGY REGULATION

April 14, 2010

Mr. Joshua A. Bundick
WFF NEPA Manager
National Aeronautics and
Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

Dear Mr. Bundick:

The Staff of the Virginia State Corporation Commission does not have any comments regarding the Draft Environmental Assessment for the proposed Wallops Flight Facility Alternative Energy Project.

Please be apprised, however, that the proposed facility may require approval by the Virginia State Corporation pursuant to §56-580 D of the Code of Virginia if it does not qualify as a net metering facility pursuant to §56-594 of the Virginia Code. Those code provisions can be viewed at the following links:

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+56-580>

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+56-594>

Based on your representation that the wind facility will have a capacity of 4 MW, it would appear to exceed the 500 kW net metering threshold. As such, the facility may be subject to §56-580 D of the Code. If so, the facility must comply with 20VAC5-302-10. Specifically, the facility would have satisfy the following requirement:

Construction of electric generating facilities with rated capacities of 5 MW or less may be undertaken without complying with the filing requirements established by this chapter. Persons desiring to construct such facilities

Mr. Joshua A. Bundick
April 14, 2010
Page 2

shall (i) submit a letter to the Director of the Division of Energy Regulation stating the location, size and fuel type of the facility, and (ii) comply with all other requirements of federal, state and local law.

Please let me know if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'Cody D. Walker', with a stylized flourish at the end.

Cody D. Walker
Assistant Director

Wellman, Julia (DEQ)

From: Wampler, Carol (DEQ)
Sent: Tuesday, April 20, 2010 10:31 AM
To: Wellman, Julia (DEQ)
Cc: Irons, Ellie (DEQ); Berndt, Cindy (DEQ)
Subject: RE: NASA Wallops Alternative Energy Project

Dear Julia,

Thanks for your msg re Wallops Island project. In fact, I heard a presentation about that proposed project at VMI.

If the developer chooses to apply to DEQ under the proposed PBR: Under our proposed PBR, the two 2-MW turbines would only be required to notify DEQ and to certify compliance with local government land-use requirements. The residential –scale turbines would likely have no PBR requirements under our proposal.

We will be starting our Solar RAP in the near future. I cannot say for sure until the RAP process is complete, but I believe that small projects will not require a full PBR process, if any at all. In other words, I expect the same or similar provisions to carry forward from the wind PBR to PBR's for the other renewable media. The speaker at VMI indicated that the solar possibilities had not proved financially feasible, so you may never see applications for the solar aspects.

The foregoing statements, however, only apply if the developer chooses to apply to DEQ once our reg becomes final (hopefully early next year for wind and sometime thereafter for solar). Under our statute, projects that begin under the current SCC rules may choose to continue under that regime. I would assume that the Wallops Island project would choose to remain on the SCC route, since they are entirely exempt under those rules.

Please let me know if these comments answer your questions. I'll also be happy to provide a copy of our proposed wind reg & TH-02 if they would be helpful.

I'd also like to talk to you in general terms about the Wallops Island project, when it's convenient for you. We will soon begin the RAP process that focuses on coastal/offshore wind projects, so the issues facing Wallops are important to us, even though the project itself is unlikely to come under our regs. I'm in the office most days, so I hope you'll let me know when we might chat. Thanks!

Carol

Carol C. Wampler

Department of Environmental Quality

804-698-4579

carol.wampler@deq.virginia.gov

carol.wampler.renewable.energy@gmail.com

From: Wellman, Julia (DEQ)
Sent: Monday, April 19, 2010 5:32 PM
To: Wampler, Carol (DEQ)

4/26/2010

Cc: Irons, Ellie (DEQ)

Subject: NASA Wallops Alternative Energy Project

Hi Carol,

DEQ is reviewing a federal environmental assessment (EA) submitted by NASA Wallops Flight Facility for an alternative energy project.

NASA is proposing to construct up to two 2.0 megawatt utility-scale wind turbines (capable of generating approximately 10 gigawatt-hours of electricity per year) and up to five 2.4 kilowatt residential-scale wind turbines. NASA also proposes to install solar panels under the two of the alternatives described in the EA. Detailed information is available online at http://sites.wff.nasa.gov/code250/AltEnergy_DEA.html. The start date of the proposed project is unknown. NASA Wallops states that it has consulted with the State Corporation Commission and the SCC has indicated it will not regulate this project due to its size.

Would this renewable energy project require any permits or approvals?

If you could get back to me at your earliest convenience, I would appreciate it.

Thank you, Julia

Julia Wellman
Environmental Impact Review Coordinator
Virginia Department of Environmental Quality
PO Box 1105
Richmond, VA 23218
Phone: (804) 698-4326
Fax: (804) 698-4319
NEW E-mail: Julia.Wellman@deq.virginia.gov

4/26/2010

Wellman, Julia (DEQ)

From: Bundick, Joshua A. (WFF-2500) [joshua.a.bundick@nasa.gov]
Sent: Monday, April 19, 2010 3:35 PM
To: Wellman, Julia (DEQ)
Subject: RE: Wallops alternative energy project (250.W)

Hi Julia,

We have not consulted with FERC regarding this project, as this project is a behind the meter community scale job. However we have worked with the State Corporation Commission, and understand that they will not be regulating the project either due to its size.

Any other questions, please let me know.

Joshua A. Bundick

Lead, Environmental Planning
NASA Wallops Flight Facility
Code 250.W
Wallops Island, VA 23337
Phone: (757) 824-2319
Fax: (757) 824-1819
Email: Joshua.A.Bundick@nasa.gov

From: Wellman, Julia (DEQ) [mailto:Julia.Wellman@deq.virginia.gov]
Sent: Monday, April 19, 2010 1:57 PM
To: Bundick, Joshua A. (WFF-2500)
Subject: Wallops alternative energy project (250.W)

Hi Josh,

I just missed your call. Did NASA Wallops coordinate with FERC regarding the alternative energy project? Do you know if FERC plans to be involved in any way?

Thank you, Julia

Julia Wellman
Environmental Impact Review Coordinator
Virginia Department of Environmental Quality
PO Box 1105
Richmond, VA 23218
Phone: (804) 698-4326
Fax: (804) 698-4319
NEW E-mail: Julia.Wellman@deq.virginia.gov

4/26/2010



RECEIVED

APR 15 2010

DEQ-Office of Environmental
Impact Review

MEMORANDUM

TO: Julia Wellman, Environmental Program Planner

FROM: Paul Kohler, Waste Division Environmental Review Coordinator

DATE: March 30, 2010

COPIES: Sanjay Thirunagari, Waste Division Environmental Review Manager; file

SUBJECT: Environmental Impact Report: Alternative Energy Program at Wallops Flight Facility; 10-037F

The Waste Division has completed its review of the Environmental Impact report for the Alternative Energy Program at Wallops Flight Facility project in Wallops Island, Virginia. We have the following comments concerning the waste issues associated with this project:

Both solid and hazardous waste issues were addressed in the report. The report did not include a search of waste-related data bases. A GIS database search did not reveal any waste sites within a half mile radius that would impact or be impacted by the subject site. The Waste Division staff performed a cursory review of its data files and determined that there are several hazardous and formerly used defense sites (FUDS) located within the same zip code, however their proximity to the subject site is unknown. These are as follows.

HW

NASA GSFC Wallops Flight Facility, VA8800010763 LQG (Active)
VA7800020888 LQG (Active)
VA7800020888 TSD (Active)

FUDS

C03VA0301, VA9799F1697, WALLOPS ISL

The following websites may prove helpful in locating additional information for these identification numbers: http://www.epa.gov/enviro/html/rcris/rcris_query_java.html. Paul Herman of DEQ's Federal Facilities Program has been contacted for his review of this determination and responded as follows.

Paul,

The NASA Wallops EIR concerning alternative energy does not provide sufficient information to determine whether the proposed action to install 2 utility-scale wind turbines and 5 residential-scale wind turbines will impact CERCLA sites on base. The figure showing where the residential-scale turbines would be is confusing as the symbol for one of the locations falls outside of both inset boxes. Please verify the locations and obtain a revised figure.

Thanks.

Paul E. Herman, P.E.
Remediation Project Manager
Federal Facilities Program
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219
Phone: (804) 698-4464
email: peherman@deq.virginia.gov

Any soil that is suspected of contamination or wastes that are generated during construction-related activities must be tested and disposed of in accordance with applicable Federal, State, and local laws and regulations. Some of the applicable state laws and regulations are: Virginia Waste Management Act, Code of Virginia Section 10.1-1400 *et seq.*; Virginia Hazardous Waste Management Regulations (VHWMR) (9VAC 20-60); Virginia Solid Waste Management Regulations (VSWMR) (9VAC 20-80); Virginia Regulations for the Transportation of Hazardous Materials (9VAC 20-110). Some of the applicable Federal laws and regulations are: the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. Section 6901 *et seq.*, and the applicable regulations contained in Title 40 of the Code of Federal Regulations; and the U.S. Department of Transportation Rules for Transportation of Hazardous materials, 49 CFR Part 107.

Also, all structures being demolished/renovated/ removed should be checked for asbestos-containing materials (ACM) and lead-based paint prior to demolition. If ACM or LBP are found, in addition to the federal waste-related regulations mentioned above, State regulations 9VAC 20-80-640 for ACM and 9VAC 20-60-261 for LBP must be followed.

Please note that DEQ encourages all construction projects and facilities to implement pollution prevention principles, including the reduction, reuse, and recycling of all solid wastes generated. All generation of hazardous wastes should be minimized and handled appropriately.

If you have any questions or need further information, please contact Paul Kohler at (804) 698-4208.

Wellman, Julia (DEQ)

From: Wellman, Julia (DEQ)
Sent: Thursday, April 15, 2010 2:38 PM
To: Herman, Paul (DEQ)
Cc: 'joshua.a.bundick@nasa.gov'
Subject: FW: Wallops alternative energy project (250.W)
Attachments: Wind Turbine MEC 001.jpg

Josh,

Thank you for the info.

Paul, If you have questions, it would probably be most efficient to contact Josh directly.

Thanks, Julia

Julia Wellman
Environmental Impact Review Coordinator
Virginia Department of Environmental Quality
PO Box 1105
Richmond, VA 23218
Phone: (804) 698-4326
Fax: (804) 698-4319
NEW E-mail: Julia.Wellman@deq.virginia.gov

From: Bundick, Joshua A. (WFF-2500) [mailto:joshua.a.bundick@nasa.gov]
Sent: Thursday, April 15, 2010 2:31 PM
To: Wellman, Julia (DEQ)
Subject: RE: Wallops alternative energy project (250.W)

Requested info attached. Please let me know if you have any add'l questions.

Josh

Joshua A. Bundick
Lead, Environmental Planning
NASA Wallops Flight Facility
Code 250.W
Wallops Island, VA 23337
Phone: (757) 824-2319
Fax: (757) 824-1819
Email: Joshua.A.Bundick@nasa.gov

From: Wellman, Julia (DEQ) [mailto:Julia.Wellman@deq.virginia.gov]
Sent: Thursday, April 15, 2010 2:15 PM
To: Bundick, Joshua A. (WFF-2500)
Subject: Wallops alternative energy project (250.W)

Just FYI – DEQ cannot receive emails larger than 10 MB.

4/16/2010

To: ~~Johnson, Wayne T. (WFF-200.C)~~ [TRANSYSTEMS CORPORATION (WICC)]
Subject: MEC site



~~Ross McAllen~~
GTS Analyst/Planner - TranSystems Corporation
NASA Wallops Flight Facility
Building N-161 Room 138
Wallops Island, VA 23337
Michael.R.McAllen@nasa.gov
(757) 824-2325

*Proposed
Residential
Turbine*

○ = End Butt / Bookstop

** Area cleared to about 15" Below grade*

Wellman, Julia (DEQ)

From: Herman, Paul (DEQ)
Sent: Monday, April 19, 2010 9:32 AM
To: Wellman, Julia (DEQ)
Cc: Kohler, Paul (DEQ); Sismour, Karen (DEQ)
Subject: Wallops alternative energy project (250.W) Environmental Impact Review
Attachments: EIR Review -NASA Wallops Alt energy proj.doc

Julia,

The attached memo summarizes the Federal Facility Restoration Programs review of the subject Environmental Impact Statement. The review focused on expected impacts to or from the proposed project on CERCLA and FUDS sites in the vicinity. A hard copy of this memo will not be provided. Please let me know if you have any questions.

Paul E. Herman, P.E.
Remediation Project Manager
Federal Facilities Program
Virginia Department of Environmental Quality
629 East Main Street
Richmond, Virginia 23219
Phone: (804) 698-4464
email: peherman@deq.virginia.gov

Why does everybody stand up and sing "Take Me Out To The Ballgame" when they're already there?
Larry Anderson

MEMORANDUM

DEPARTMENT OF ENVIRONMENTAL QUALITY - WASTE DIVISION
Federal Facilities Restoration Program
629 E. Main Street P.O. Box 10009 Richmond, Virginia 23240

SUBJECT: Environmental Assessment – NASA Wallops Flight Facility, Alternative Energy Project

TO: Julia Wellman, OEIR

FROM: Paul E. Herman, P.E., FFR

DATE: April 19, 2010

COPIES: Paul Kohler, File

The *Draft Environmental Assessment Wallops Flight Facility Alternative Energy Project* dated March 2010 has been reviewed as requested by Paul Kohler, Waste Division Environmental Review Manager. The document describes the proposed action (NASA's preferred alternative) to be the installation of two "utility-scale" and up to five "residential-scale" wind turbines; however, only 2 proposed utility-scale locations and 2 proposed residential-scale locations are identified with several areas presented as "suitable". This review focuses only on the proposed locations.

The proposed locations for each type of wind turbine are situated on each of the three distinct portions of the NASA installation; Main Base, Mainland, and Wallops Island. The "utility-scale" turbines are proposed for Wallops Island while the "residential-scale" turbines are proposed for locations at both the Mainland and Main Base. Each of the proposed locations may overlap active or closed CERCLA sites. Each proposed location is discussed further in the paragraphs below. Locations identified as "suitable areas for turbines" are not addressed in this review.

Wallops Island: Proposed Utility-Scale Wind Turbine(s)

The locations for the proposed utility-scale wind turbines are on the west side of Wallops Island adjacent to the tidal wetland as shown on Figure 3 of the Draft document. It is assumed potential impacts to wetlands are being considered by others. With regards to CERCLA, there are no active or closed CERCLA sites in the areas immediately surrounding the proposed locations for the turbines.

However, be advised, in years past low-lying areas on the island have been filled with soil in order to improve them for development. As the proposed utility-scale turbine locations are close to wetlands, the ground in each area may contain fill material. In some cases the fill material may have been excavated from elsewhere on the island. In the 1940's and '50's the north end of Wallops Island was used for military training and included bombing targets, strafing targets, machine gun ranges, and rocket ranges. If any fill material was excavated from elsewhere on the island it may have contained military munitions or munitions constituents associated with historic military training operations. Care should be taken when excavating in the locations proposed for the utility-scale wind turbines as military munitions may be present.

Also, the location of the project staging area appears to be close to an area designated as a "blast facility" on a 1958 aerial photo. This area has not been investigated by NASA or the U.S. Army Corps of Engineers under CERCLA but may contain munitions or munitions constituents associated with historic military training operations or munitions disposal.

Mainland: Proposed Residential-Scale Wind Turbine(s)

The Mainland location for the proposed residential-scale turbine is just south of Route 303 near the property line for the base. There are no active or closed CERCLA sites in this area. Also, no evidence of military munitions has appeared over the years on the Mainland portion of the base.

Main Base: Proposed Residential-Scale Wind Turbine(s)

The location proposed for a residential-scale wind turbine on the Main Base is near the NASA Visitors Center. During the 1940's and '50's this area was used to test aircraft machine guns. A firing-in butt, or target, was located in the vicinity of the location proposed for the turbine. Since its use as a firing in butt, the entire area including the firing points and firing in butts has been reworked and re-graded. In 2005 spent 20 mm rounds were found scattered about the rocket display area 400 feet southeast of the Visitors Center prompting NASA to conduct an investigation into the extent of munitions present.

In May 2006, NASA finalized a document entitled "Visitor Center Unexploded Ordnance Clearance Report" which documents the investigation and clearance of military munitions and munitions related items from the top 1 foot of soil. The investigation included the area around the proposed location for the residential-scale turbine but did not address metallic detections found deeper than 1 foot below ground surface. A total of 1, 113 munitions items were removed. Excavation in this area extending deeper than 1 foot may encounter military munitions.

Prior to initiating any construction, excavation or dredging activities on Wallops Island, Mainland, or Main Base property, the Federal Facilities Restoration Program recommends the Alternative Energy Project Manager contact Mr. T.J. Meyer, NASA WFF Manager of Environmental Restoration at (757) 824-1987, for information concerning any CERCLA or Military Munitions Response Program (MMRP) obligations at or near areas adjacent to Facility CERCLA/MMRP sites and Mr. Sher Zaman, U.S. Army Corps of Engineers Remediation Project Manager, Wallops FUDS at (410) 962-3134 for information concerning CERCLA/MMRP obligations at or near Wallops FUDS sites.

DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF AIR PROGRAM COORDINATION

ENVIRONMENTAL REVIEW COMMENTS APPLICABLE TO AIR QUALITY

TO: Julia H. Wellman

DEQ - OEIA PROJECT NUMBER: 10 - 037F

PROJECT TYPE: STATE EA / EIR FEDERAL EA / EIS SCC

X CONSISTENCY DETERMINATION

PROJECT TITLE: ALTERNATIVE ENERGY PROJECT AT WALLOPS FLIGHT FACILITY

PROJECT SPONSOR: NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

PROJECT LOCATION: OZONE ATTAINMENT AREA

REGULATORY REQUIREMENTS MAY BE APPLICABLE TO: CONSTRUCTION
 OPERATION

**STATE AIR POLLUTION CONTROL BOARD REGULATIONS THAT MAY APPLY:
SPECIFIC TO VIRGINIA OPERATIONS**

1. 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 E – STAGE I
2. 9 VAC 5-40-5200 C & 9 VAC 5-40-5220 F – STAGE II Vapor Recovery
3. 9 VAC 5-40-5490 et seq. – Asphalt Paving operations
4. **9 VAC 5-130 et seq. – Open Burning**
5. **9 VAC 5-50-60 et seq. Fugitive Dust Emissions**
6. 9 VAC 5-50-130 et seq. - Odorous Emissions; Applicable to _____
7. 9 VAC 5-50-160 et seq. – Standards of Performance for Toxic Pollutants
8. 9 VAC 5-50-400 Subpart _____, Standards of Performance for New Stationary Sources,
designates standards of performance for the _____
9. 9 VAC 5-80-10 et seq. of the regulations – Permits for Stationary Sources
10. 9 VAC 5-80-1700 et seq. Of the regulations – Major or Modified Sources located in PSD areas. This rule may be applicable to the _____
11. 9 VAC 5-80-2000 et seq. of the regulations – New and modified sources located in non-attainment areas
12. 9 VAC 5-80-800 et seq. Of the regulations – Operating Permits and exemptions. This rule may be applicable to _____

COMMENTS SPECIFIC TO THE PROJECT:



(Kotur S. Narasimhan)
Office of Air Data Analysis

Date: March 5, 2010



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

March 29, 2010

PROJECT NUMBER: 10-037F

PROJECT TITLE: Alternative Energy Project at Wallops Flight Facility

As Requested, TRO staff has reviewed the supplied information and has the following comments:

Petroleum Storage Tank Cleanups:

There has been multiple petroleum releases reported at the Wallops Flight Facility. One of the closed petroleum cases, PC# 1995-2405, is located about 1000 feet south of the proposed utility scale wind turbines site. This release, associated with Building V-10, should not impact this proposed wind turbine site. If evidence of a petroleum release is discovered during construction of this project, it must be reported to DEQ. Contact Ms. Lynne Smith at (757) 518-2055 or Mr. Gene Siudyla at (757) 518-2117. Petroleum contaminated soils or ground water generated during construction of this project must be properly characterized and disposed of properly.

Petroleum Storage Tank Compliance/Inspections:

The installation of any regulated petroleum storage tank(s) as part of this proposed project must be conducted in accordance with the requirements of the Virginia Storage Tank Regulations 9 VAC 25-580-10 et seq (underground tanks); and / or 9 VAC 25-91-10 et seq (aboveground tanks). Questions and / or documentation should be directed to Tom Madigan – DEQ Tidewater Regional Office – 5636 Southern Blvd., Virginia Beach, VA 23462. Phone (757) 518-2115.

Virginia Water Protection Permit Program (VWPP):

This project will require a permit from the VWPP program. As such, a joint permit application should be submitted to VMRC for distribution and review by interested regulatory parties, including DEQ. We are concerned that numerous projects are planned for this facility and that it may not be appropriate to review them as individual, single and complete projects. This issue has been discussed with the project proponents previously and will need to be resolved prior to permit issuance. Provided that all necessary permits are obtained and complied with, this project should be considered consistent with the requirements of the program.

Air Permit Program :

No comments.

Water Permit Program :

VPDES Permit Section – No Comment. No permits under the jurisdiction of the TRO VPDES Permit Section apply to this project.

Ground Water – No comments



DEPARTMENT OF ENVIRONMENTAL QUALITY
TIDEWATER REGIONAL OFFICE
ENVIRONMENTAL IMPACT REVIEW COMMENTS

March 29, 2010

PROJECT NUMBER: 10-037F

PROJECT TITLE: Alternative Energy Project at Wallops Flight Facility

Waste Permit Program :

All construction, operation and maintenance waste must be characterized in accordance with the Virginia Hazardous Waste Management Regulations prior to disposal at an appropriate facility.

The staff from the Tidewater Regional Office thanks you for the opportunity to provide comments.

Sincerely,

Cindy Keltner
Environmental Specialist II
5636 Southern Blvd.
VA Beach, VA 23462
(757) 518-2167
Cindy.Keltner@deq.virginia.gov



COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Douglas W. Domenech
Secretary of Natural Resources

Steven G. Bowman
Commissioner

March 12, 2010

Ms. Julia H. Wellman
c/o Department of Environmental Quality
Office of the Environmental Impact Review
629 East Main Street, Sixth Floor
Richmond, Virginia 23219

Re: 10-037F (Alternative Energy Project, Wallops Island)

Dear Ms. Wellman:

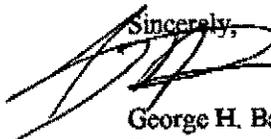
You have inquired regarding the construction of two 2.0-megawatt (MW) "utility-scale" wind turbines on Wallops Island that would be capable of generating approximately 10 GWh of electricity per year, and up to five 2.4-kilowatt (kW) "residential-scale" wind turbines at the Main Base and Mainland. The purpose of the proposed Alternative Energy Project is to generate clean, renewable energy at WFF from a technologically proven source in order to meet the requirements of the 2005 Federal Energy Policy Act and EOs 13423 and 13514.

The Marine Resources Commission requires a permit for any activities that encroach upon or over, or take use of materials from the beds of the bays, ocean, rivers and streams, or creeks which are the property of the Commonwealth.

Based upon my review of the "Draft Environmental Assessment for the Alternative Energy Project", dated March 2010, it would appear that your "Proposed Action and Alternatives" will not fall within the Commission's jurisdiction, therefore, no authorization would be required from the Marine Resources Commission.

For your information, however, the Proposed Action would require a wetlands permit from Accomack County for the filling of 0.88 of an acre of tidal wetlands. Alternative 2 to install up to five 2.4 kW wind turbines along with the installation of a system of solar panels at the Main Base and Mainland would appear not to impact tidal wetlands. This alternative would help alleviate our concerns to tidal wetland impacts.

If I may be of further assistance, please do not hesitate to contact me at (757) 414-0710.

Sincerely,

George H. Badger, III
Environmental Engineer

An Agency of the Natural Resources Secretariat
www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

203 Governor Street, Suite 326
Richmond, Virginia 23219-2010
(804) 786-2556 FAX (804) 371-7899

MEMORANDUM

DATE: April 5, 2010
TO: Julia Wellman, DEQ
FROM: Roberta Rhur, Environmental Impact Review Coordinator for
John Davy, Division Director, Planning and Recreational Resources
SUBJECT: DEQ 10-037F, NASA-Alternative Energy Project at Wallops Flight Facility

Division of Natural Heritage

The Department of Conservation and Recreation's Division of Natural Heritage (DCR) has searched its Biotics Data System for occurrences of natural heritage resources from the area outlined on the submitted map. Natural heritage resources are defined as the habitat of rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic formations.

According to the information currently in our files, the proposed project location at the Wallops Flight Facility on the Eastern Shore of Virginia, is within a significant migratory bird area that also supports breeding populations of numerous federally and state listed species including: Piping Plover (*Charadrius melodus*, G3/S2B, S1N/LT/LT), Least Tern (*Sterna antillarum*, G4/S2B/NL/SC), Wilson's Plover, (*Charadrius wilsonia*, G5/S1B/NL/LE), Peregrine falcon (*Falco peregrinus*, G4/S1B,S2N/NL/LT) and Bald Eagle, (*Haliaeetus leucocephalus*, G5/S2S3B,S3N/NL/LT). In addition, this area supports populations of wading birds such as the Great Egret (*Ardea alba*, G5/S2B,S4N/NL/SC), Tricolored heron (*Egretta tricolor* G5/S2B,S3N/NL/SC) and Little Blue Heron (*Egretta caerulea*, G5/S2B, S3N/NL/SC).

One of the major migratory corridors for neotropical migrant songbirds, as well as waterfowl and shorebirds, is the Atlantic Coast of North America south to Florida (Salathe, 1991; Watts & Mabey, 1994). It has been demonstrated that some of the most significant migration and stopover areas for landbirds in the Atlantic Flyway is the Eastern Shore of Maryland and Virginia (Mabey et al, 1993; Watts & Mabey, 1994).

Many species of migratory birds, particularly neotropical migrant songbirds that breed in North America and spend the non-breeding season in the sub-tropics and tropics, are experiencing population declines. For southbound migrants, the Chesapeake Bay is one of the largest physical barriers along the east coast. A combination of geographical, biological, and meteorological conditions serve to concentrate birds and

keep them bottled up for short periods of time on the Eastern Shore. Habitats within these stopover concentration areas should be considered critical to the persistence of bird populations that depend on them in passage (Watts & Mabey, 1994).

The proposed construction of wind turbines, especially those of “utility scale” has the potential to adversely impact resident and migratory birds and bats. DCR is concerned that 200-250 foot towers may have an adverse impact on the migratory birds, especially when the significance of the Delmarva peninsula to the Atlantic Flyway is considered. Potential impacts to birds and bats can result from collisions with wind turbine monopoles and blades. Indirect impacts can result from alteration of habitat causing changes in foraging, breeding and migratory behaviors. (Kunz et al,2007).

DCR strongly supports the use of alternative energy sources in the Commonwealth. Because this is an area of global ecological significance we support sound planning as the project moves forward. If the “No Build” alternative is not feasible, DCR recommends Alternative Two (smaller residential scale turbines and solar panels) as the preferred alternative as it would be the least impactful to natural heritage resources. The smaller turbines and the ability of the hybrid system to produce energy utilizing the solar panels instead of the turbines during low wind speeds would potentially reduce bird/bat mortality.

However, should Alternative 1 the “utility scale” wind turbines be installed on Wallops Island, DCR supports the two year post-construction monitoring study of bird/bat mortality and appropriate mitigation for impacts, possibly including seasonal low wind shutdowns.

Furthermore, due to the legal status of several of the natural heritage resources documented in this area, DCR also recommends coordination with the U.S. Fish and Wildlife Service (USFWS) and the Virginia Department of Game and Inland Fisheries to ensure compliance with protected species legislation.

There are no State Natural Area Preserves in the immediate project vicinity. State Natural Area Preserves do exist on the seaside, mainland and bayside of the Eastern Shore in part to help protect the same resources for which express caution as it relates to this project.

Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (VDACS) and the Virginia Department of Conservation and Recreation (DCR), DCR represents VDACS in comments regarding potential impacts on state-listed threatened and endangered plant and insect species. The current activity will not affect any documented state-listed plants or insects.

New and updated information is continually added to Biotics. Please contact DCR for an update on this natural heritage information if a significant amount of time passes before it is utilized.

The Virginia Department of Game and Inland Fisheries maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Shirl Dressler at (804) 367-6913.

Division of Chesapeake Bay Local Assistance

We have reviewed the proposed development of wind turbines at the Wallops Island facility in Accomack County. The subject property is located on property specifically excluded from Accomack County’s designated Chesapeake Bay Preservation Areas when the County extended their CBPA to include areas

which drain to the Atlantic Ocean. Therefore, there are no requirements necessary for consistency with the Chesapeake Bay Preservation Act.

Division of Soil and Water Conservation

The applicant and their authorized agents conducting regulated land disturbing activities on private and public lands in the state must comply with the Virginia Erosion and Sediment Control Law and Regulations (VESCL&R), Virginia Stormwater Management Law and Regulations including coverage under the general permit for stormwater discharge from construction activities, and other applicable federal nonpoint source pollution mandates (e.g. Clean Water Act-Section 313, Federal Consistency under the Coastal Zone Management Act). Clearing and grading activities, installation of staging areas, parking lots, roads, buildings, utilities, borrow areas, soil stockpiles, and related land-disturbance activities that result in the land-disturbance of greater than 10,000 square feet would be regulated by VESCL&R. Accordingly, the applicant must prepare and implement erosion and sediment control (ESC) plan to ensure compliance with state law and regulations. The ESC plan is submitted to the DCR Regional Office that serves the area where the project is located for review for compliance. The applicant is ultimately responsible for achieving project compliance through oversight of on site contractors, regular field inspection, prompt action against non-compliant sites, and other mechanisms consistent with agency policy. [Reference: VESCL §10.1-567;].

The operator or owner of construction activities involving land disturbing activities equal to or greater than one acre are required to register for coverage under the General Permit for Discharges of Stormwater from Construction Activities and develop a project specific stormwater pollution prevention plan (SWPPP). The SWPPP must be prepared prior to submission of the registration statement for coverage under the general permit and the SWPPP must address water quality and quantity in accordance with the Virginia Stormwater Management Program (VSMP) Permit Regulations. General information and registration forms for the General Permit are available on DCR's website at

http://www.dcr.virginia.gov/soil_and_water/index.shtml

[Reference: Virginia Stormwater Management Law Act §10.1-603.1 et seq.; VSMP Permit Regulations §4VAC-50 et seq.]

The remaining DCR divisions have no comments regarding the scope of this project. Thank you for the opportunity to comment.

Cc: Tylan Dean, USFWS
Amy Ewing, VDGIF

Literature Cited

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Salathe, T. 1991. Conserving migratory birds. ICBP Technical Publication No. 12. International Council for Bird Preservation, Cambridge, U.K. 393 pp.

Watts, B.D. and S.E. Mabey. 1994. Migratory landbirds of the Lower Delmarva: Habitat selection and geographic distribution. A report of the Virginia Department of Environmental Quality to the National Oceanic and Atmospheric Administration, Office of Ocean and Coastal Resource Management.



COMMONWEALTH of VIRGINIA

DEPARTMENT OF TRANSPORTATION
1700 NORTH MAIN STREET
SUFFOLK, VIRGINIA 23434

Gregory A. Whirley
Acting Commissioner

March 18, 2010

To: Melanie L. Allen
Environmental Program Planner
Virginia Department of Transportation

From: Tony Gibson
Transportation Planning Engineer
VDOT Hampton Roads District

Subject: Consistency Determination Review and Environmental Assessment
Alternative Energy Project at Wallops Flight Facility- NASA
Accomack County, Virginia

The Hampton Roads District Planning Section has reviewed the above referenced environmental evaluation for impacts to the existing and future transportation system. Our preliminary review does not indicate any negative impacts to the transportation system at this time.

There is one transportation improvement project in the vicinity of the Wallops Flight Facility Launch Range in the FY 10-15 Six Year Improvement Program or the Secondary Six Year Program. That project is UPC #1896- Route 175- Chincoteague Bridge Replacement.

We can only conclude any additional traffic or traffic disruptions regarding this process being considered are negligible.

This improvement/construction should note coordination with VDOT's Accomack Residency is required if there are any impacts, temporary or permanent, to VDOT right of way. Roadway closures or impacts also need to be coordinated with VDOT's Accomack Residency. Otherwise, this office has no objections to the proposed improvements.

If further assistance is needed, please advise.

Cc: Eric Stringfield
Bobby Isdell

Wellman, Julia (DEQ)

From: Forsgren, Diedre (VDH)
Sent: Friday, March 19, 2010 10:50 AM
To: Wellman, Julia (DEQ)
Cc: Matthews, Barry (VDH)
Subject: (10-037F) EIS/CD: Alternative Energy Project at Wallops Flight Facility, NASA

DEQ Project #: 10-037F
Name: Alternative Energy Project at Wallops Flight Facility
Sponsor: National Aeronautics and Space Administration
Location: Accomack County

VDH – Office of Drinking Water has reviewed DEQ Project Number 10-037F. Below are our comments as they relate to proximity to **public drinking water** sources (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems must be verified by the local utility.

No groundwater wells are within 1 mile radius of the project site.

No surface water intakes are located within 5 miles radius of the project site.

Project does not fall within Zone 1 or Zone 2 of any public surface water sources.

There are no apparent impacts to public drinking water sources due to this project.

Diedre Forsgren

Office Services Specialist
VIRGINIA DEPARTMENT OF HEALTH
Office of Drinking Water, Room 622-A
109 Governor Street
Richmond, VA 23219
Phone: (804) 864-7241
email: diedre.forsgren@vdh.virginia.gov



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MAR 11 2010

DEQ-Office of Environmental
Impact Review

COMMONWEALTH of VIRGINIA

Randall P Burdette
Director

Department of Aviation
5702 Gulfstream Road
Richmond, Virginia 23250-2422

V/TDD • (804) 236-3624
FAX • (804) 236-3635

March 8, 2010

Ms. Julia H. Wellman
Department of Environmental Quality
Office of Environmental Impact Review
629 East Main Street, 6th Floor
Richmond, Virginia 23219

**Re: Alternative Energy Project at Wallops Flight Facility
Consistency Certification, Project Number 10-037F**

Dear Ms. Wellman:

Thank you for requesting our comments regarding the alternative energy project at Wallops Flight Facility, Project Number 10-037F.

The Virginia Department of Aviation has reviewed the environmental assessment study provided. The Department would suggest that the turbines and their locations be studied in order to determine any airspace considerations be determined or the impact on the safety and utility of aircraft operations at the Wallops Flight Facility. Our intent is to prevent the creation of any hazards to air navigation by the construction of the turbines.

The Department appreciates the consideration you have given to us by requesting our comments on this project. Please do not hesitate to contact me should you have any questions or require further assistance regarding the Department's review of these projects.

Sincerely,

R. N. (Rusty) Harrington
Manager, Planning and Environmental Section
Airport Services Division

tbm/

100 DOAVAS 20100308 Wallops Energy Project 10-037F.doc





COMMONWEALTH of VIRGINIA

Department of Historic Resources

2801 Kensington Avenue, Richmond, Virginia 23221-0311

L. Preston Bryant, Jr.
Secretary of Natural Resources

Kathleen V. Kilpatrick
Director

Tel: (804) 367-2323
Fax: (804) 367-2391
TDD: (804) 367-2386
www.dhr.virginia.gov

March 31, 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, Draft EA
NASA Wallops Flight Facility, Wallops Island, Accomack County
DHR File #: 2009-1883
Date Received: March 2, 2010

Dear Mr. Stanley:

We have received information regarding our review of the above referenced undertaking, including a copy of the Draft *Environmental Assessment Wallops Flight Facility Alternative Energy Project* (March 2010). Unfortunately, at this time we are unable to make an informed decision concerning all effects of the proposed undertaking.

Based upon the information provided, we concur with your determination that the proposed utility-scale wind turbines will have no direct effects to historic properties. We also concur with your determination that the proposed utility-scale wind turbines will have an indirect effect on the NRHP-eligible Coast Guard Life Saving Station and associated Observation Tower. We request a detailed description of what alternatives NASA has explored to avoid and/or minimize the effects to above ground historic properties.

The APE for the proposed residential-scale wind turbines has not been identified, we recommend continued consultation with our office to fully identify and assess the effects of the undertaking.

We also request a list of Native American tribes, federally and state recognized, that have an ancestral interest in Virginia that you contacted in this consultation. We look forward to continued consultation with you on this project. 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

c.c. Julia H. Wellman, Virginia Department of Environmental Quality

Administrative Services
10 Courthouse Avenue
Petersburg, VA 23803
Tel: (804) 862-6416
Fax: (804) 862-6196

Capital Region Office
2801 Kensington Ave
Richmond, VA 23221
Tel: (804) 367-2323
Fax: (804) 367-2391

Tidewater Region Office
14415 Old Courthouse Way, 2nd Floor
Newport News, VA 23608
Tel: (757) 886-2807
Fax: (757) 886-2808

Roanoke Region Office
1030 Pennar Ave., SE
Roanoke, VA 24013
Tel: (540) 857-7585
Fax: (540) 857-7588

Northern Region Office
5357 Main Street
PO Box 519
Stephens City, VA 22655
Tel: (540) 868-7029
Fax: (540) 868-7033

Wellman, Julia (DEQ)

From: Jim McGowan [jmcgowan@co.accomack.va.us]
Sent: Wednesday, April 14, 2010 12:08 PM
To: Wellman, Julia (DEQ)
Cc: Steve Miner; Mark Taylor; dfluhart@co.accomack.va.us
Subject: FW: Comments Due: NASA Wallops Alternative Energy Project

Dear Ms. Wellman,

I am responding to your e-mail message of April 13th that I received this morning. David Fluhart, Director of Building and Zoning, submitted comments to NASA on March 5, 2010. My understanding is that David's comments met Accomack County's review comment requirement and that NASA would forward comments to DEQ. I spoke with Mr. Fluhart this morning and he will be sending his comments directly to you.

The proposed NASA project is on Federal land. Accomack County does not have jurisdiction over Federal land, as the Federal Government is Superior Sovereign. Accomack County's zoning requirements, including the Chesapeake Bay Preservation Act, and erosion and sediment control requirements, do not apply to Federal land. The proposed project area is not in Accomack County's Chesapeake / Atlantic Preservation Area Zoning Overlay District. The Accomack County Wetlands Board, which is staffed by Mr. Fluhart's Office, is handling the required wetlands permitting process for the project. In the past week I received phone calls from the Virginia Department of Conservation and Recreation and the Division of Chesapeake Bay Local Assistance and answered their questions regarding this project.

Accomack County supports development of alternative energy sources and is looking forward to seeing this project proceed. In March 2010 the Department of Planning received a rezoning and conditional use permit application for a 5 megawatt utility scale solar energy farm project on 100 acres of private land. We expect several more solar energy farm applications in the near future. Accomack County is looking forward to being a leader in alternative energy in Virginia and the United States.

Please contact me if I can be of further assistance or provide additional information.

Sincerely yours,

Jim McGowan
Director of Planning

James M. McGowan, AICP
Director of Planning
County of Accomack
23282 Courthouse Avenue
P.O. Box 686
Accomack, VA 23301

Phone: 757-787-5726
FAX: 757-789-3116

jmcgowan@co.accomack.va.us

<http://www.co.accomack.va.us>

From: Accomack County Planning Office
Sent: Wednesday, April 14, 2010 10:00 AM
To: Jim McGowan

4/14/2010

Wellman, Julia (DEQ)

From: David Fluhart [dfluhart@co.accomack.va.us]

Sent: Wednesday, April 14, 2010 11:43 AM

To: Wellman, Julia (DEQ)

Cc: Jim McGowan; Steve Miner

Subject: NASA Wallops Alternative Energy Project

Good morning Ms. Wellman, please find the following information from the Accomack County Building and Zoning Office regarding the referenced project:

On March 5, 2010, I sent the following comments to Josh Bundick (Lead, Environmental Planning, WFF):

Good morning Josh. Thank you for the opportunity to review the EA for the WFF Alternative Energy Project. I have not forwarded this information to the Accomack County Wetlands Board but will do so when a Joint Permit Application (JPA) is submitted for the project.

I have reviewed all of the slides/appendix included on the CD and offer the following comments:

In both the Federal Consistency Determination (Appendix C, Page 2 of 7) and the March 2010 Draft EA (Page 32, 3.1.1.3), your documents explains the County of Accomack is classifying the area (land use) as being zoned Industrial. Actually, the County of Accomack has all of Wallops Island and the majority of the NASA Main Base as being located in an Agricultural Zoning District.

Only the area near the Marine Science Consortium belonging to NASA (that was included as part of the Wallops Research Park) is zoned Industrial. There is also a small area zoned Business which is located along Route 175, Chincoteague Road (at the intersection of Atlantic Road).

The Accomack County Wetlands Board will be required to conduct a public hearing and consider action on the parts of this project that will impact tidal wetlands (because the tidal wetlands are not owned by the Commonwealth or a political subdivision thereof). I have recently discussed this with Joel Mitchell, including the required submittal of a JPA for even the temporary impacts associated with the geo-boring (temporary road crossings).

Other than these notes/corrections, I have no comments regarding the project. I would be happy to put this in letter form, if necessary. Let me know how you would like it.

David Fluhart

The Accomack County Wetlands Board will consider the geo-boring and temporary road crossings associated with the location of the wind turbines at a scheduled Wetlands Board meeting on April 29, 2010. If the Wetlands Board approves the geo-borings and temporary road crossings and NASA decides to proceed with the location of the wind turbines in the proposed location, another Joint Permit Application would be required to be submitted with another Wetlands Board meeting required with a Public Hearing for the permanent location of the towers and access road.

I am available to answer any questions regarding this information. I may be reached at 757-787-5721.

Thank you,

David Fluhart, Director
Accomack County Building and Zoning

Memorandum

To: Julia Wellman, Environmental Program Planner
From: Laura McKay, Virginia CZM Program Manager
Date: March 30, 2010
RE: Federal Project # 10-037F: Alternative Energy Project at Wallops Flight Facility

While NASA's efforts to demonstrate the use of alternative energy are laudable, their proposed alternative which would put two utility-scale turbines on a barrier island does present coastal resource conflicts. Over the past 7 years the Virginia CZM Program has invested heavily in a multi-partner "Seaside Heritage Program" designed to restore various types of seaside habitats. One aspect of this program focused heavily on restoring shorebird habitats through controls on mammalian predators and public education efforts about the importance of not disturbing beach-nesting birds.

These efforts have been very successful, increasing the hemispheric, ecological importance of the Seaside of Virginia's Eastern Shore. The Seaside hosts a vast array of migratory species. 40 species of waterbirds and shorebirds on these beach and marsh habitats for breeding grounds. 24 species of migratory shorebirds use these areas as a rest stop where they congregate, rest, feed and put on weight that allows them to fly long distances – in the fall some travel as far as Central America and some as far as the southern tip of South America and in the spring they travel as far north as Canada. Some species such as whimbrels even fly from the Eastern Shore to the Great Lakes and Alaska. In short, likely millions of birds are flying in or through the airspace of Wallops Island and the rest of this barrier island lagoon system. Several species (such as red knots and piping plovers) are listed as endangered or threatened. Almost all migratory bird populations have declined precipitously over recent decades. Placing wind turbines in this Western Hemisphere Shorebird Reserve/Audubon Important Bird Area/Nature Conservancy Last Great Place/DGIF Essential Wildlife Habitat/UVA Long Term Ecological Research Reserve is not a good approach to demonstrating environmental stewardship.

Alternative Two would be the most environmentally responsible approach for NASA. Demonstrating the use of solar panels would achieve both a reduction in greenhouse gases and an energy source with virtually no impacts on this hemispherically important bird habitat. There are many other locations in Virginia that are far more suitable for wind energy production. Highly significant amounts of wind energy could be generated by locating a large array of wind turbines about 12 miles offshore of Virginia Beach. Erecting wind turbines on a barrier island within such an important bird habitat would set a very poor precedent.

Thank you for the opportunity to comment.



W. Duncan

COMMONWEALTH of VIRGINIA

Department of Game and Inland Fisheries

Douglas W. Domenech
Secretary of Natural Resources

Robert W. Duncan
Executive Director

RECEIVED

April 12, 2010

APR 15 2010

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

DEQ-Office of Environmental
Impact Review

RE: ESSLog# 25379; NASA Wallops
Flight Facility Alternative Energy
Project – Draft Environmental
Assessment (DEA), Avian Study
Report, and Bat Survey Report.

Dear Mr. Bundick:

Thank you for the opportunity to comment on the NASA Wallops Flight Facility (WFF) Alternative Energy Project – Draft Environmental Assessment (DEA), Avian Study Report, and Bat Survey Report. 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 stated in our comments dated July 3, 2008 and April 29, 2009 (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. Our comments elaborated on our concerns and provided recommendations to strengthen sampling efforts in order to gather the appropriate data needed to assess risks. At that time we were hopeful that our comments would be taken into consideration and our recommendations for improvement would be implemented. We reiterate our original concerns regarding the sampling design and are concerned that the information presented by the DEA and supporting documents will incorrectly lead to a Finding of No Significant Impact

(FONSI) for the project. We herein provide the following comments pertaining to the preliminary studies and resulting conclusions drawn within the DEA.

Regional Characteristics & Importance:

Virginia's barrier islands have been recognized as an International Shorebird Reserve within the Western Hemisphere Shorebird Reserve Network because of their importance to the survival of hundreds of thousands of shorebirds annually. In addition, The Nature Conservancy's Virginia Coast Reserve, which encompasses 10 of the 14 barrier islands, has been designated as a Man and the Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization. With the exception of Wallops Island, which is owned by NASA and Cedar Island, which encompasses several private in-holdings, the remainder of the islands are entirely owned and managed by the USFWS and the Commonwealth of Virginia and therefore protected in perpetuity from future development. Wallops Island lies between two islands owned and managed by Chincoteague National Wildlife Refuge; Assateague Island to the north and Assawoman Island to the south to which Wallops Island is currently connected, forming a single island.

Eighty-four percent ($n = 70$) of Virginia's avian coastal Species of Greatest Conservation Need (SGCN) are known to occur on Virginia's northern barrier islands at some point during the annual cycle (Table 1; VDGIF 2005). In addition, the island chain represents a critically important breeding area for a number of beach nesting SGCN including: the federally threatened Piping Plover (*Charadrius melodus*); the state endangered Wilson's Plover (*C. wilsonia*); the American Oystercatcher (*Haematopus palliatus*), which is ranked nationally as a high conservation priority species in the US Shorebird Conservation Plan (Brown *et al.* 2001); the state threatened Gull-billed Tern (*Sterna nilotica*); and the Least Tern (*S. antillarum*), which is a state species of special concern. The barrier islands support up to 13% of the Atlantic coast Piping Plover breeding population (Boettcher *et al.* 2007). Since 2000, Virginia's Wilson's Plover breeding population, comprised of fewer than 40 pairs, has been confined to Assawoman, Metompkin, and Cedar islands with the exception of one pair that was discovered nesting on Assateague Island in 2008 (Wilke *et al.* 2009). Virginia supports the largest American Oystercatcher breeding population relative to other east coast states (Wilke *et al.* 2005). Over 50% of the state's breeding pairs occur on the barrier islands, nearly half of which nest on Metompkin and Cedar islands (Wilke *et al.* 2009). Moreover, oystercatcher productivity rates along the barrier island chain are among the highest reported on the US Atlantic coast, suggesting that the islands may serve as important population sources for the east coast population (Wilke 2008). The barrier islands also provide important breeding habitat for Least Terns; since 1975 between 35% – 67% on the state's population has been documented on the barrier island chain (VDGIF, unpubl. data). Virginia's statewide Gull-billed Tern breeding population has declined from approximately 2,000 pairs in the mid-1970's (Erwin *et al.* 1998) to approximately 300 pairs with 94% of the population currently occurring in Virginia's seaside marshes and barrier islands (Watts and Paxton 2009). While Gull-billed Terns are able to exploit barrier beaches and marsh habitats with equal success in response to rapidly changing conditions (Boettcher and Wilke 2009), the barrier islands remain important nesting habitat for this declining species in Virginia. Other barrier island breeding SGCN that may be impacted by local wind energy development include, but are limited to, the state threatened Bald Eagle

(*Haliaeetus leucocephalus*), state threatened Peregrine Falcon (*Falco peregrinus*), Common Tern (*S. hirundo*), Black Skimmer (*Rynchops niger*) and Royal Tern (*S. maxima*) (Appendix B, Table 1).

Over the past 20 years, the Red Knot (*Calidris canutus rufa*) population has declined by over 80% (Morrison *et al.* 2004) and is currently a candidate species for federal listing under the Endangered Species Act. Red knots migrate annually north along the US Atlantic coast in the spring enroute to arctic breeding grounds. As many as 10,000 individuals have been observed staging on the barrier islands during spring migration (Smith *et al.* 2008). It is not known how close to shore knots fly during migration or at what altitude, but it is possible they may fly in the path of utility-scale wind turbines located on Virginia's barrier islands.

Over 80% of the Atlantic coast Piping Plover population (including eastern Canada) breeds north of Virginia (USFWS 2009); thus it stands to reason that a significant portion of the breeding population flies by, over, or stages on the barrier islands. In addition, Piping Plovers from the endangered Great Lakes population have been documented along the Atlantic coast in New Jersey, Maryland, Virginia, and North Carolina (Stucker and Cuthbert 2006). It is not unusual to encounter flocks of 2 – 30 birds on the barrier islands during fall and spring migration (R. Boettcher, pers. obs). As with Red Knots, it is not known where in proximity to the shoreline plovers migrate or at what altitude, but it is possible for portions of the Atlantic coast and Great Lakes populations to fly in the path of large wind turbines located on the barrier islands.

The Whimbrel (*Numenius phaeopus*) has been identified as a species of high conservation concern in the U.S. and Canadian Shorebird Conservation Plans due to dramatic declines in recent decades (Brown *et al.* 2001, Donaldson *et al.* 2000). Virginia's barrier island and seaside lagoon system serves as an important spring stopover site for a large portion of the birds that breed south and west of Hudson Bay in Manitoba and Ontario. A 50% decline in the peak number of Whimbrels detected has been observed between the mid-1990's and 2008 (Wilke and Johnson-González 2009). Recent tracking studies indicate that Virginia may support individuals from the Pacific coast breeding population as well (Watts *et al.* 2008); thus further highlighting the critical role Virginia's coast plays in this species' life cycle.

VDGIF Concerns – Project Background & Alternatives Analysis:

Below we summarize our concerns regarding the Proposed Action and Alternatives One and Two as presented in the Alternatives Analyses of the DEA. In addition, our evaluation of the experimental design used during preliminary avian surveys and corresponding conclusions drawn by the DEA are provided in Appendix A.

1. Federal Endangered Species Act (ESA)

In the DEA, NASA determined that the Proposed Action and Alternative One “may affect, and is likely to adversely affect” the Piping Plover and Red Knot” (Executive Summary,

page vi, Threatened and Endangered Species). The DEA acknowledges the likely potential for the project to adversely impact these protected species in violation of the ESA, and demonstrates that the alternatives under consideration are not consistent with NASA's goal to

“set an example of leadership in environmental stewardship and accountability by a Federal Agency.”

#82

Under Alternative Two, NASA makes no determination of potential effect (Executive Summary, page vi, Threatened and Endangered Species), but later identifies that the Proposed Action and all alternatives “may result in minor adverse impacts” to the Henslow’s Sparrow, Upland Sandpiper, Piping Plover, Wilson’s Plover, Red Knot, Peregrine Falcon, Gull-billed Tern, Bald Eagle, and Loggerhead Shrike (all state listed species; pages 122 - 126). This would suggest that there is potential for impact to the Piping Plover and Red Knot as well as the other state listed species.

#83

As stated on page i of the Executive Summary, “This EA encompasses a 25-year planning horizon...” An issue overlooked in this DEA is the current petition to list the eastern-small footed bat (*Myotis leibii*) and northern long-eared bat (*Myotis septentrionalis*; Center for Biological Diversity, January 2010) due to white-nose syndrome and the high likelihood that all cave dwelling bats in the east will be petitioned for listing, certainly within the life of this project. Of the two species currently petitioned for listing, the range of the northern long-eared bat includes the project site.

#84

2. State Endangered Species Act

The DEA identifies that the Proposed Action and all alternatives “may result in minor adverse impacts” to the Henslow’s Sparrow, Upland Sandpiper, Piping Plover, Wilson’s Plover, Red Knot, Peregrine Falcon, Gull-billed Tern, Bald Eagle, and Loggerhead Shrike

(all state listed species; pages 122 - 126). The potential to impact multiple state listed species is of great concern to VDGIF both from an ecological and legal perspective. The DEA does not adequately address monitoring and mitigation of potential impacts to state listed species.

#85

See Appendices B, C, D, and E for guidance. The DEA also does not propose coordination with VDGIF concerning potential take of state listed species.

#86

3. Bald and Golden Eagle Protection Act

The DEA identifies that the Proposed Action and all alternatives “may result in minor adverse impacts” to Bald Eagles. The Wind Energy Avian Study Report identified 10 bald eagles over a 12 month period. The Phase I Avian Risk Assessment (Kerlinger 2004) noted “it is possible that Bald Eagles could fly over either turbine site, with Site #2 being more likely to have overflights.” The high density and movement of eagles in this area elevates the likelihood of impact. The DEA does not adequately address monitoring and mitigation of potential impacts to eagles. See Appendices B, C, D, and E for guidance. The DEA also does not propose coordination with the USFWS or VDGIF concerning potential take of eagles.

#87

4. Bird (Migratory Bird Treaty Act, MBTA) and Bat Fatalities

The Wind Energy Avian Study Report cited the fatality rates at the Jersey Atlantic Wind (JAW) facility as “relatively low avian and bat fatality at this five turbine project...”. In fact this site reports the highest bird fatality rates per turbine per year recorded for any wind facility in the United States and perhaps the world (30 birds per turbine per year). While the

MBTA has been “mentioned” with regard to take at wind facilities, the high level of avian fatalities associated with coastal projects may trigger greater scrutiny by the general public and resource agencies. In addition, the number of bats per turbine per year (46) is higher than many of the mountain sites where fatality rates are already considered significant.

Considering that several migratory bird routes converge just north of the site we can expect that the WFF facility will have fatality rates in excess of the JAW facility.

In addition to birds, it is likely that the pattern of concentration down the Eastern Shore will be similar with bats. According to the DEA (Executive Summary, page *iv*), the Proposed Action and Alternative One would be sited in wetlands. Under the Proposed Action and Alternative One, “...the wind turbines would be white to blend in with the sky...” (Executive Summary, page *viii*). A study of wind turbines off the coast of Sweden determined that insects are attracted to the white colored blades and bats followed (Ahlen et al., 2007; Elfland, et al. 2009). We believe that the high bat fatality rates documented at the JAW facility suggest that the fatality rates at the WFF facility will be similar to or greater than fatality rates at the JAW facility. The DEA does not adequately address monitoring and mitigation of potential impacts to bird and bat species. See Appendices C, D, and E for guidance. The DEA also does not propose coordination with VDGIF concerning potential take of bird and bat species.

#88

5. USEFWS Wind Turbine Advisory Guidelines

The DEA contained no reference to the federal wind energy guidelines (USFWS 2003, 2009) which leads us to conclude that WFF chose to ignore the guidance they offered with regard to preliminary site evaluation and screening, risk assessment and pre-construction studies, despite prior recommendations made by VDGIF and other agencies to incorporate them early in the National Environmental Policy Act (NEPA) process. Below is a brief synopsis of why we believe this represents a major oversight in the development of the DEA.

#89

In 2003, the USFWS drafted interim wind energy development guidelines that clearly recommended developers avoid placing turbines in documented locations of any federally listed species, in known local bird migration pathways, or in areas where birds are highly concentrated, unless mortality risk is low (e.g., birds present rarely enter the rotor-swept area). Examples of high concentration areas for birds cited in the guidelines include wetlands, State or Federal refuges, staging areas, rookeries and roosts (USFWS 2003). In 2009, the USFWS Wind Turbine Guidelines Advisory Committee (WTGAC) developed a tiered approach to evaluating environmental risk and making site selection and operational decisions for wind energy development projects (WTGAC 2009). The first tier covers preliminary evaluation or screening of potential sites and its purposes are: (1) to offer early guidance about the sensitivity of the site within a larger landscape; (2) to help direct development away from sites that will require greater study and incur higher mitigation costs; (3) to identify those sensitive resources that will need to be studied further to determine if the site can be developed without significant adverse impacts to species of concern; and, (4) to reveal serious concerns indicating that a site should not be developed. The WTGAC came up with the following four questions under Tier 1:

- Are there species of concern present on the proposed site, or is habitat (including designated critical habitat) present for these species?
- Does the landscape contain areas where development is precluded by law or areas designated as sensitive according to scientifically credible information? Examples of designated areas include, but are not limited to: ‘areas of scientific importance’; ‘areas of significant value’; federally-designated critical habitat; high-priority conservation areas for non-government organizations; or other local, state, regional, federal, tribal, or international categorizations.
- Are there known critical areas of wildlife congregation, including, but not limited to, maternity roosts, hibernacula, staging areas, winter ranges, nesting sites, migration stopovers or corridors, leks, or other areas of seasonal importance?
- Are there large areas of intact habitat with the potential for fragmentation, with respect to species of habitat fragmentation concern needing large contiguous blocks of habitat?

A “yes” answer to one or more of the questions indicates a higher probability of significant adverse impacts to wildlife. Thus, according to the WTGAC’s recommendations, further consideration of the area should be abandoned, or efforts should be made to identify possible means by which the project can be modified to avoid or minimize significant adverse impacts unless the available data are insufficient to answer one or more of the Tier 1 questions (WTGAC 2009). In the case of WFF wind energy project, the answer is yes to three out of the four questions (i.e., questions 1 – 3) with sufficient data to adequately address each question. Based on this initial site screening approach, which VDGIF supports, WFF should abandon its choice of its *Proposed Action* and consider other alternatives that do not include the installation of one or more utility-scale wind turbines on Wallops Island. See Table 1, Avian coastal species identified as Species of Greatest Conservation Need in Virginia’s Wildlife Action Plan that are known to occur on Virginia’s barrier islands (Appendix B, Table 1).

VDGIF Conclusions:

The VDGIF believes the Proposed Action (preferred alternative) and Alternative One have a high likelihood to result in violations of the Federal Endangered Species Act, the Virginia State Endangered Species Act, the Bald and Golden Eagle Protection Act, and the Migratory Bird Treaty Act. In addition, these alternatives ignore the U.S. Fish and Wildlife Services’ 2003 recommendations for identifying appropriate areas for wind development as well as the new guidance from the USFWS Wind Turbine Advisory Committee (2009). While the Proposed

#90

Action and Alternatives One and Two will meet the objectives set forth in the 2005 Federal Energy Policy Act, we do not believe that the alternatives advanced in the DEA “support NASA’s goal to set an example of leadership in environmental stewardship and accountability by a Federal Agency.”

#91

Alternative Two proposes a combination of residential-scale wind and solar panels. It is uncertain to what degree this alternative will impact wildlife, because residential-scale wind turbines have not been studied with respect to impacts to wildlife resources. Alternative Two may violate the same laws, for the same reasons described for the Proposed Action and Alternative One. However, certain aspects of Alternative Two are preferable because it

#92

implements the use of solar panels and the initial phased-development of the residential-scale wind component of the project is limited to the construction of one or two turbines, providing an opportunity for further study to determine impacts of residential-scale wind development and identify appropriate mitigation opportunities. Alternative Two provides a better opportunity for NASA to achieve the objectives set forth by the 2005 Federal Energy Policy Act and to minimize potential violation of the above listed Acts and laws, thereby supporting NASA's goal to set an example of leadership in environmental stewardship.

#92

The DEA states the WFF Main Base has a sufficient amount of open space to install a system of solar panels capable of generating up to 10 gigawatt-hours (GWh) of electricity per year as mandated by 2005 Federal Energy Policy Act. Open space requirements could be further reduced by installing a portion of the solar panels on existing rooftops and other flat structures. A solar panel system would serve as an effective educational tool with minimal risk to wildlife; thus eliminating the need to construct residential wind turbines. Lastly, going strictly solar

#93

would place WFF in compliance with most, if not all environmental laws and send a clear message to the public and stakeholders that WFF is serious about conserving the sensitive resources on Virginia's barrier islands. It is for these reasons we encourage further evaluation of this alternative.

#94

While the No Action Alternative would not support the 2005 Federal Energy Policy Act it would alleviate potential for violation of the Federal Endangered Species Act, the Virginia State Endangered Species Act, the Bald and Golden Eagle Protection Act, the Migratory Bird Treaty Act as well as impacts to birds and bats. This alternative would also follow the guidance as outlined in both the USFWS 2003 wind siting recommendations and the USFWS Wind Turbine Advisory Committee (2009). In addition, this alternative would support "NASA's goal to set an example of leadership in environmental stewardship and accountability by a Federal Agency."

#95

VDGIF Recommendations:

We support the use of alternative energy sources, including wind energy. However, we feel the full impacts upon wildlife must be better assessed. While the current movement toward renewable energy is a valuable and needed progression in energy development, alternatives under consideration must be better evaluated so that they can be implemented in a manner that includes management steps needed to protect regionally sensitive environmental resources.

Once again, we recommend conducting a more complete evaluation of solar panels and other potential alternative energy sources. Potential adverse impacts should be avoided and minimized where possible, 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.

#96

The VDGIF believes the Proposed Action (preferred alternative) and Alternative One are very likely to result in violations of the Federal Endangered Species Act, the Virginia State Endangered Species Act, the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. If the Proposed Action or Alternative One is adopted, this facility may result in the greatest number of bird fatalities per turbine per year in North America (National Wind

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Coordinating Committee 2004, GAO-05-906 2005). Therefore, the VDGIF recommends against further consideration of these alternatives. Further, we recommend:

- Further development and analysis of additional alternatives that would implement energy-conservation measures to manage on-site energy usage and maximize the use of solar panels on existing rooftops and available upland-sites; #97
- Further development of a slightly modified Alternative Two that includes construction of up to two residential-scale wind turbines for educational purposes, incorporates a study design to assess and mitigate the impacts of residential wind turbines, and implements maximum use of solar panels on existing rooftops and available upland-sites; #98
- Preparation of a Supplemental Environmental Assessment or Draft Environmental Impact Statement to better address the potential impacts to all wildlife; if the Proposed Action, Alternative One, or Alternative Two are selected. #99

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
Nongame and Environmental Programs

cc: Kim Smith, USFWS
Rene Hypes, VDCR-DNH
Gwynn Crichton, TNC
Julia Wellman, DEQ-OEIR

Attachments.

APPENDIX A

COMMENTS REGARDING THE EXPERIMENTAL DESIGN USED DURING PRELIMINARY STUDIES AND THE RESULTING CONCLUSIONS PRESENTED BY THE DRAFT ENVIRONMENTAL ASSESSMENT

Preliminary Study Assessing the Risk to Birds: To assess the risk to birds from the operation of two utility-scale wind turbines, an on-site field study (Appendix A in the DEA) was conducted from September 12, 2008 – October 1, 2009. The specific objectives of the field study were as follows:

- Perform a pre-construction inventory of resident avian species and habitat in the vicinity of the proposed turbine sites;
- Identify pre-construction migratory, nesting, and winter avian use (abundance and behavior) of the project site, including use of migration stopover, resting, or feeding areas in the vicinity of the development site;
- Assess potential risk from wind turbine operation to avian species, primarily through monitoring of avian fatalities at existing tall structures on Wallops Island.

Based on our review of the information presented in the wind energy avian field study, we conclude that these objectives were not met. We believe the results of the preliminary study to be inconclusive in terms of assessing risk. Therefore, due to deficiencies in experimental design used during the preliminary studies, we believe that the DEA presents unsupportable conclusions and has not achieved its stated objectives.

Study Design, Duration, Sampling Effort, Presentation of Data, and Conclusions: The avian study used tall structures such as stationary towers located close to the project footprint as surrogates for wind turbines as the primary means to assess risk to birds. While the rationale may be plausible, the use of stationary towers as surrogates for wind turbines has not been tested. Additionally, these stationary towers differ in size and shape from the industrial- and residential-scale wind turbines being proposed. Unlike the proposed wind turbines, stationary towers have no moving parts; thus making it difficult to ascertain whether the fatality data gathered from this effort are comparable and can be used to predict wind turbine mortality rates.

The avian study did not account for annual variability in avian distribution and abundance and in movement and behavioral patterns, because the avian study was limited to one year. The USFWS interim wind energy development guidelines recommends that in areas with known occurrences of threatened and endangered species and/or where high concentrations of birds occur year round, pre-construction studies should span a minimum of three years (USFWS 2003). Virginia's barrier island and seaside lagoon system, which Wallops Island is part of, meet both of these criteria.

Over the 12 month study, sampling efforts were limited to one 15 minute period per week per site for most weeks and two 15 minute periods per week per site during an approximate 17 week

period in the spring and fall. The results were just over 100 species (the exact number is not mentioned) observed. While additional time was likely spent on these surveys, the total survey effort was a minimum of 2,070 minutes for both sites during the 12 month period. This converts to 34.5 hours, just short of one and one half days of survey effort. Even if the original survey effort was doubled, the total survey effort would be slightly less than 3 days out of 12 months. Considering that over one half of this effort was confined to a two hour period between 7:00 a.m. to 9:00 a.m., it's understandable how a conclusion of "unremarkable" was determined. Sampling results are only as good as sampling effort. Furthermore, we believe that this effort fell short of accurately characterizing year-round avian use of the project area. In contrast, the two (2) day site visit during the Phase I Avian Risk Assessment documented 108 species including 4 federally threatened piping plovers and a state threatened peregrine falcon. (Kerlinger 2004). We estimate that, if the surveyors spent 12 hours per day in the field during the two-day site visit for the Phase I Avian Risk Assessment, then the sampling effort during this two-day Phase I Avian Risk Assessment was nearly equivalent to the sampling effort during the avian study used to develop the DEA. Overall, we believe that this sampling effort during the avian study was grossly inadequate.

The avian study table listing all point count observations (Attachment 1 in the Avian Study Report) did not provide any explanation, definition or diagram of "Sector", "Direction", or "Path"; and Table 6 in the avian study report (Appendix A in the DEA), which presents results from the supplemental migration observations does not define or explain the codes used in "Where seen" column.

According to the avian study, "the lack of even one observation of the piping plover during the 12-month survey combined with the absence of suitable habitat in the proposed wind turbine area indicates risk to this species should be nil." A 12-month sampling effort could not detect the piping plover; however, 4 individuals were observed during a two day site visit. This disparity is not explained and causes us to question the capability of the study design to adequately detect a given species. In addition, the argument that "the absence of suitable habitat in the proposed wind turbine area" indicates risk to the species should be nil is ill-founded. There are many species, both birds and bats that are killed by wind turbines despite the lack of suitable habitat at the wind turbine site. The majority of fatalities are, arguably, from individuals moving through the site, irrespective of the availability of suitable habitat at that site.

The avoidance, minimization, and mitigation of potential impacts to state listed species is not adequately addressed. The lack of detailed description of methodology makes interpretation of the raw data difficult. While the survey (Tetra Tech et al., 2010) did not document the federally threatened piping plover, this effort did document 10 bald eagles (state threatened), four peregrine falcons (state threatened) and one gull-billed tern (state threatened). When considering the limited effort of this technique, we believe that high number of state listed bird observations is remarkable. Combined with the results of the Phase I Avian Risk Assessment, these data support the determination "the general area is a very important area for bird(s)...globally significant flightlines for fall migrating [raptors]...strongly suggest that the two project sites will have significant bird use" (Kerlinger 2004, Executive Summary, page 3).

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Project Purpose and Need under NEPA: According to the DEA (Executive Summary, page 1), “The purpose of the proposed Alternative Energy Project...meet the requirements of the 2005 Federal Energy Policy Act...also support NASA’s goal to set an example of leadership in environmental stewardship and accountability by a Federal agency.” While the Proposed Action and Alternatives One and Two will meet the 2005 Federal Energy Policy Act, we do not believe that the alternatives presented in the DEA “support NASA’s goal to set an example of leadership in environmental stewardship and accountability by a Federal Agency” for the reasons stated above.

Draft Environmental Assessment Conclusions The DEA referenced avian and bat fatality rates for another wind facility along the Atlantic Coast, the Jersey Atlantic Wind (JAW) facility. According to the DEA (Executive Summary, page 2), “The results regarding relatively low avian and bat fatality at this five-turbine project over a 17-month period lend strong support to the potential for the Wallops Island two-turbine demonstration project to cause low risk to a similar coastal avian community.” We do not agree with this conclusion. The highest bird fatality rates for any wind facility in the United States and perhaps the world, 30 birds per turbine per year, were actually documented at the JAW facility.

Up to this point, bird fatalities at wind facilities were typically in the single digits per turbine per year. In addition, the number of bats per turbine per year (46) is higher than many of the mountain sites where fatality rates are already considered significant. It is puzzling to understand how these results can be construed as “...relatively low avian and bat fatality [rates]...” These figures do not “lend strong support to...Wallops Island [project]...to cause low risk,” but rather demonstrate that the WFF facility, where “several [migratory bird] routes converge just north of WFF, resulting in...numbers that are globally significant,” (URS 2010, page 32 Migratory Birds) will have fatality rates in excess of the JAW facility. In addition to birds, it is likely the same pattern of concentration down the eastern shore will be noted with bats. With the high fatality rates documented at the JAW facility, it is only logical that the WFF facility will reach these same fatality levels if not higher.

APPENDIX B

Table 1. Avian coastal species identified as Species of Greatest Conservation Need in Virginia's Wildlife Action Plan (VDGIF 2005) that are known to occur on Virginia's northern barrier islands (USFWS 2010). The four tiers of imperilment are defined as the following: Tier I – critical conservation need, faces an extremely high risk of extinction or extirpation; Tier II – very high conservation need, has a high risk of extinction or extirpation; Tier III – high conservation need, extinction or extirpation is possible; and Tier IV – moderate conservation need, the species may be rare in parts of its range, particularly on the periphery (VDGIF 2005).

Tier	Common Name	Genus	Species
I	Peregrine falcon	<i>Falco</i>	<i>peregrinus</i>
I	Wilson's plover	<i>Charadrius</i>	<i>wilsonia</i>
I	Piping plover	<i>Charadrius</i>	<i>melodus</i>
I	Gull-billed tern	<i>Sterna</i>	<i>nilotica</i>
 			
II	Little blue heron	<i>Egretta</i>	<i>caerulea</i>
II	American bittern	<i>Botaurus</i>	<i>lentiginosus</i>
II	American black duck	<i>Anas</i>	<i>rubripes</i>
II	Bald eagle	<i>Haliaeetus</i>	<i>leucocephalus</i>
II	American oystercatcher	<i>Haematopus</i>	<i>palliatius</i>
II	Least tern	<i>Sterna</i>	<i>antillarum</i>
II	Royal tern	<i>Sterna</i>	<i>maxima</i>
II	Black skimmer	<i>Rynchops</i>	<i>niger</i>
II	Saltmarsh sharp-tailed sparrow	<i>Ammodramus</i>	<i>caudacutus</i>
 			
III	Tricolored heron	<i>Egretta</i>	<i>tricolor</i>
III	Black-crowned night-heron	<i>Nycticorax</i>	<i>nycticorax</i>
III	Yellow-crowned night-heron	<i>Nyctanassa</i>	<i>violacea</i>
III	Least bittern	<i>Ixobrychus</i>	<i>exilis</i>
III	Glossy ibis	<i>Plegadis</i>	<i>falcinellus</i>
III	Brant (winter)	<i>Branta</i>	<i>bernicla</i>
III	Redhead (winter)	<i>Aythya</i>	<i>americana</i>
III	Northern harrier	<i>Circus</i>	<i>cyaneus</i>
III	Common tern	<i>Sterna</i>	<i>hirundo</i>
III	Barn owl	<i>Tyto</i>	<i>alba</i>
III	Nelson's sharp-tailed sparrow	<i>Ammodramus</i>	<i>nelsoni</i>
 			
IV	Horned grebe (winter)	<i>Podiceps</i>	<i>auritus</i>
IV	Green heron	<i>Butorides</i>	<i>striatus</i>
IV	Greater scaup (winter)	<i>Aythya</i>	<i>marila</i>
IV	Northern bobwhite	<i>Colinus</i>	<i>virginianus</i>
IV	Clapper rail	<i>Rallus</i>	<i>longirostris</i>
IV	Virginia rail	<i>Rallus</i>	<i>limicola</i>
IV	Yellow rail (migrant)	<i>Coturnicops</i>	<i>noveboracensis</i>
IV	Black-bellied plover (winter)	<i>Pluvialis</i>	<i>squatarola</i>
IV	Hudsonian godwit (migrant)	<i>Limosa</i>	<i>haemastica</i>
IV	Marbled godwit (winter)	<i>Limosa</i>	<i>fedoa</i>
IV	Whimbrel (migrant)	<i>Numenius</i>	<i>phaeopus</i>

IV	American woodcock	<i>Scolopax</i>	<i>minor</i>
IV	Short-billed dowitcher (migrant)	<i>Limnodromus</i>	<i>griseus</i>
IV	Red knot (migrant)	<i>Calidris</i>	<i>canutus</i>
IV	Purple sandpiper (winter)	<i>Calidris</i>	<i>maritima</i>
IV	Dunlin (winter)	<i>Calidris</i>	<i>alpina</i>
IV	Forster's tern	<i>Sterna</i>	<i>forsteri</i>
IV	Roseate tern (migrant)	<i>Sterna</i>	<i>dougallii</i>
IV	Yellow-billed cuckoo	<i>Coccyzus</i>	<i>americanus</i>
IV	Chuck-will's-widow	<i>Caprimulgus</i>	<i>carolinensis</i>
IV	Chimney swift	<i>Chaetura</i>	<i>pelagica</i>
IV	Eastern kingbird	<i>Tyrannus</i>	<i>tyrannus</i>
IV	Willow flycatcher	<i>Empidonax</i>	<i>traillii</i>
IV	Eastern wood-pewee	<i>Contopus</i>	<i>virens</i>
IV	Northern rough-winged swallow	<i>Stelgidopteryx</i>	<i>serripennis</i>
IV	Brown-headed nuthatch	<i>Sitta</i>	<i>pusilla</i>
IV	Marsh wren	<i>Cistothorus</i>	<i>palustris</i>
IV	Gray catbird	<i>Dumetella</i>	<i>carolinensis</i>
IV	Brown thrasher	<i>Toxostoma</i>	<i>rufum</i>
IV	Wood thrush	<i>Hylocichla</i>	<i>mustelina</i>
IV	Yellow-throated vireo	<i>Vireo</i>	<i>flavifrons</i>
IV	Black-and-white warbler	<i>Mniotilta</i>	<i>varia</i>
IV	Worm-eating warbler	<i>Helmitheros</i>	<i>vermivorus</i>
IV	Northern parula	<i>Parula</i>	<i>americana</i>
IV	Yellow warbler	<i>Dendroica</i>	<i>petechia</i>
IV	Prairie warbler	<i>Dendroica</i>	<i>discolor</i>
IV	Ovenbird	<i>Seiurus</i>	<i>aurocapillus</i>
IV	Louisiana waterthrush	<i>Seiurus</i>	<i>motacilla</i>
IV	Yellow-breasted chat	<i>Icteria</i>	<i>virens</i>
IV	Eastern meadowlark	<i>Sturnella</i>	<i>magna</i>
IV	Rusty blackbird (winter)	<i>Euphagus</i>	<i>carolinus</i>
IV	Scarlet tanager	<i>Piranga</i>	<i>olivacea</i>
IV	Rose-breasted grosbeak	<i>Pheuctitus</i>	<i>ludovicianus</i>
IV	Eastern towhee	<i>Pipilo</i>	<i>erythrophthalmus</i>
IV	Seaside sparrow	<i>Ammodramus</i>	<i>maritimus</i>
IV	Field sparrow	<i>Spizella</i>	<i>pusilla</i>

APPENDIX C

Bird and Bat Fatality Rates for Wind Facilities in Virginia

Birds: Maximum fatality rates for birds at wind facilities in Virginia:

In acknowledgement that common species with large populations should be less affected by wind turbine fatalities, VDGIF recommends a maximum allowable take of 6.9 SGCN birds/turbine/year (listed below). This maximum level of take does not include raptors, which are addressed in Appendix D.

Avian Species of Greatest Conservation Need (SGCN):

Tier^a	Common name
I	Appalachian Yellow-Bellied Sapsucker
I	Appalachian Bewick's Wren
I	Loggerhead Shrike
I	Golden-Winged Warbler
I	Black-Throated Green Warbler
I	Red Crossbill
II	American Bittern
II	American Black Duck
II	Winter Wren
II	Cerulean Warbler
III	Yellow-Crowned Night-Heron
III	Redhead
IV	Green Heron
IV	Greater Scaup
IV	Northern Bobwhite
IV	American Woodcock
IV	Short-Billed Dowitcher
IV	Yellow-Billed Cuckoo
IV	Whip-Poor-Will
IV	Chimney Swift
IV	Eastern Kingbird
IV	Willow Flycatcher
IV	Eastern Wood-Pewee
IV	Northern Rough-Winged Swallow
IV	Brown Creeper
IV	Gray Catbird
IV	Brown Thrasher
IV	Wood Thrush
IV	Yellow-Throated Vireo
IV	Black-And-White Warbler
IV	Worm-Eating Warbler

IV	Blue-Winged Warbler
IV	Northern Parula
IV	Yellow Warbler
IV	Prairie Warbler
IV	Ovenbird
IV	Louisiana Waterthrush
IV	Kentucky Warbler
IV	Yellow-Breasted Chat
IV	Canada Warbler
IV	Eastern Meadowlark
IV	Rusty Blackbird
IV	Scarlet Tanager
IV	Rose-Breasted Grosbeak
IV	Eastern Towhee
IV	Grasshopper Sparrow
IV	Field Sparrow

- ^a Tier I: Critical Conservation Need
- Tier II: Very High Conservation Need
- Tier III: High Conservation Need
- Tier IV: Moderate Conservation Need

Bats: Maximum fatality rates for bats at wind facilities in Virginia:

Because of the documented high bat fatalities at wind facilities in the east, the take of bats is assumed. VDGIF recommends the following a maximum allowable take for bats:

- Migratory tree bats (red, hoary, and silver-haired): 3 migratory tree bats/turbine/year. Cap of 225 tree bats per facility per year for facilities larger than 75 turbines.
- Eastern pipistrelle: 1 per turbine/year. A cap of 75 pipistrelles per facility per year for facilities larger than 75 turbines.
- Eastern small-footed Myotis: 0.1 per turbine/year. A cap of 7.5 eastern small-footed Myotis per facility per year for facilities larger than 75 turbines.
- All “other bats” (little brown, big brown, northern long-eared, etc.): 5 other bats/turbine/year. A cap of 375 “other bats” per facility per year for facilities larger than 75 turbines per year.

APPENDIX D

Raptor Replacement Cost¹

Species	Replacement Cost
Northern Harrier	\$1,000.00
Mississippi Kite	750.00
Swallow-Tailed Kite	750.00
Sharp-Shinned Hawk	500.00
Cooper's Hawk	500.00
Northern Goshawk	750.00
Red-Shouldered Hawk	500.00
Broad-Winged Hawk	500.00
Red-Tailed Hawk	500.00
Rough-Legged Hawk	750.00
Bald Eagle	1,500.00
Golden Eagle	750.00
Osprey	500.00
Merlin	750.00
American Kestrel	500.00
Gyr Falcon	750.00
Peregrine Falcon	1,500.00
Barn Owl	1,000.00
Long-Eared Owl	750.00
Short-Eared Owl	750.00
Great Horned Owl	500.00
Snowy Owl	750.00
Barred Owl	500.00
Northern Saw-Whet Owl	1,000.00
Eastern Screech-Owl	500.00
Unidentified/Unspecified Raptor	500.00

¹These figures are provided annually by the Department of Game and Inland Fisheries to the Commonwealth's prosecuting attorneys and judges, as recommended guidelines for prosecuting unlawful or unauthorized take of raptors, just as similar dollar figures are assigned to deer, bear, turkey, and other game species.

APPENDIX E

VDGIF Bat and Bird Monitoring and Mitigation Recommendations for Wind Development Projects in Coastal Virginia

Pre-construction:

Objective: Data collection during pre-construction surveys is designed to: (1) document species, numbers, and seasonal use of the project site for predicting the potential impacts to wildlife; and (2) collect data that can be used in the design or operation of the facility with the purpose of avoiding, minimizing, and mitigating impacts to wildlife resources. The duration of pre-construction surveys will be based on the extent of existing and applicable information in the vicinity of the project, the presence and ability to avoid sensitive habitats, the likelihood of occurrence of Threatened and Endangered species and other Species of Conservation Concern, and other factors identified during the pre-construction assessment.

Approach: To meet this objective, the facility will assume the full costs of implementing the following measures:

- **Information Review:**

Existing information on wildlife use or potential use in the vicinity of the project will be collected. The following resources at a minimum should be consulted: VDGIF (Richmond, VA), DCR-DNH (Richmond, VA), and the USFWS (Gloucester, VA). Additional resources should include other resource agencies, local experts, colleges and universities, regional periodicals (e.g., *Banisteria*, *Northeast Naturalist*, *Southeast Naturalist*, etc.), and data gathered at other nearby wind facilities or other types of projects.

- **Habitat Mapping:**

Major and unique habitats and land cover types within the project area and adjacent vicinity should be collected and mapped using current state-of-the-art GIS software.

- **Meteorological Data:**

There is a strong correlation between bat fatalities at wind facilities and meteorological data (wind speed, rain events, weather fronts, time of year, etc.) and this correlation may exist for other taxa as well, but has yet to be tested. A minimum of 1 year of meteorological data collected either at existing met tower(s) or at stand alone tower(s) is required.

- **Raptor Surveys:**

The use of the ocean coast line by raptors is not well understood in Virginia. A minimum of 1 year of seasonal (fall, winter, spring) raptor surveys to document passage rates, height, and behavior (foraging, migration, etc.). If peregrine falcons or eagles are documented in the area then further consultation with VDGIF and the USFWS is warranted and additional surveys may be needed.

- **Bird Surveys:**
Because of the history of bird fatalities at wind facilities in the east (JAW), the take of birds is assumed. A minimum of two migration seasons (spring – March 15 through June 1, fall – August 15 through October 31) of nocturnal radar surveys to document passage rates, altitudes, and associated meteorological data. If any threatened, endangered, or species of greatest conservation need are known or suspected of using the site, additional species specific surveys may be required.
- **Bat Surveys:**
Because of the documented high bat fatalities at wind facilities in the east, the take of bats is assumed. A minimum of one season (April 1 through October 31) of bat detector surveys to document passage rates in relation to meteorological data. If any threatened, endangered, or species of greatest conservation need is known or suspected of using the site, additional species specific surveys may be required. A minimum number of acoustic stations should be placed at each north, east, south, and west periphery of the project area, with one station in the center, and additional stations in areas with variation in terrain (Kunz et al. 2007). Each station should follow the 3-dimensional sample array as described by Arnett et al. (2006) and Reynolds (2006).
- **Threatened and Endangered Species Surveys:**
The presence or potential occurrence of state or federal threatened or endangered species identified during the information review or during pre or post-construction surveys may require additional surveys. Consultation with the appropriate agency should occur as soon as possible once a species is known or suspected of occurring on or near the project site.
 - A) State T&E Plants and Insects: Department of Agriculture and Consumer Services.
 - B) All other state listed species: Department of Game and Inland Fisheries.
 - C) Federal T&E Species (plants and animals): U.S Fish and Wildlife Service, Gloucester, VA.

Post-construction (Year 1):

Objective: Data collection during the initial year of operation is designed to document fatality rates and assess compliance with maximum allowable levels of take. In addition, meteorological data will be collected with the intent of developing associations between fatality rates and weather conditions. These data may be used to develop operational changes if needed to minimize take and ultimately meet the maximum allowable levels of take.

Approach: To meet this objective, the facility will assume the full costs of implementing the following measures:

- 1 year of meteorological data collected either at existing met tower(s) or at stand alone tower(s).
- Daily bat/bird fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from spring through fall (April 1 through October 31). If the facility is small (10 or less turbines), fatality searches will

be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.

- Daily raptor fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from November 15 through March 31. If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.

Post-construction (Years 2–3):

A) Objective: If fatality rates (adjusted for searcher efficiency and scavenging rates) measured during the first year of operation are below the maximum allowable levels of take without the use of adaptive management, then, during years 2 & 3, the facility will continue to monitor fatalities and meteorological conditions to document that fatality rates remain below the maximum allowable levels of take for the second and third years of project operations.

Approach: To meet this objective, the facility will assume the full costs of implementing the following measures.

- Continue collecting meteorological data either at existing met tower(s) or at stand alone tower(s).
- Daily bat/bird fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from spring through fall (April 1 through October 31). If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.
- Daily raptor fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from November 15 through March 31. If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.

B) Objective: If fatality rates (adjusted for searcher efficiency and scavenging rates) measured during the first year of operation met or exceeded the maximum allowable levels of take, then operational changes (adaptive management) will be implemented to achieve compliance with the maximum allowable levels of take in the second and third years. The facility also will continue to monitor fatalities and meteorological conditions to document that fatality rates remain at or below the maximum allowable levels of take for the second and third years of project operations.

Approach: To meet these objectives, the facility will assume full costs of implementing the following measures.

- Deterrents, adjustments to cut-in speeds, or curtailment of turbines during peak migration periods, as determined through analysis of the meteorological and fatality data gathered during pre and post-construction (Year 1) surveys. The effectiveness of the Year 2 operational changes will be evaluated to determine further changes

warranted for Year 3 with the objective of meeting the maximum allowable levels of take.

- Continue collecting meteorological data either at existing met tower(s) or at stand alone tower(s).
- Daily bat/bird fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from spring through fall (April 1 through October 31). If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.
- Daily raptor fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from November 15 through March 31. If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.

Post-construction (Years 4 to decommissioning):

- A) Objective and Approach:** If fatality rates (adjusted for searcher efficiency and scavenging rates) measured during the first three years of operation never exceeded the maximum allowable levels of take without implementation of adaptive management strategies, then the facility will continue to monitor fatalities at a level of effort (to be determined upon analysis and evaluation of the first 3 years of meteorological and fatality data) sufficient to document that fatality rates remain at or below the maximum allowable levels of take.
- B) Objective:** If fatality rates (adjusted for searcher efficiency and scavenging rates) measured during Year 2 and/or 3 were maintained at or below the maximum allowable levels of take, with implementation of adaptive management strategies, then the facility will continue to monitor fatalities and implement mitigatory measures as necessary to achieve compliance with allowable levels of take.

Approach: To meet this objective, the facility will assume the full costs of implementing the following monitoring measures.

- Continue collecting meteorological data either at existing met tower(s) or at stand alone tower(s).
- Data from the first three years of bat/bird fatality searches will be used to determine the minimum survey effort needed to produce statistically significant fatality rates for the periods of greatest concern (periods of highest mortality). Fatality searches will include searcher efficiency and scavenging trials.
- Data from the first three years of raptor fatality searches will be used to determine the minimum survey effort needed to produce statistically significant fatality rates for the periods of greatest concern (periods of highest mortality). Fatality searches will include searcher efficiency and scavenging trials.
- Deterrents, adjustments to cut-in speeds, or curtailment of turbines during peak migration periods, as determined through analysis of the meteorological and fatality data gathered during pre and post-construction surveys. The effectiveness of the Year

2 and 3 operational changes will be assessed and adjustments made for continued mitigation to meet the maximum allowable levels of take. Annual adjustments can be made as data on fatalities and meteorological conditions are assessed.

C) Objective: If fatality rates (adjusted for searcher efficiency and scavenging rates) measured during Year 2 and/or 3 exceeded the maximum allowable levels of take despite implementation of adaptive management strategies, then the monitoring regimen and operational strategies will be modified and implemented in continuing efforts to achieve compliance with the maximum allowable levels of take.

Approach: To meet this objective, the facility will assume full costs of implementing the following measures.

- Continue collecting meteorological data either at existing met tower(s) or at stand alone tower(s).
- Daily bat/bird fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from spring through fall (April 1 through October 31). If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.
- Daily raptor fatality searches at a minimum of 10 randomly selected turbines or 50 percent of the turbines, whichever is greater, from November 15 through March 31. If the facility is small (10 or less turbines), fatality searches will be conducted at each turbine. Fatality searches will include searcher efficiency and scavenging trials.
- Deterrents, adjustments to cut-in speeds, or curtailment of turbines during peak migration periods, as determined through analysis of the meteorological and fatality data gathered during pre and post-construction surveys. The effectiveness of the operational changes will be assessed annually and adjustments made for the following year with the objective of meeting the maximum allowable levels of take.

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April 12, 2010
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COMMONWEALTH of VIRGINIA

Marine Resources Commission
2600 Washington Avenue
Third Floor
Newport News, Virginia 23607

Douglas W. Domenech
Secretary of Natural Resources

Steven G. Bowman
Commissioner

March 12, 2010

Mr. Joshua A. Bundick
Wallops Flight Facility NEPA Program Manager
c/o National Aeronautics and Space Administration
Goddard Space Flight Center
Wallops Flight Facility (250.W)
Wallops Island, Virginia 23337

"Alternative Energy Project"

Dear Mr. Bundick:

You have inquired regarding the construction of two 2.0-megawatt (MW) "utility-scale" wind turbines on Wallops Island that would be capable of generating approximately 10 GWh of electricity per year, and up to five 2.4-kilowatt (kW) "residential-scale" wind turbines at the Main Base and Mainland. The purpose of the proposed Alternative Energy Project is to generate clean, renewable energy at WFF from a technologically proven source in order to meet the requirements of the 2005 Federal Energy Policy Act and EOs 13423 and 13514.

The Marine Resources Commission requires a permit for any activities that encroach upon or over, or take use of materials from the beds of the bays, ocean, rivers and streams, or creeks which are the property of the Commonwealth.

Based upon my review of the "Draft Environmental Assessment for the Alternative Energy Project", dated March 2010, it would appear that your "Proposed Action and Alternatives" will not fall within the Commission's jurisdiction, therefore, no authorization would be required from the Marine Resources Commission.

#1

For your information, however, the Proposed Action would require a wetlands permit from Accomack County for the filling of 0.88 of an acre of tidal wetlands. Alternative 2 to install up to five 2.4 kW wind turbines along with the installation of a system of solar panels at the Main Base and Mainland would appear not to impact tidal wetlands. This alternative would help alleviate our concerns to tidal wetland impacts.

#2

If I may be of further assistance, please do not hesitate to contact me at (757) 414-0710.

Sincerely,

George H. Badger, III
Environmental Engineer

An Agency of the Natural Resources Secretariat

www.mrc.virginia.gov

Telephone (757) 247-2200 (757) 247-2292 V/TDD Information and Emergency Hotline 1-800-541-4646 V/TDD

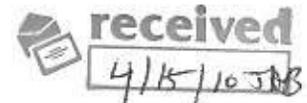
COMMONWEALTH OF VIRGINIA

William F. Stephens
Director
(804) 371-9611
FAX (804) 371-9350

PO Box 1197
Richmond, Virginia 23218-1197

STATE CORPORATION COMMISSION DIVISION OF ENERGY REGULATION

April 14, 2010



Mr. Joshua A. Bundick
WFF NEPA Manager
National Aeronautics and
Space Administration
Goddard Space Flight Center
Wallops Flight Facility
Wallops Island, VA 23337

Dear Mr. Bundick:

The Staff of the Virginia State Corporation Commission does not have any comments regarding the Draft Environmental Assessment for the proposed Wallops Flight Facility Alternative Energy Project.

#108

Please be apprised, however, that the proposed facility may require approval by the Virginia State Corporation pursuant to §56-580 D of the Code of Virginia if it does not qualify as a net metering facility pursuant to §56-594 of the Virginia Code. Those code provisions can be viewed at the following links:

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+56-580>

<http://leg1.state.va.us/cgi-bin/legp504.exe?000+cod+56-594>

Based on your representation that the wind facility will have a capacity of 4 MW, it would appear to exceed the 500 kW net metering threshold. As such, the facility may be subject to §56-580 D of the Code. If so, the facility must comply with 20VAC5-302-10. Specifically, the facility would have satisfy the following requirement:

#109

Construction of electric generating facilities with rated capacities of 5 MW or less may be undertaken without complying with the filing requirements established by this chapter. Persons desiring to construct such facilities

Mr. Joshua A. Bundick
April 14, 2010
Page 2

shall (i) submit a letter to the Director of the Division of Energy Regulation stating the location, size and fuel type of the facility, and (ii) comply with all other requirements of federal, state and local law.

#109

Please let me know if you have any questions or comments.

Sincerely,

A handwritten signature in black ink, appearing to read "Cody D. Wallker". The signature is written in a cursive style with a large, stylized initial "C".

Cody D. Wallker
Assistant Director

Comments Received from Other Organizations and Individuals



April 7, 2010

Mr. Josh Bundick
250/NEPA Manager
NASA Goddard Space Flight Center's Wallops Flight Facility
Wallops Island, Virginia 23337
wff_shoreline_eis@majordomo.gsfc.nasa.gov

Dear Mr. Bundick:

We are writing to comment on the NASA Wallops Flight Facility Alternative Energy Project Draft Environmental Assessment.

Assateague Coastal Trust (ACT), the oldest non-profit grassroots environmental advocacy organization in the Atlantic coastal bays watershed, works to protect and enhance the natural resources of the watershed through advocacy, conservation, and education. ACT has a long history of environmental advocacy in the Maryland and Virginia coastal bays region, beginning with its landmark efforts in the early 1970s to preserve the unspoiled character of Assateague Island, which is now protected as a National Seashore.

We applaud the intent of NASA Wallops Flight Facility to generate clean renewable energy and to set an example of leadership in environmental stewardship and accountability. However, we are concerned that the Proposed Action, while well-intentioned, will have significant adverse impacts on the wide range of bird species that depend on the area.

#18

Wallops Island is part of the important barrier and bay system that attracts migratory shorebirds and waterbirds during all seasons for nesting, wintering, or stopover habitat. This coastal ecosystem is part of the Atlantic Flyway and host to important bird habitat including Chincoteague National Wildlife Refuge and the Virginia Coast Reserve. The significance of the island system has been recognized through its designation as an International Shorebird Reserve, a UNESCO Biosphere Reserve, an Audubon Important Bird Area, a National Natural Landmark, and an NSF Long Term Ecological Research Site.

Land-based wind turbines can have potentially significant impacts on birds. This is one reason that the US Fish & Wildlife Service's guidance on minimizing wildlife impacts from wind turbines directs development away from local bird migration pathways and areas of high bird concentrations. We recommend that NASA follow this guidance, focus on other options for clean energy generation, and not build land-based wind turbines on Wallops Island. If that is not possible, we recommend that NASA expand its avifauna impact studies to evaluate multiple years of data, and that the final EA or EIS include specific plans to identify and avoid unnecessary bird impacts.

#19

A.C.T. To Preserve Our Coastal Bays
ASSATEAGUE COASTAL TRUST
P.O. Box 731 • Berlin, MD 21811
(410) 629-1538 • Fax (410) 629-1059
mail@actforbays.org • www.actforbays.org

Thank you for considering ACT's concerns about this proposed project. We look forward to working with NASA to evaluate alternatives for reaching your environmental stewardship goals while protecting this region's valuable wildlife.

Sincerely,

A handwritten signature in black ink that reads "Kathy Phillips". The signature is written in a cursive, flowing style.

Kathy Phillips
Assateague COASTKEEPER
Executive Director, Assateague Coastal Trust



**Virginia Important Bird Areas (IBA)
Program
530 E. Main St., Suite 810
Richmond, VA 23219
Tel: 804-788-7660
melfner@audubon.org
www.audubon.org/bird/iba/virginia**

Joshua A. Bundick
Code 250.W
Goddard Space Flight Center's Wallops Flight Facility
National Aeronautics and Space Administration
Wallops Island, VA 23337

Dear Mr. Bundick,

Audubon is pleased to be given this opportunity to comment on the proposed alternative energy project for the Wallops Flight Facility. Audubon has a strong presence in Virginia with the Virginia Important Bird Areas Program, a critical habitat, science-based program that represents greater than 3.5 million acres of bird habitat; and six local chapters representing approximately 9,500 members.

Wallops Island is located within the boundaries of the Barrier Island Lagoon System Important Bird Area (IBA). The Virginia Barrier Island Lagoon System includes the seaward margin of the lower Delmarva Peninsula from the mouth of the Chesapeake Bay to the Maryland Virginia border. This location is one of the most important bird areas in Virginia and one of the most important bird areas along the Atlantic Coast of North America, for the coastal species that depend upon its unique habitats. The area has been designated as a UNESCO Biosphere Reserve, a Western Hemisphere Shorebird Reserve Site with international status, is the site of a National Science Foundation Long-term Ecological Research site, and is the focus of a multi-organizational partnership dedicated to bird conservation.

This IBA supports a very high diversity and density of birds of conservation concern within Virginia. It supports significant populations of multiple sensitive bird species throughout the year as well as significant species assemblages for Barrier Island/Beach and Coastal Marsh bird communities. Several beach-nesting species such as the Piping Plover, Wilson's Plover, American Oystercatcher, Gull-billed Tern, Least Tern, and Black Skimmer that are of high regional or national concern nest exclusively or nearly so within this system. The area supports the most significant breeding populations in the state of waders such as the Little Blue Heron, Tricolored Heron, Snowy Egret, Glossy Ibis, and Black-crowned Night Heron. Marsh-nesting species such as

the Forster's Tern, Seaside Sparrow, and Saltmarsh Sharp-tailed Sparrow also have their center of abundance here. During migration, the area is of international significance as a stopover area for Whimbrel, Short-billed Dowitcher, and Red Knot. In addition, the area supports significant wintering populations of Nelson's Sharp-tailed Sparrow, Atlantic Brant, and Dunlin. Other at-risk species supported on the site below threshold levels include the Peregrine Falcon, Barn Owl, Bald Eagle, and Northern Harrier.

Audubon supports NASA's intention of generating energy from renewable sources at the Wallops Flight Facility pursuant to requirements in the Federal Energy Policy Act (EPAct) of 2005. However, due to impacts on high priority bird species, we are not in agreement with the construction of two

#14

utility-scale (2.0 MW) wind turbines on Wallops Island. This project goes against several USFWS recommendations of the proper siting of wind turbines, including the avoidance of placing wind turbines in documented locations of any species of wildlife, fish, or plant protected under the Federal Endangered Species Act, and the avoidance of locating turbines in known local bird migration pathways or in areas where birds are highly concentrated.

#15

Also, there are several species of concern that the Environmental Assessment does not address, namely the Piping Plover, Red Knot and

#16

Whimbrel. With these issues in mind, National Audubon supports Alternative 2: the construction of solar panels with up to five 2.4 kW turbines at the Main Base and mainland.

#17

Audubon looks forward to further involvement in this proposed project. Please do not hesitate to call me to discuss this project's impact on birds, wildlife and their habitats.

Thank you,



Mary A. Elfner
Virginia Important Bird Areas Coordinator for
National Audubon Society

Subject: Comments On NASA-WFF Alternative Energy Project Draft Environmental Assessment (DEA)

From: starsunlimited01@netscape.net [mailto:starsunlimited01@netscape.net]
Sent: Monday, April 05, 2010 8:31 PM
To: Koehler, Keith A. (WFF-1300)
Cc: Powell, Rebecca H. (WFF-1300)
Subject: Comments On NASA-WFF Alternative Energy Project Draft Environmental Assessment (DEA)

2010 April 5

From: Daniel J. Costanzo
Founder & Public Relations Officer (PRO)
Stars Unlimited
900 N. Jacksonville St.
Arlington, VA 22205-1326

To: National Aeronautics and Space Administration (NASA)
Goddard Space Flight Center (GSFC)
Wallops Flight Facility (WFF)
Wallops Island, VA 23337

Subject: Comments On NASA-WFF Alternative Energy Project Draft Environmental Assessment (DEA)

NASA:

In order for this NASA-WFF DEA to be complete, NASA must give the public adequate time to review this document, prepare their comments on it, and submit them.

#3

Unfortunately, NASA did not give the public adequate time to do so.

Instead, for this NASA-WFF DEA document dated 2010 March, the public has been given a comment period window ending only five (5) days after 2010 March's end (i.e., ending on 2010 April 5).

In addition, the majority of the public was first informed about this DEA document by the news media, along with being informed of this comment period's 2010 April 5 ending date, only on or about 2010 March 28 (e.g., by an article on that date on the *Washington Examiner* Internet/Web site).

Likewise, to this inadequate amount of time given the public to comment on this DEA document, this comment period included the traditional Springtime Season (March Equinox 2010 through Easter Day 2010) when much of the public was commemorating the March Equinox's arrival through various religious observances. Thus, NASA was soliciting the public's comments on this DEA document during a period of the year when that public is otherwise occupied with priorities higher than reviewing and commenting on what comprises quite substantial documentation (particularly if it has to be reviewed in hardcopy form, and/or in softcopy form on computers with slow Internet/Web access).

Therefore, in order for NASA to provide a fair amount of time for the public to provide comments on this DEA, NASA needs to extend this particular public comment period's closing date from 2010 April 5 (Monday) to 2010 June 30 (Wednesday).

#4

Other government agencies – like the National Park Service – always provide on their Internet/Web sites soliciting public comment an e-mail address for the public to send those comments to, along with instructions as to how and when to send them. Unfortunately, no instructions on how the public was to provide comments about this DEA, nor any e-mail address for e-mailing their comments to, could be found in any of the documentation available on NASA’s Internet/Web site associated with this DEA, with WFF, or with NASA in general. Instead, all that was given on this DEA regarding “For Further Information” about it was a point-of-contact named Joshua A. Bundick, along with only a snail mail address and only a long distance phone number. And, unfortunately, in order to meet the 2010 April 5 deadline, these comments could only be e-mailed after COB, when Mr. Bundick would have already departed for the day. **#5**

Because of NASA’s lack of guidance on how the public is to comment on this NASA-WFF DEA, these comments have been e-mailed to the two (2) e-mail addresses at NASA-WFF’s Office of Public Affairs (one was for Keith A. Koehler, and the other was for Rebecca H. Powell) on 2010 April 5, thus meeting NASA’s apparent requirement that the news reports about this NASA-WFF DEA claimed was the date that was the deadline for the public’s submitting comments by.

That said, in order for this NASA-WFF DEA to be complete, NASA must adequately incorporate the comments listed below, although with the understanding that had NASA provided adequate time for public comments, that these comments would have been provided in more detailed form. **#6**

These comments do not duplicate any comments previously made by Stars Unlimited about this NASA-WFF DEA – or any NASA DEA – because this is the first – and so far only – time that Stars Unlimited has commented about this NASA-WFF DEA – or about any NASA DEA.

More specifics about each comment below are available upon request:

Comment # 1: NASA – more than any other federal agency – must officially recognize in this NASA-WFF DEA, in all of its other DEAs, and as a matter of official NASA policy, that there is a direct connection between star-filled dark skies free of light pollution and NASA’s continued support from American citizens, voters, and taxpayers. In fact, unlike any other federal agency, NASA’s “Meatball” agency logo itself prominently features as its background a symbolic star-filled dark sky free of light pollution.

(Note: In these comments, “light pollution” does not include the light directly associated from nighttime rocket launches, very high altitude chemical cloud releases by rockets or satellites, balloon launches, reflective glints from satellites launched from NASA-WFF, or aircraft takeoffs and landings associated with NASA-WFF, or any other NASA facilities. Those kinds of light generation are both temporary, welcomed, and encouraged.) **#7**

Therefore, NASA must officially recognize in this NASA-WFF DEA, in all of its other DEAs, and as a matter of official NASA policy, that in these tenuous times for NASA, that it has a vested interest in fostering the protection of such a pristine feature of the natural physical environment. This recognition needs to include NASA’s stating that just as a star-filled dark skies free of light pollution have inspired many to serve with NASA with distinction, unmitigated light pollution, by causing less and less of the American public to experience such star-filled dark skies, needs to be mitigated or even avoided entirely because it will translate into less and less public support for NASA, will be a tremendous waste of energy, and result in other adverse environmental consequences besides light pollution (e.g., increase Global Warming carbon dioxide air pollution, increase species loss, and increase breast cancer rates, to name but a few secondary adverse environmental consequences).

Comment # 2: NASA must incorporate into its NASA-WFF DEA the concepts for designing and building Solar powered facilities emphasized by Paul Westbrook of Texas Instruments, Inc. (TI) based on experience **#8**

gained in his working with TI to design, build, and operate the World's first Solar powered chip/semiconductor manufacturing plant in Dallas, Texas. And this plant is also a LEED Gold facility, while adding to TI's profits by reducing operating costs.

Over the past several years, TI's Paul Westbrook has given several presentations on this subject at the U.S. Department of Energy's Solar Decathlons held on the National Mall. And he is available for consultation by NASA: Paul Westbrook (Sustainable Development Manager; Senior Member, Technical Staff; LEED AP; International Facilities; TI; Dallas, Texas; Phone: [REDACTED]; E-Mail << [REDACTED] >>).

TI's Paul Westbrook found that the concept of using a total systems approach worked best for designing, building, and operating the Wallops renewable energy facility as a total system.

Most likely, because NASA is NASA, it should be assumed that NASA would be designing, building, and operating this renewable energy facility utilizing a total system approach. However, this NASA-WFF DEA must clearly state that NASA is using a total system approach to doing so **#8**

TI's Paul Westbrook also helped incorporate into the total system approach for designing, building, and operating the World's first Solar powered chip/semiconductor manufacturing plant the minimizing of light pollution by reducing exterior/outdoor lighting to the minimum necessary as but just another one of the "energy vampires" that TI's require being eliminating as part of making a renewable energy powered facility as energy efficient as possible.

NASA needs to do the same for its NASA-WFF facility, and all other NASA facilities, as well as state that it will do so in its NASA-WFF DEA, and in all its other DEAs.

Comment # 3: NASA needs to officially state in both this NASA-WFF DEA, and in all of its DEAs, that as part of its efforts to incorporate renewable energy systems, that it will include in its energy efficiency planning the incorporation of all the light pollution avoidance and abatement recommendations of the International Dark-Sky Association (IDA) as a specific, clearly identified component of all external/outdoor lighting policies and practices for all current lighting (including through retrofitting existing lighting) and future outdoor lighting at both NASA-WFF, and at all NASA facilities, which will not compromise safety, security, and utility (compromising them is not a problem as the light at issue is wasted light). **#9**

IDA can put NASA in touch with knowledgeable experts to assist it in meeting this need while saving taxpayers money.

This means that, just like NASA does for other forms of pollution (e.g., the noise pollution addressed in this NASA-WFF DEA), it must also include light pollution as another form of pollution specifically addressed in this NASA-WFF DEA, and start measuring and tracking light pollution in and around NASA-WFF in a quantitative manner through a light pollution monitoring program. This now is possible using relatively low cost, digital Sky Quality Meters (SQMs), with the light pollution level measured and quantified in SQM readings of visual magnitudes per square arc-second. A light pollution-monitoring program could be crafted, organized, and conducted by NASA, at little additional cost to taxpayers, by NASA's utilizing the expertise available from Stars Unlimited.

This light pollution monitoring program needs to also be augmented and expanded on to include monitoring the "viewshed" outside NASA-WFF but possibly impacted by its external/outside lighting – and the public involved – (at almost no additional cost to taxpayers, and with very positive public relations potential) through use of volunteers in citizen-science programs, such as – but not limited to – the Citizen Sky program of the American Association of Variable Star Observers (AAVSO), the GLOBE at Night Program, and the Dark Skies Rangers Program. Again, expertise is available from Stars Unlimited to help NASA to create such a

program involving the public.

The light pollution assessment viewshed viewshed outside of NASA-WFF to be monitored for light pollution needs to extend out from the center of NASA-WFF out to a radius of at least 110 kilometers (68 miles), which is the approximate distance from the center of NASA-WFF to Fishermans Island National Wildlife Refuge in Virginia, which is just off the Delmarva Peninsula's southern tip.

#9

Thus, this NASA-WFF DEA needs to include as an additional metric of the "physical environment" to measure of the success of both NASA-WFF, and all other NASA facilities', renewable energy power generation efforts by measuring how much their use of energy efficiency reduces the level of light pollution that their facilities generate as measured by SQM readings of visual magnitudes per square arc-second.

NASA's light pollution avoidance and abatement effort also must include NASA's officially acknowledging in any and all reports that it prepares on analyzing and addressing reducing this NASA-WFF's light pollution, its working with IDA and any of the other organizations mentioned in these comments that it eventually works with.

This light pollution avoidance and abatement effort also must include NASA annually publishing for both NASA-WFF, and all NASA facilities, the amount of energy saved through maximizing external/outdoor lighting efficiency by minimizing light pollution (in "negawatt"-hours), coal-fired power plant Global Warming carbon dioxide (and other air pollutants, like mercury and sulfur dioxide) not spewed into the atmosphere, nuclear power plant nuclear waste not generated, and taxpayer money saved by following these policies and practices.

Comment # 4: The above mentioned light pollution avoidance and abatement effort that NASA needs to conduct as part of this NASA-WFF DEA must include in its study/analysis of "aesthetics" not only images and analysis of the "aesthetics" of the "viewshed" in and around NASA-WFF in daytime (as the DEA currently does), but also images and analysis of the "aesthetics" of the "viewshed" in and around NASA-WFF at **#10** nighttime as well, particularly in terms of any and all light pollution generated by NASA-WFF. That has to be part of NASA coming up with a plan for minimizing NASA-WFF's light pollution as part of its maximizing NASA-WFF's energy efficiency for this alternative energy project.

Comment # 5: NASA's light pollution avoidance and abatement effort must officially include NASA's serving as a good environmental trendsetter by encouraging surrounding facilities and communities outside and around NASA-WFF to control their light pollution trespassing into the above mentioned light pollution assessment viewshed extending out a radius of 110 kilometers (68 miles) out from the center of NASA-WFF, particularly through shielding all fixed outdoor lights otherwise directly visible from within that viewshed that are not operating lighthouses or other operational facilities for navigation/hazard avoidance. And NASA needs to follow this kind of trend setting practice around all its facilities.

#11

Comment # 6: Since the International System of Units (SI Units) is an integral part of NASA's work with space technology, astronomy, and related sciences, it needs to express all quantitative measures in this NASA-WFF DEA, and in all of its DEAs, always in SI Unit-dominant form, like they are in these comments here in terms of how the light pollution assessment viewshed's radius is expressed, with the dimension **#12** expressed in kilometers followed by it being expressed in miles in parentheses.

Summary: Under today's circumstances, it is clearly not possible to achieve a truly light pollution-free dark sky above NASA-WFF, and other NASA facilities. However, much can be done by NASA to minimize light pollution using quality lighting technology and engineering. In fact, NASA has an opportunity here to once again serve in its traditional role from the Project Apollo Era as a trend setting federal agency by making its

#13

DEA for NASA-WFF into a model for incorporating dark sky protection through light pollution avoidance and abatement practices as an integral component of a systematic approach to energy efficiency planning and environmental impact assessment that can serve as an example for similar public facilities throughout the Nation, and around the World, while at the same time saving taxpayers money.

#13

NASA must take advantage of this opportunity and make it so.

Sincerely,

-- Daniel J. Costanzo
Founder & Public Relations Officer (PRO)
Stars Unlimited

Acronyms & Abbreviations Used In These Comments:

AAVSO – The American Association of Variable Star Observers

DEA – Draft Environmental Assessment

GSFC – Goddard Space Flight Center

GLOBE – Global Learning and Observations to Benefit the Environment

LEED – Leadership in Energy and Environmental Design

IDA – The International Dark-Sky Association

NASA – The National Aeronautics and Space Administration

PRO – Public Relations Officer

SI Units - The International System of Units

SQM – Sky Quality Meter

TI – Texas Instruments, Inc.

WFF – Wallops Flight Facility

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VIRGINIA DIRECTOR

Michael L. Lipford

Via email; hardcopy to follow

April 12, 2010

Mr. Joshua A. Bundick
Code 250.W
NASA Goddard Space Flight Center's Wallops Flight Facility
Wallops Island, Virginia 23337

Re: Comments on the Draft Environmental Assessment, Alternative Energy
Project, Wallops Flight Facility

Dear Mr. Bundick:

I am writing to submit The Nature Conservancy's response to the National Aeronautics and Space Administration's (NASA) Draft Environmental Assessment (EA) for the proposed Wallops Flight Facility (WFF) Alternative Energy Project.

We appreciate this opportunity to comment. The Conservancy supports alternative energy approaches and NASA's efforts to integrate them into its operations, but we contend that authoritative guidelines on the siting of industrial wind turbine installations, coupled with WFF's position in a globally important concentration of migratory birds, makes the Wallops Island particularly ill-suited for wind energy. Therefore, The Nature Conservancy recommends that NASA seek alternative locations for wind power within the agency's national inventory of facilities, and further investigate less environmentally harmful alternative energy sources, more appropriate to the Wallops Flight Facilities unique location. Our comments are structured as follows:

- Importance of Virginia's barrier islands to migratory birds
- U.S. Fish and Wildlife Service recommendations regarding wind energy siting
- TNC recommendations

Importance of Virginia's Barrier Islands to Migratory Birds

The mission of The Nature Conservancy (The Conservancy) is to preserve the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. With the support of more than one million members, The Conservancy has protected more than 120 million acres and 5,000 river miles around the world, and currently has more than 150 marine conservation projects in 32 countries and in every coastal state in the U.S.

The Conservancy has been working to protect barrier islands and coastal habitats off the coast of Virginia for nearly four decades. Since our first project on Virginia's Eastern Shore in 1969, the Conservancy's ownership has grown to encompass all or part of nine barrier islands and five marsh islands in addition to multiple preserves and conservation easements on the mainland collectively known as the Virginia Coast Reserve. The Virginia Coast Reserve is located within the Atlantic Flyway, an important migration corridor in North America used almost year round by heavy concentrations of a wide range of bird species during annual northbound and southbound migration. VCR is particularly known for the concentrations of waterfowl, shorebirds, raptors and neotropical landbirds that pass through the area on an annual basis. The extraordinary importance of this area for migratory birds is the primary reason that The Nature Conservancy has invested deeply at VCR over the last 40 years.

The many miles of wild beaches and tidal mud flats associated with the barrier islands and coastal bays attract exceptional numbers of migratory shorebirds and waterbirds each year. Wallops Island is, of course, one of fourteen islands in the barrier chain and as such has ecological significance. Almost 40 waterbird and shorebird species breed in the barrier island and lagoon system, including beach nesting shorebirds such as the Federally Threatened piping plover (*Charadrius melodus*), the state endangered Wilson's plover (*C. wilsonia*), and the American oystercatcher (*Haematopus palliatus*), which is ranked as a species of high conservation concern in the US Shorebird Conservation Plan (Brown et al. 2001). Other breeding waterbird species include the state threatened gull-billed tern (*Sterna nilotica*) and the least tern (*S. antillarum*), a state species of special concern, as well as the black skimmer (*Rynchops niger*), common tern (*S. hirundo*), royal tern (*S. maxima*) and sandwich tern (*S. sandvicensis*), all of which are species of high conservation concern (VDGIF 2009). Over 200 breeding pairs of piping plovers are currently found on island overwash beaches representing roughly 11 percent of the Atlantic coast population. Over 75 percent of these breeding pairs nest on the northern barrier islands closest to Wallops including Assawoman (US Fish and Wildlife Service-owned), Metompkin (Conservancy and US Fish and Wildlife Service-owned), and Cedar (Conservancy, US Fish and Wildlife Service, State and private-owned) (Boettcher et al. 2007). Of the more than 700 breeding pairs of American oystercatchers documented in coastal Virginia in 2008, over 50 percent occurred on Virginia's barrier islands, with 40 percent occurring on Metompkin and Cedar islands alone (Wilke et al. 2009). Oystercatcher productivity rates along the barrier island chain are some of the highest reported on the US Atlantic coast, suggesting that the islands may serve as important population sources for the East Coast population (Wilke et al. 2007).

Moreover, 24 species of migratory shorebirds use these islands as stopover or wintering habitat in the spring, fall and winter. On peak spring days, over 250,000 shorebirds can be found on the seaside of the barrier islands. An estimated 40,000 Whimbrel (*Numenius phaeopus*) use the mudflats as their last coastal stopover before heading to arctic and subarctic regions to nest (Watts and Truitt, Center

for Conservation Biology and The Nature Conservancy, unpublished data), which may represent more than 60% of the Western Hemisphere population (Wilke and Johnston-Gonzalez 2009). The expansive beaches and peat banks of the barrier islands provide rich invertebrate prey for migrating red knots (*Calidris canutus*), a species which has declined by 85 percent since 1990 and is a candidate for listing under the Endangered Species Act (Niles et al. 2007). Peak counts suggested that almost 25% of the *rufa* subspecies population of red knots stopped on Virginia's barrier islands in May 2008, during their migration to feed on shore-dwelling invertebrates (Watts and Truitt, Center for Conservation Biology and The Nature Conservancy, unpublished data).

The importance of the region to breeding and migratory birds is also reflected in several formal recognitions and designations by conservation and research groups. Portions of the region including the barrier islands have been designated as an International Shorebird Reserve by the Western Hemisphere Shorebird Reserve Network, as a Biosphere Reserve by the United Nations Educational, Scientific and Cultural Organization, as an Audubon Important Bird Area, as a U.S. Department of Interior National Natural Landmark and as a National Science Foundation Long Term Ecological Research Site.

U.S. Fish and Wildlife Service Guidelines for Wind Energy Siting

In May of 2003, the United States Fish and Wildlife Service (USFWS) issued *Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines*. While the *Guidance* purports to advise USFWS personnel in providing technical assistance, we believe it is the best and most authoritative source for siting and designing onshore wind energy installations. With regard to siting, the *Guidance* includes the following recommendations that are directly relevant to the WFF proposal:

- 1. Avoid placing turbines in documented locations of any species of wildlife, fish, or plant protected under the Federal Endangered Species Act.*
- 2. Avoid locating turbines in known local bird migration pathways or in areas where birds are highly concentrated, unless mortality risk is low (e.g., birds present rarely enter the rotor-swept area). Examples of high concentration areas for birds are wetlands, State or Federal refuges, private duck clubs, staging areas, rookeries, leks, roosts, riparian areas along streams, and landfills. Avoid known daily movement flyways (e.g., between roosting and feeding areas) and areas with a high incidence of fog, mist, low cloud ceilings, and low visibility.*

Wallops Island fully meets the criteria for avoidance areas described above as it is located in an important migration pathway, concentration and breeding area for many bird species which are listed as endangered, candidates for such listing, or otherwise identified as species of special concern. Therefore, the proposal to site utility-scale wind energy facilities on the island is in direct contradiction to the guidance provided by the USFWS.

In 2007, USFWS convened the Wind Turbine Guidelines Advisory Committee, which is crafting voluntary guidelines for wind siting and operations. The most recent draft of the guidelines (December 2009) recommends that wind energy developers undertake a tiered approach to evaluating potential sites for wind energy facilities. The first tier involves questions about whether the proposed site is located in areas of wildlife congregation or seasonal importance to species of

special concern at the site. We recognize that NASA may not have initially taken a region-wide or nation-wide approach to selecting a site to install renewable energy infrastructure, and instead decided to use the NEPA process to evaluate sites on a case-by-case basis. Nevertheless, The Nature Conservancy, as an organization with a broad geographic scope, urges NASA to revisit the project from a broader perspective and consider whether WFF, given its location, is appropriate place for wind power generation. Along the same lines, we believe that it is a significant oversight that the draft EA does not mention either of the USFWS documents cited here. Any final EA or EIS for this project should contain a detailed discussion demonstrating that WFF has fully considered the recommendations of its sister agency with expertise in this area.

TNC Recommendations

The Nature Conservancy has three key recommendations regarding the EA:

1. Reject the current Proposed Action.
2. Select Alternative 2 with modifications or the No Action Alternative.
3. If NASA chooses not to accept recommendation #1 and #2, then a full EIS should be conducted.

Recommendation 1: Reject the current Proposed Action.

The EA states that the proposed Alternative Energy Project will help NASA to meet “its...goal of setting an example in environmental stewardship by a federal agency” through this project. However, by moving forward with the proposed Preferred Action, NASA will set a poor precedent for renewable energy development and environmental stewardship by failing to follow USFWS guidelines and siting utility-scale wind turbines in a coastal area that is a hemispherically significant migratory bird pathway and concentration area. TNC therefore respectfully requests that NASA reject the current Proposed Action.

TNC has serious concerns regarding the number of fatalities reported for birds and the lack of information regarding bats found in the monitoring study at Wallops. The draft EA reports the number of avian fatalities in the 2008-2009 study was conservatively estimated at 28 fatalities per year for one tower and 44 to 68 fatalities at another, whereas “very little information on bats at WFF or in the surrounding areas has been collected” (draft EA, p 143). According the 2007 report of the National Research Council, studies of bird fatalities in the US range between less than one to 7.70 birds/turbine/year—though admittedly none of these studies were in coastal areas. We recognize that existing communication towers were used as surrogates for wind turbines for the purposes of pre-construction monitoring, and that these towers exhibit higher levels of fatalities due to their height than do wind turbines (Kerlinger et al. in review). However, we submit that the fatality rates from the existing communication towers are already significant and will only be compounded by the addition of utility scale wind turbines.

Moreover, only one utility-scale wind facility in a coastal area of the U.S. Atlantic seaboard exists for purposes of comparing Wallops’ pre-construction monitoring results: the Atlantic City Utilities Authority (ACUA)-Jersey Atlantic Wind (JAW) Power Facility in New Jersey. The 2009 post-construction wildlife monitoring study done for the ACUA-JAW indicates an estimate of approximately 30 bird fatalities/turbine/year and 46 bat fatalities /turbine/year. The EA states: “The

results regarding relatively low avian and bat mortality at the ACUA five-turbine project over the monitoring period lend strong support to the potential for the Wallops Island two 2.0 MW-turbine project to cause low risk to a similar coastal avian community given similarity in the actual mortality rate at ACUA and the estimated rate at WFF”.

Contrary to this positive interpretation of the ACUA-JAW results in the EA, we submit that these are in fact *significant* impacts as they are among the highest mortality rates documented on record in the United States for birds and bats caused by a wind facility. If the ACUA-JAW results are indicative of typical mortality resulting from utility scale wind turbines in mid-Atlantic coastal area, this leads to the conclusion that turbines sited on Wallops will have a high risk of causing adverse impacts to birds and bats and that Wallops is an inappropriate place for siting utility-scale wind turbines.

More comprehensive studies and data are needed to fully assess impacts to birds and bats at Wallops in order to move forward with the Preferred Action. Almost all studies of wind turbine impacts to birds and bats evaluate fatalities while failing to evaluate the risk of collision (or exposure) with turbines for a given species based on its migration patterns (timing altitude, flight direction, etc.). This information is critical to interpreting fatality data, appropriately siting turbines and adaptively managing facilities especially in an important area such as Wallops. Since the significance of the area to migratory birds is so well documented and the costs of collecting such data for Wallops would be high, we recommend that NASA employ the precautionary principle and withdraw the utility scale turbines from consideration as the Preferred Action according to the Fish and Wildlife Guidance.

Recommendation 2: Select either Alternative 2 with modifications or the No Action Alternative.

In our view, Alternative Two or the No Action Alternative are clearly preferable and more in keeping with WFF’s stated objective of “setting an example in environmental stewardship by a federal agency.” We appreciate the fact that the installation of solar panels at WFF will be expensive, but given the wildlife impact associated with the installation of utility scale turbines in a location such as Wallops Island, we believe it is a more prudent approach to renewable energy.

Selecting Alternative Two will reduce the potential impacts to birds and bats while still meeting WFF’s

renewable energy goals of the project. Selecting the No Action Alternative will avoid avian and bat impacts altogether. We recommend that these two alternatives be revisited in light of these

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considerations. Further, should WFF decide to move forward with Alternative Two, we urge that NASA consider installing solar panels only. The draft EA does not explain the need for 5 residential scale turbines, and this should be explored more fully in any final EA or EIS. In addition, the potential

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wildlife impacts of any residential scale turbines should be further considered and documented, especially related the risk of bird and bats with the associated guy wires. As is pointed out in the December 2009 draft of the USFWS Wind Turbine Guidelines Advisory Committee “the risk of adverse impacts to wildlife and their habitats tends to be a function of site location, not necessarily the size of the project.”

#67

Recommendation #3. If NASA chooses not to accept recommendation #1 and #2, then a full EIS should be conducted.

If WFF chooses to pursue the installation of utility-scale turbines, then we believe a Finding of No Significant Impact cannot be made, and a full Environmental Impact Statement must be required due to potential adverse impacts to migrating bird and bat species. We recommend that the EIS should include:

- Further analysis regarding NASA's overall energy needs, the potential for meeting EPA targets through energy conservation and efficiency improvements, and an explanation of whether/why NASA has chosen WFF as the appropriate site for making renewable energy investments, in comparison to other NASA facilities.

#68

- Use of the recommendations of USFWS Voluntary Guidelines for Wind Siting and Operations in determining whether wind power is appropriate on Wallops Island.
- Further study and analysis to address the following study design and quality of data collection issues regarding bird and bat use of the project area, particularly given the known importance of the surrounding area to birds and suspected importance to bats. Recommended changes to the study design include:
 - Since a one-year study does not capture the scope of bird use of the study area, particularly temporal variation in bird use, we fully agree with USFWS' recommendation to collect data for three years to determine times of peak bird use in areas with known high concentrations of birds.
 - Full evaluation of the risk of collision/ exposure with turbines for a given species based on its migration patterns (timing altitude, flight direction, etc.).
 - Develop common standards for observer training or experience with regards to point counts and carcass surveys.
 - Include nocturnal surveys. USFWS (2009) does not necessarily recommend pre-construction nocturnal studies, except in cases where the proposed project area falls within potentially high impact areas, like coastal migration corridors which characterize Wallops.
 - Improve carcass searches to collect carcasses at consistent frequency or adjust for different collection frequencies.
 - Evaluate impacts to state listed species.

**#58-
#64**

The Conservancy recognizes that utility-wind turbines provide energy at a lower cost compared with solar and that this is a valid concern for NASA. If the energy benefits and cost savings of wind turbines are significantly greater than for solar, we believe this provides good justification for proceeding with a full EIS to better assess the risks of exposure and fatality to migrating birds and bats in addition to addressing the cumulative impacts of adding two utility-scale wind turbines to the existing three communication towers.

The Nature Conservancy appreciates the opportunity to provide a response to this draft EA. Like many in the community, The Conservancy supports NASA's work at the Wallops Flight Facility. We appreciate its critical national security functions, the opportunities for sub-orbital research programs and commercial launches it provides, and the important economic development it brings to the Eastern Shore. We look forward to working with NASA as this NEPA process unfolds. Thank you for

your consideration of our comments. Please contact Gwynn Crichton at (434) 951-0571, gcrichon@tnc.org, with any questions or requests for additional information.

Sincerely,



Michael Lipford
Vice President and Virginia Director
The Nature Conservancy

cc (via email):

Tylan Dean, Assistant Supervisor, Ecological Services, Virginia Field Office, USFWS

Lou Hinds, Superintendent, Chincoteague National Wildlife Refuge, USFWS

Trish Kicklighter, Superintendent, Assateague Island National Seashore, NPS

Laura McKay, Director, Virginia Coastal Zone Management Program, DEQ

Karen McGlathery, Director, Virginia Coast Reserve Long-Term Ecological Research, UVA

Tom Smith, Director, Division of Natural Heritage, DCR

Tony Watkinson, Deputy Chief, Habitat Management Division, VMRC

David Whitehurst, Director, Wildlife Diversity Division, DGIF

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