

PMC-EF2a

(0402)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: Verdant Power, Inc.

STATE: NY

**PROJECT TITLE :** Advancement of the Kinetic Hydropower System (KHPS) to DOE TRL 7/8

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000293	DE-EE0005929	GFO-0005929-001	EE5929

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), I have made the following determination:

**CX, EA, EIS APPENDIX AND NUMBER:**

Description:

- A9 Information gathering, analysis, and dissemination** Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
- B3.6 Small-scale research and development, laboratory operations, and pilot projects** Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.
- B3.16 Research activities in aquatic environments** Small-scale, temporary surveying, site characterization, and research activities in aquatic environments, limited to: (a) Acquisition of rights-of-way, easements, and temporary use permits; (b) Installation, operation, and removal of passive scientific measurement devices, including, but not limited to, antennae, tide gauges, flow testing equipment for existing wells, weighted hydrophones, salinity measurement devices, and water quality measurement devices; (c) Natural resource inventories, data and sample collection, environmental monitoring, and basic and applied research, excluding (1) large-scale vibratory coring techniques and (2) seismic activities other than passive techniques; and (d) Surveying and mapping. These activities would be conducted in accordance with, where applicable, an approved spill prevention, control, and response plan and would incorporate appropriate control technologies and best management practices. None of the activities listed above would occur within the boundary of an established marine sanctuary or wildlife refuge, a governmentally proposed marine sanctuary or wildlife refuge, or a governmentally recognized area of high biological sensitivity, unless authorized by the agency responsible for such refuge, sanctuary, or area (or after consultation with the responsible agency, if no authorization is required). If the proposed activities would occur outside such refuge, sanctuary, or area and if the activities would have the potential to cause impacts within such refuge, sanctuary, or area, then the responsible agency shall be consulted in order to determine whether authorization is required and whether such activities would have the potential to cause significant impacts on such refuge, sanctuary, or area. Areas of high biological sensitivity include, but are not limited to, areas of known ecological importance, whale and marine mammal mating and calving/pupping areas, and fish and invertebrate spawning and nursery areas recognized as being limited or unique and vulnerable to perturbation; these areas can occur in bays, estuaries, near shore, and far offshore, and may vary seasonally. No permanent facilities or devices would be constructed or installed. Covered actions do not include drilling of resource exploration or extraction wells.

**Rational for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Verdant Power, Inc. (Verdant) to conduct research, development and environmental monitoring activities to advance the design of a Kinetic Hydropower System (KHPS). DOE funding would be used for Phase 1 only, which includes environmental compliance and monitoring of existing in-water instrumentation, development of a conceptual plan for underwater sound monitoring, composite blade turbine testing and other information gathering tasks. This NEPA determination does not apply to Subtasks \*2.2, \*2.3, and \*2.4 as these testing facilities have not been defined to the extent that DOE can make a determination.

The tasks for Phase 1 are as follows:



- Task 1: Environmental Compliance and Monitoring Instrumentation
- Subtask 1.1: Compliance and Monitoring Instrumentation
- Subtask 1.2: RITE Monitoring of Environmental Effects (RMEE)-6 Underwater Sound Monitoring and Evaluation Plan
  
- Task 2: Gen5 KHPS Turbine Component Testing
- Subtask 2.1: Testing of Production-Class Composite Blade
- \*Subtask 2.2: Shaft Seal Testing
- \*Subtask 2.3: Generator Brake Testing
- \*Subtask 2.4: Gearbox Dynamometry Testing
- Task 3: Gen5 Manufacture and Quality Management System (QMS)
- Subtask 3.1: QMS Release for Testing and Production

Environmental compliance and monitoring would occur on the previously developed Roosevelt Tidal Energy Project (RITE). Under the RITE project, Verdant has obtained a FERC Pilot Project License (project number P-12611, January 2012), a USACOE Nationwide Permit (NAN-2011-00641), a USACOE deployment permit (NAN-2003-00402-M3), and a Clean Water Act permit from the New York State Department of Environmental Conservation. This 1,050-kilowatt hydrokinetic project is located on the East River in New York County, New York. The East River is a 17-mile-long tidal strait connecting the waters of the Long Island Sound with those of the Atlantic Ocean in New York Harbor. The East River is not a freshwater river, but rather a saltwater conveyance passage for tidal flow.

Subtask 1.1 involves data-collection of in-water instrumentation at Verdant's RITE site. Verdant would continue compliance activities associated with the RITE Project operating permits, FERC Pilot License, and other requirements in order to execute the installation of two Gen5 KHPS turbines in the East Channel of the East River as RITE Install A (Phase 2 of this award). Compliance activities include submission of compliance documentation and periodic inspection of the required FERC safeguard plan navigational buoys. To complete compliance with the Supporting Design Report requirements, an underwater inspection of two existing piles for evaluation of structural integrity is planned. These on-water activities would be conducted via contracted work boat and diver.

Under the RITE Monitoring of Environmental Effects (RMEE) 4 regulatory compliance measures, three instruments were deployed in the East River in 2011 to conduct monitoring work. Verdant proposes to retrieve data from these instruments twice a year, in May and December, using a boat and diver. Two of the instruments are hung from existing buoy mooring lines at the RITE site. At this location, at slack tide, the diver would follow the instrument chain from the buoy, retrieve the equipment, download the data, replace the battery and reinstall the device on the chain. The third instrumentation device is located at a different location on the west side of Roosevelt Island and would be retrieved the following day under the same procedure. Monitoring work would be completed in two days. Verdant would use the collected data to draft a regulatory compliance report and consult with the necessary regulatory agencies to comply with the required adaptive management cycle for RMEE-4.

Five federally listed species are known to occur, or may occur, in the vicinity of the proposed RITE Project: the threatened green turtle and loggerhead turtle and the endangered shortnose sturgeon, Kemp's ridley turtle, and leatherback turtle. The Atlantic sturgeon, which has recently been listed as threatened under ESA with some sub-populations being listed as endangered, may also occur in the project vicinity. Harbor seals, not an ESA-listed species, are the only marine mammals that are known to occur in the vicinity of the proposed project. In a Federal Energy Regulatory Commission (FERC) Environmental Assessment (EA) ( 5/3/2011, Project No. 12611-005) for the RITE project area, the National Marine Fisheries Service (NMFS) concluded that the RITE project is not likely to adversely affect listed species and incidental harassment authorization would not be required for this project. For this proposed project, due to the approved monitoring activities under the FERC permit, the NMFS Biological Opinion, the minimal hours and temporary deployment of boat and diver, and small scale of project, DOE has determined the threatened and endangered species and marine mammals would not be adversely affected by these actions. Under the Marine Mammals Protection Act (MMPA), Verdant will comply with best management practices for boating and interaction with marine mammals.

Subtasks 1.1, 1.2, and 3.1 would involve information gathering, analysis and dissemination activities involving the RITE site including system performance analysis, preliminary desktop work for underwater sound monitoring, and turbine component design testing.

Subtask 2.1 would include the testing of production-class composite blades at the National Renewable Energy Laboratory (NREL) in Golden, Colorado. All work completed at DOE National Laboratories (NREL) has been reviewed under the site-wide Environmental Assessment however may be subject to additional NEPA review by the appropriate DOE NEPA Compliance Officer.

This NEPA determination does not apply to Subtasks \*2.2, \*2.3, and \*2.4 as these testing facilities have not been defined to the extent that DOE can make a determination.

Based on review of the project information and the above analysis, DOE has determined the research, development



and environmental monitoring activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and dissemination," B3.6 "small-scale research and development, laboratory operations and pilot projects," and B3.16 "research activities in aquatic environments" and is categorically excluded from further NEPA review.

**NEPA PROVISION**

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Subtasks 2.2, 2.3, and 2.4

This restriction does not preclude you from:

Subtasks 1.1, 1.2, 2.1, and 3.1

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Kelly Daigle 12/12/12

DOE Funding: \$1,500,000  
Cost Share: \$1,622,528  
Total Project Cost: \$3,122,528

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: \_\_\_\_\_

 Electronically Signed By: Lori Gray / *Lori Gray*  
NEPA Compliance Officer

Date: 12/13/2012

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_