

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)**

**NOTICE:** 11-WFF-02

**National Environmental Policy Act (NEPA):** Wallops Flight Facility (WFF)  
Alternative Energy Project

**AGENCY:** NASA Goddard Space Flight Center's WFF

**ACTION:** Finding of No Significant Impact (FONSI)

**SUMMARY:** Pursuant to the NEPA of 1969, as amended (42 U.S.C. 4321, *et seq.*); the Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR Parts 1500-1508); and NASA policy and procedures (14 CFR Part 1216, Subpart 1216.3); NASA is issuing this FONSI with respect to the WFF Alternative Energy Project. The Proposed Action would be the installation of solar panels and two residential-scale wind turbines that would be capable of generating up to approximately 10 gigawatt-hours per year (GWh/year) of renewable electricity at WFF.

**ADDRESS:** The Final Environmental Assessment (EA) that serves as the basis for this FONSI may be viewed at the following locations:

- Chincoteague Island Library, 4077 Main Street, Chincoteague, Virginia 23336
- Eastern Shore Public Library, 23610 Front Street, Accomac, Virginia 23301
- NASA WFF Technical Library, Building E-105, Wallops Island, Virginia 23337
- Northampton Free Library, 7745 Seaside Road, Nassawadox, Virginia, 23413

On the Internet at: [http://sites.wff.nasa.gov/code250/alternative\\_energy\\_final\\_EA.html](http://sites.wff.nasa.gov/code250/alternative_energy_final_EA.html)

A limited number of copies of the Final EA are available by contacting Mr. Joshua Bundick at the address below.

**FOR FURTHER INFORMATION CONTACT:** Joshua Bundick, NASA WFF, Code 250.W, Wallops Island, Virginia, 23337; (757) 824-2319 (phone); (757) 824-1819 (fax); [Joshua.A.Bundick@nasa.gov](mailto:Joshua.A.Bundick@nasa.gov) (email)

**SUPPLEMENTAL INFORMATION:** NASA has reviewed the Final EA prepared for the Alternative Energy Project at WFF and has concluded that the EA represents an accurate and adequate analysis of the scope and level of associated environmental impacts. NASA hereby incorporates the EA by reference in this FONSI.

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## Public Involvement

NASA solicited public and agency review and comment on the environmental impacts of the proposed action through:

1. Holding multiple stakeholder meetings during the preparation of the EA;
2. Publishing availability of Draft EA in local newspapers;
3. Making the Draft EA available for review at local public libraries;
4. Publishing the Draft EA on the WFF Environmental Office Web site;
5. Consulting with Federal, state, and local agencies; and
6. Mailing the Draft EA directly to interested parties.

Comments received were taken into consideration in the Final EA. Concerns were raised during the review of the Draft EA by agencies and organizations about the potential for substantial environmental impacts on birds and bats associated with the originally proposed utility-scale wind turbines. Based on these concerns, NASA changed the Proposed Action in the Final EA from the use of utility-scale wind turbines and five residential-scale turbines (as proposed in the Draft EA) to the use of solar panels and two residential-scale turbines.

NASA also provided the opportunity for agency and public review of the Final EA and a Draft FONSI through the same means listed above for the Draft EA. During this period, three agencies provided comments: the U.S. Environmental Protection Agency, the Virginia Department of Game and Inland Fisheries (VDGIF), and the Virginia Department of Environmental Quality, which provided a consolidated response from five state agencies.

The majority of comments concurred with NASA's final Proposed Action and recommended that NASA continue to coordinate with resource agencies during its post-construction avian monitoring at the two residential-scale turbines. VDGIF recommended additional mitigation measures to further reduce the risk of avian mortality.

NASA is committed to working with resource agencies during the operation of the residential-scale turbines and will coordinate future mitigation and monitoring efforts directly with them. Regarding VDGIF's suggested mitigation measures, it is NASA's intent to operate the turbines in a manner that maximizes operational efficiency while presenting minimal risk to avian species. Accordingly, several of the recommended mitigation measures will be adopted immediately; others would be implemented if shown to be needed based on the results of NASA's post-construction monitoring.

A full discussion of comments received on the Final EA is contained within the companion May 2011 document entitled *Comments Received and Responses, Wallops Flight Facility Alternative Energy Project Final Environmental Assessment*. This document is available for review on the website listed above under ADDRESS.

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### Purpose and Need for the Project

The purpose of the Alternative Energy Project is to generate renewable electricity at WFF to assist NASA as an agency in meeting or exceeding the requirements of the 2005 Federal Energy Policy Act and Executive Orders 13423 and 13514. Implementing the project would not only contribute to meeting these Federal mandates, but it would also further WFF's goals of lowering annual operating costs, reducing greenhouse gas emissions, and educating the public about the benefits of renewable energy.

WFF currently does not have renewable electricity sources on site, and must rely on fossil-fuel and nuclear generated electricity provided by the local Cooperative. Additionally, WFF's utility costs have increased in recent years; implementing a source of electrical generation on-site would buffer NASA from future market-based price fluctuations. WFF is located in an area considered to have adequate renewable resources (particularly wind) but with few working examples of successful projects. Implementing this project at strategic locations at WFF would enable both employees and area visitors to observe and learn more about a functional renewable energy project.

### Alternatives Considered

The EA addresses the construction of alternative energy sources that would be capable of generating up to 10 GWh/year of electricity at WFF, and describes the potential impacts from the No Action Alternative, the Proposed Action, and two Action Alternatives.

Under the No Action Alternative, NASA would not participate in the funding or construction of alternative energy sources at WFF.

Under the Proposed Action/Preferred Alternative, NASA would install a system of solar panels at the Main Base that would be capable of generating 10 GWh/year of power. This would equate to an 8.0 megawatt (MW) rated capacity system of solar panels. The overall required land area dedicated to solar panels would be approximately 32 hectares (80 acres). Additionally, two 2.4 kilowatt (kW) residential-scale wind turbines would be installed near the WFF Visitor Center and the entrance gate/security guard station at the Mainland, respectively. The two residential-scale turbines would be implemented first; timing would be dependent upon available funding. However, given the large capital investment required for the 8.0 MW solar system, the length of time currently required for a return on investment, and a lack of definite funding, this project component would not be implemented immediately; rather it may be implemented in the future as solar energy becomes a more cost-effective option for WFF.

Under Alternative One, NASA would install one utility-scale wind turbine on Wallops Island that would be capable of generating 5 GWh of electricity per year. The single 2.0 MW wind turbine would be located west of the U.S. Navy V-10/V-20 complex. NASA would also install two residential-scale 2.4 kW wind turbines at the Main Base and Mainland as described under the Proposed Action. In addition to the wind turbines, NASA would install a system of solar panels at Wallops Main Base that would be capable of generating up to 5 GWh/year (the equivalent of one utility-scale wind turbine), which would require a land area of approximately 16 hectares (40 acres).

Under Alternative Two, NASA would install two 2.0 MW utility-scale wind turbines on Wallops Island that would be capable of generating approximately 10 GWh/year of

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power. The utility-scale wind turbines would be sited in generally the same location as under Alternative One. Two 2.4 kW residential-scale wind turbines would also be installed at the Main Base and Mainland as described under the Proposed Action.

**SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS:** A full comparative discussion of environmental effects of all Alternatives is contained in the Final EA. Potential environmental impacts resulting from NASA's Proposed Action are summarized below:

**Topography:** Neither the solar panels nor the two residential-scale turbines would alter topography. Any effects from trenching for electrical lines would be minor and temporary.

**Geology and Soils:** During installation of the solar panels and residential-scale turbines, construction equipment would use small quantities of petroleum-based fuels and lubricants. Inadvertent spills or leaks of these substances would have the potential to adversely affect soils. NASA would require its contractors to implement site-specific Best Management Practices (BMPs) for vehicle and equipment fueling and maintenance as well as spill prevention and control measures.

**Land Use:** Although the solar panels would not conflict with existing or reasonably foreseeable NASA uses, the areas occupied by the panels would be unavailable for future construction over their anticipated 25-year lifespan. Installation of the residential-scale turbines would also be consistent with existing NASA land uses.

**Surface Waters:** There is the potential for minor adverse impacts from sediment-laden runoff entering drainage ways during land-disturbing construction activities. To mitigate potential effects, NASA would implement strict erosion and sediment controls and develop Stormwater Pollution Prevention Plans as necessary.

**Wetlands:** No impacts on wetlands would occur under the Proposed Action.

**Floodplains:** The residential-scale wind turbine proposed at the Visitor Center would be located within the 500-year floodplain; however, its very small footprint would not measurably alter floodplain functions. All other project components would be located outside of 100-year and 500-year floodplains.

**Coastal Zone Management:** All activities would occur within Virginia's Coastal Management Area. NASA has determined that the Proposed Action is consistent with the enforceable policies of the Coastal Zone Management Program; the Virginia Department of Environmental Quality concurred with this determination.

**Air Quality and Climate Change:** Minor and temporary air emissions would occur from land disturbance and from the use of fossil-fuel burning equipment during construction. Following project construction, long-term beneficial impacts on air quality and climate change would be expected from a reduction in use of fossil-fuel generated electricity.

**Radar:** The residential-scale wind turbines would be sited in areas that would not impact radar systems at WFF. There would be no impacts on radar from solar panels.

**Noise:** The operation of construction equipment would generate short-duration noise, however all work would be conducted within areas already dominated by anthropogenic

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sounds originating from vehicular traffic and WFF's active airfield. There would be no impacts on the occupational health of construction workers as NASA would require hearing protection to be worn in accordance with Occupational Safety and Health Administration standards. Operation of the residential-scale turbines would generate some aerodynamic and mechanical noise, however it is expected that this noise would be barely discernable beyond the immediate vicinity of the turbine sites.

**Hazardous Materials and Waste Management:** Construction, maintenance, and decommissioning activities for the wind turbines and solar panels would require the use of hazardous materials, including petroleum-based fuels and lubricants. NASA would require its contractors to manage all hazardous materials and wastes in accordance with the WFF Integrated Contingency Plan and Federal, state, and local regulations. Therefore, no impacts on human health or the environment are expected from the use or management of hazardous materials and waste.

**Munitions and Explosives of Concern (MEC):** Construction personnel working at the Visitor Center area on the residential-scale turbine would be required to attend MEC awareness training to understand the potential MEC at the site. To ensure that excavation equipment does not encounter any unknown MEC, NASA would survey the proposed site with a magnetometer. If potential MEC is discovered, it would be cleared and properly disposed by trained personnel.

**Vegetation:** During construction, vegetation within the solar panel and residential-scale turbine footprints would be denuded by heavy equipment and installation personnel. To mitigate impacts, all disturbed areas would be revegetated. Long term, the areas under the solar panels would remain vegetated and would be maintained by occasional mowing or trimming.

**Terrestrial Wildlife:** Wildlife species (i.e., squirrels, raccoons, etc.) within and adjacent to construction activities would be startled from construction noise, however all infrastructure would be installed in areas already subject to regular human-induced disturbances, including mowing, vehicular traffic, and aircraft overflight. The large amount of habitat immediately adjacent to the proposed construction sites would allow any startled or permanently displaced terrestrial wildlife to find adequate refuge nearby.

**Birds and Bats:** Because the installation of solar panels at the Main Base would be within areas already managed to deter avian activities adjacent to WFF's active airfield, and whereas their operation would not interfere with bird or bat foraging or reproduction, no measurable impacts are anticipated from solar panels. Given the residential scale turbines' very small size and that their proposed locations are within areas subject to regular human-induced disturbances, the resulting collision/fatality risk is expected to be minimal. To ground-truth the conclusions drawn in the EA regarding the minimal expected effects to avian species, NASA would implement post-construction monitoring of the two residential-scale turbine sites. Details of the monitoring plan are contained within Section 5.2.1 of the Final EA. All data collected or any proposed modifications to the study plan would be coordinated directly with resource agencies, including the U.S. Fish and Wildlife Service and Virginia Department of Game and Inland Fisheries.

**Threatened and Endangered Species:** As there is no suitable habitat for federally-listed species on either WFF's Main Base or Mainland, there would be no expected effects on

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them. Although there is suitable adjacent habitat for several state-listed upland bird species (Henslow's sparrow, Loggerhead shrike, and Upland sandpiper), their rarity in eastern Virginia and the lack of any recent documented presence at WFF leads to the conclusion that interaction with the residential-scale turbines would be highly unlikely. The nearest active Bald eagle or Peregrine falcon nests are several miles away from the proposed turbine sites, and accordingly, impacts would not be expected.

**Essential Fish Habitat (EFH):** No impacts on EFH would occur under the Proposed Action.

**Population, Employment, and Income:** Construction activities would temporarily increase local employment opportunities and benefit local stores and businesses.

**Environmental Justice:** Disproportionately high or adverse impacts to low-income or minority populations are not anticipated. Throughout the preparation of the EA, NASA provided project-related information via several different media outlets such that all interested persons, regardless of income or ethnicity, could remain informed of project progress and/or provide input.

**Cultural Resources:** With the exception of the residential-scale wind turbine proposed at the WFF Visitor Center, all ground disturbances would be located outside of areas designated as having moderate or high potential for archeological resources. To mitigate potential impacts at the Visitor Center site, NASA would require a professional archaeologist with stop work authority to oversee all land-disturbing activities. No adverse effects on aboveground historic properties or viewsheds within or outside WFF are anticipated. NASA consulted with the Virginia Department of Historic Resources (VDHR) regarding potential effects; VDHR concurred with NASA's "no adverse effect" determination.

**Transportation:** No impacts on transportation are anticipated under the Proposed Action. All shipments of equipment and materials would be expected to be handled by typical over-the-road vehicles.

**Aesthetics:** There would be no adverse impacts on the public viewshed given the distance of the residential-scale turbines from surrounding communities. Wind turbines would be white to blend in with the sky. Negligible potential adverse impacts would occur on WFF employees and visitors within the residential-scale wind turbine shadow due to flickering effect of spinning blades on sunny days. Implementation of solar panels would result in long-term changes to the local viewshed within the interior of the Main Base. Because WFF is a highly industrialized setting with numerous antenna arrays and other infrastructure, such impacts would be negligible.

**Cumulative Impacts:** There may be minor adverse cumulative impacts on avifauna from construction and operation of the residential-scale wind turbines. There would be beneficial impacts on air quality from the use of wind turbines and solar panels due to reduced greenhouse gas emissions and lowered use of fossil fuels during the production of electricity.

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**Conclusion:** NASA has identified no other potential environmental impacts resulting from the Proposed Action. Therefore, based on the Final EA for the WFF Alternative Energy Project, NASA has determined that the environmental impacts associated with the Proposed Action would not individually or cumulatively have a significant impact on the quality of the human environment. Therefore, an environmental impact statement is not required.



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9 JUNE 2011

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Date