Appendix C
Federal Consistency Determination

FEDERAL CONSISTENCY DETERMINATION FOR THE ALTERNATIVE ENERGY PROJECT

**NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
WALLOPS FLIGHT FACILITY
WALLOPS ISLAND, VA 23337**

Introduction

This document provides the Commonwealth of Virginia with the National Aeronautics and Space Administration's (NASA) Consistency Determination under Coastal Zone Management Act (CZMA) Section 307(c)(1) and Title 15 Code of Federal Regulations (CFR) Part 930, Subpart C, for implementation of the Alternative Energy Project at NASA's Goddard Space Flight Center Wallops Flight Facility (WFF), Wallops Island, Virginia.

NASA has prepared a Draft Environmental Assessment (EA) to evaluate the potential environmental impacts from the Alternative Energy Project in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended (42 U.S. Code 4321-4347), the Council on Environmental Quality (CEQ) regulations for implementing NEPA (40 Code of Federal Regulations [CFR] 1500-1508), NASA's regulations for implementing NEPA (14 CFR Subpart 1216.3), and the *NASA Procedural Requirements (NPR) for Implementing NEPA* and *Executive Order (EO) 12114* (NPR 8580.1).

The U.S. Army Corps of Engineers (USACE) has served as a Cooperating Agency in the preparation of the Draft EA and all necessary consultation documents because they possess regulatory authority over the Proposed Action. USACE would undertake a "connected action" in its issuance of permits pursuant to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Accordingly, the Draft EA and this Consistency Determination have been developed to also fulfill the USACE's obligations under NEPA and CZMA. NASA, as the WFF property owner and project proponent, is the Lead Agency and responsible for ensuring overall compliance with applicable environmental statutes.

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 Executive Orders 13423 and 13514. The project would also support NASA's goal to set an example of leadership in environmental stewardship and accountability by a Federal agency. The EA encompasses a 25-year planning horizon, which is based on the expected life span of the proposed wind turbines.

Under the Proposed Action, NASA would construct two 2.0- megawatt "utility-scale" wind turbines on Wallops Island that would be capable of generating approximately 10 gigawatt-hours of electricity per year, and up to five 2.4-kilowatt "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 2.4 kW wind turbines would be installed near the WFF Visitor Center, and a second one 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.

Effects to Resources

NASA has determined that the Proposed Action would affect the land or water uses or natural resources of Virginia in the following manner:

Topography – The foundation for the utility-scale wind turbines and access roads would require filling of wetlands, resulting in permanently elevated areas of soil within the wetland, which would result in long-term adverse impacts on the topography in the areas immediately around the turbine footprints. Previously disturbed areas would be used for staging of equipment of materials and for construction vehicle parking. No changes in topography would occur with installation of the residential-scale wind turbines.

Geology and Soils – Spills or leaks of pollutants would have the potential to adversely affect soils. NASA would implement site-specific Best Management Practices (BMPs) for vehicle and equipment fueling and maintenance, and spill prevention and control measures. There would be minor long-term impacts on geology immediately around the driven piles.

Land Use – The area where the proposed utility-scale and residential-scale wind turbines would be located is zoned industrial by Accomack County and would be located in areas on WFF property that are currently unused and are not planned for future use. The construction and operation of the proposed wind turbines would not result in changes to land use, or impacts on NASA or the U.S. Navy's use of the area; therefore, no impacts would occur.

Surface Waters – There are potential adverse impacts during construction such as spills or leaks of pollutants, or from ground disturbance (i.e., grading, clearing, filling, and excavation) that would have the potential to cause soil erosion and the subsequent transport of sediment into waterways via stormwater. With implementation of mitigation measures for construction activities, no long-term or adverse impacts on surface waters would occur. NASA would minimize adverse impacts by developing site-specific Erosion and Sediment Control Plans, acquiring Virginia Stormwater Management Program permits as necessary, implementing BMPs, and following procedures outlined in WFF's Integrated Contingency Plan (ICP).

Wetlands – Up to 0.36 hectare (0.88 acre) of tidal wetlands would be filled for construction of the utility-scale wind turbine pads, underground cables, and access roads; 0.29 hectare (0.71 acre) of estuarine intertidal emergent wetlands, 0.06 hectare (0.14 acre) of palustrine emergent wetlands, and 0.01 hectare (0.03 acre) of palustrine scrub-shrub wetlands. Prior to construction, NASA would obtain necessary Federal, State, and local permits via the Joint Permit Application (JPA) process and would implement at least 0.362 hectare (0.895 acre) of compensatory mitigation at WFF's Mainland. No wetlands would be affected for construction of the residential-scale turbines.

Floodplains – The utility-scale wind turbines and the residential-scale wind turbine proposed at the Mainland guard station would be located within the 100-year and 500-

year floodplains. Because Wallops Island is entirely within the floodplain, no practicable alternatives exist. Minor, localized adverse impacts on the functionality of the floodplain on Wallops Island would be expected from the placement of fill material within the project site.

Air Quality – Short-term impacts from constructing the wind turbines would be negligible compared to the long-term beneficial impacts on air quality due to reduced greenhouse gas emissions and lowered use of fossil fuels during the production of electricity from the utility-scale wind turbines.

Noise – Operation of the wind turbines would result in localized, long-term, minor impacts on the surrounding environment from noise. Neither the public nor employees and visitors to WFF outside of Wallops Island would be able to hear the wind turbines; therefore, no impacts on either of these two groups would occur. No impacts on the occupational health of construction workers as a result of construction noise as all activities would be conducted in accordance with U.S. Occupational Safety and Health Administration standards.

Hazardous Materials and Hazardous Waste Management – Construction, maintenance, and decommissioning activities for the wind turbines would involve hazardous materials and produce hazardous waste. NASA would ensure implementation of WFF's ICP procedures, training, and mitigation measures, including spill prevention and response. Therefore, no impacts on human and environmental health due to hazardous materials and wastes are anticipated.

Vegetation and Terrestrial Wildlife – Short-term adverse impacts would be expected due to excavation and grading to construct all wind turbines, and the utility-scale turbine's access roads and underground cables. Long-term, adverse impacts to habitat would occur due to the permanent conversion of 0.36 hectare (0.88 acre) of wetlands to developed land for construction of the utility-scale wind turbines. NASA would implement wetland mitigation measures agreed upon through the JPA consultation process to offset the impacts. Impacts would be localized to the area within the wind turbine construction footprints.

Birds and Bats – There would be long-term adverse impacts due to the conversion of wetland habitat to developed land for construction of the utility-scale wind turbines and from operation of the all wind turbines. A post-construction monitoring study has been proposed as a means of better determining the utility-scale wind turbines' risk profile and to provide data for comparison of actual avian and bat mortality at the wind turbines with mortality estimated for the existing tower structures. The need for additional BMPs would be determined once the post-construction study is implemented.

Because the use of red or white flashing obstruction lights has been strongly correlated with a decrease in avian fatalities compared to non-flashing, steady burning lights at tower systems, NASA would utilize either red or white flashing light systems to satisfy Federal Aviation Administration requirements for lighting the utility-scale wind turbines. Numerous technologies and methodologies (e.g., blade color patterns, flight diverters, acoustic deterrents, etc.) are currently under development to lessen the potential risk that wind turbines pose to avifauna. NASA may consider implementing such technologies to both test their efficacy and to reduce potential impacts.

Threatened and Endangered Species – Although suitable habitat would not be affected by the project, avian mortality has been documented as an adverse effect of birds colliding with the rotating blades of wind turbines and cannot be discounted. NASA determined that the project "may affect, and is likely to adversely affect" the Piping Plover and Red Knot. The project would have "no effect" to federally listed mammals, sea turtles, insects, and plants. WFF has developed a protected species monitoring plan, which includes the Piping Plover and Red Knot, in cooperation with USFWS. NASA would continue to coordinate with Chincoteague National Wildlife Refuge and U.S. Department of Agriculture personnel in monitoring the Wallops Island beach for Piping Plover and Red Knot activity.

Essential Fish Habitat – Because EFH is located within the tidal wetlands that would be affected by the by construction of two proposed utility-scale wind turbines, NASA completed an EFH Checklist to determine what, if any impacts may occur on EFH. Based on the EFH Checklist, NASA has determined that the Proposed Action would result in adverse effects on EFH, but they would not be substantial. Effects on EFH would be offset by 0.362 hectare (0.895 acre) of compensatory mitigation at WFF's Mainland.

Socioeconomics – Construction activities would result in a benefit to the local economy due to employment opportunities for local construction workers and increased numbers of people in Accomack County during business hours resulting in a potential increase in the use of local stores and businesses for purchases. Disproportionately high or adverse impacts to low-income or minority populations are not anticipated.

Cultural Resources – All ground disturbances would be located outside of areas designated as having moderate or high potential for archeological resources. No adverse effects on archaeological resources are anticipated. Utility-scale turbines are not anticipated to adversely affect aboveground historic properties within or outside of WFF given the nature of the viewshed. Residential-scale turbines are not anticipated to adversely affect aboveground historic properties within WFF. Indirect visual effects to historic properties outside of the WFF property, should they be present, are possible and may be adverse, depending upon the nature of the property.

Transportation – Temporary impacts on traffic flow could occur during construction activities. As NASA or its contractor would closely coordinate with the Virginia Department of Transportation and the local community regarding the movement of oversized loads, no substantial impacts on transportation are anticipated.

Aesthetics – Due to the height of the residential-scale turbines compared to their surrounding environment (trees, towers, and buildings), they would not be seen from areas outside of WFF other than by motorists traveling along the highway adjacent to the WFF Visitor Center. Additionally, the viewshed looking towards the proposed utility-scale turbine site already contains radio towers, buildings, launch pad infrastructure, and from some viewing locations, the bridge that links Wallops Mainland with Wallops Island. Wind turbines would be white to blend in with sky. Therefore, the wind turbines would not result in a substantial change to the local viewshed and there would be no adverse impacts on the public viewshed. Potential adverse impacts on WFF employees and visitors within turbine shadow due to flickering effect of spinning blades on sunny days.

Cumulative Impacts – There would be adverse cumulative impacts on avifauna from construction and operation of the wind turbines. Cumulative impacts on wetlands would be mitigated. There would be beneficial impacts on air quality due to reduced greenhouse gas emissions and lowered use of fossil fuels during the production of electricity.

Consistency Determination

The Virginia Coastal Zone Management Program contains the following applicable enforceable policies:

- **Fisheries Management**. Administered by VMRC, this program stresses the conservation and enhancement of shellfish and finfish resources and the promotion of commercial and recreational fisheries.
- **Subaqueous Lands Management.** Administered by VMRC, this program establishes conditions for granting permits to use State-owned bottomlands.
- **Wetlands Management.** Administered by VMRC and VDEQ, the wetlands management program preserves and protects tidal wetlands.
- **Dunes Management.** Administered by VMRC, the purpose of this program is to prevent the destruction and/or alteration of primary dunes.
- **Non-point Source Pollution Control.** Administered by the Virginia Department of Conservation and Recreation, the Virginia Erosion and Sediment Control Law is intended to minimize non-point source pollution entering Virginia's waterways.
- **Point Source Pollution Control.** Administered by the State Water Control Board, the National Pollutant Discharge Elimination System permit program regulates point source discharges to Virginia's waterways.
- **Shoreline Sanitation.** Administered by the Department of Health, this program regulates the installation of septic tanks to protect public health and the environment.
- **Air Pollution Control.** Administered by the State Air Pollution Control Board, this program implements the Federal Clean Air Act through a legally enforceable State Implementation Plan.
- **Coastal Lands Management.** Administered by the Chesapeake Bay Local Assistance Department, the Chesapeake Bay Preservation Act guides land development in coastal areas to protect the Chesapeake Bay and its tributaries.

Based upon the following information, data, and analysis, NASA finds that the proposed Alternative Energy Project activities are consistent to the maximum extent practicable with the enforceable policies of the Virginia Coastal Zone Management Program. The table below summarizes NASA's analysis supporting this determination:

Virginia Policy	Consistent?	Analysis
Fisheries Management	Yes	There would be site-specific adverse effects on fish habitat within the fill placement area due to burial of existing intertidal wetland habitat and increased levels of turbidity during and immediately after construction. The adverse impacts are not anticipated to be substantial as NASA would provide compensatory wetland mitigation to offset habitat losses. Additionally, NASA would employ strict erosion and sediment controls during construction to mitigate impacts to water quality. The proposed action would not violate the provisions outlined in Code of Virginia § 28.2-200 through 28.2-713 and Code of Virginia § 29.1-100 through 29.1-570.
Subaqueous Lands Management	Yes	Project activities would not impact subaqueous areas.
Wetlands Management	Yes	Project activities would impact 0.36 hectare (0.88 acre) of tidal wetlands. NASA would obtain necessary permits via the JPA process and would implement 0.362 hectare (0.895 acre) of compensatory mitigation at WFF's Mainland.
Dunes Management	Yes	Project activities would not involve the alteration of existing dunes.
Non-point Source Pollution Control	Yes	Construction activities could temporarily increase non-point source runoff to nearby waterways. NASA would implement appropriate erosion and sediment control BMPs to minimize the impact. All land-disturbing activities would be conducted in accordance with the VSMP and NASA would obtain all necessary permits prior to project implementation.
Point Source Pollution Control	Yes	The project would not involve a new point source discharge to Virginia waters.
Shoreline Sanitation	Yes	The project would not involve the construction of septic tanks.
Air Pollution Control	Yes	Use of equipment for construction would result in minor emissions; however none would violate Federal or Virginia air quality standards.. With the implementation of low-emission alternative energy sources, the project would result in long-term beneficial impacts on air quality.
Coastal Lands Management	Yes	The proposed project would not include land development activities that would impact the Chesapeake Bay or its tributaries.

Pursuant to 15 CFR section 930.41, the Virginia Coastal Zone Management Program has 60 days from the receipt of this letter in which to concur with or object to this

Consistency Determination, or to request an extension under 15 CFR Section 930.41(b). Virginia's concurrence will be presumed if its response is not received by NASA on the 60th day from receipt of this determination. The State's response should be sent to:

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