

**U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION**



RECIPIENT: University of Alaska Fairbanks

STATE: AK

PROJECT TITLE: Under Ice Hydrokinetics for Alaska

Notice of Funding Opportunity Number
DE-FOA-003097

Procurement Instrument Number
DE-EE0011706

NEPA Control Number
GFO-0011706-001

CID Number
GO11706

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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.

B5.25 Small-scale renewable energy research and development and pilot projects in aquatic environments

Small-scale renewable energy research and development projects and small-scale pilot projects located in aquatic environments. Activities would be in accordance with, where applicable, an approved spill prevention, control, and response plan, and would incorporate appropriate control technologies and best management practices. Covered actions would not occur (1) within areas of hazardous natural bottom conditions or (2) 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, use of large-scale vibratory coring techniques, or seismic activities other than passive techniques.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the University of Alaska Fairbanks (UAF) to design, build, and test a hydrokinetic turbine that would produce electricity from winter under-ice river currents in Alaska.

Tasks would be completed over a 30-month budget period. Proposed project activities would include model validation, system design, turbine fabrication, power take-off (PTO) testing, field testing, microgrid integration design, and coordination with the University Marine Energy Research Community.

Desktop design, project management, and laboratory testing of the PTO would occur at UAF facilities in Fairbanks, AK. Design work, fabrication, and assembly of the prototype turbine would occur at Creek Tides Energy and Power (CTEP) in Walterboro, SC.

All proposed project work at UAF and CTEP would be performed at existing, purpose-built facilities. No changes to the use, mission, or operation of these facilities, modifications, or ground disturbing activities would be required. No additional permits, licenses, or authorizations would be required.

Proposed activities at UAF and CTEP would involve typical hazards associated with research laboratories and testing facilities, including working with electrical and mechanical subsystems. Existing health, safety, and environmental policies and procedures would be followed.

Initial field testing of the turbine prototype would occur in the Edisto River at the T. Coke Weeks Landing public boat ramp and floating dock near St George, SC. The turbine would be deployed for a few hours over 3 or 4 days to validate operation prior to shipment to Alaska. The existing ramp, dock, and tie-off cleats would be used for daily testing. The device would always be attended and would dissipate power into a bicycle brake (i.e., would not produce electricity or hydraulic pressure). The turbine would be equipped with flooded polymer sleeve bearings and would not introduce any lubricants or chemicals into the aquatic environment. All activities would be performed from the existing dock and staff would wear appropriate personal protective equipment (PPE) for work near water.

The South Carolina Department of Natural Resources determined that a permit was not required for the proposed testing activities at this location. The U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) website indicates that the federally protected tri-colored bat, red-cockaded woodpecker, monarch butterfly, Canby's dropwort, and pondberry have the potential to occur within the project area. As all activities would be limited to the footprint of the existing floating dock, DOE has made a no effect determination for these species.

The National Oceanic and Atmospheric Administration's (NOAA) Southeast Region ESA Section 7 Mapper indicates that federally protected Atlantic sturgeon and Shortnose sturgeon could be present within the project area during certain parts of the year. In addition, at this location the Edisto River is critical habitat for Atlantic sturgeon. Testing activities at this location would occur only between December 1 – February 1. DOE received confirmation from NOAA that impacts to sturgeon would be avoided by adhering to this in-water work window.

Field testing of the combined turbine and PTO would occur at the Tanana River Test Site (TRTS) in Nenana, Alaska. An existing anchor and mooring chain would be used, and the device would be deployed either from a floating infrastructure or through the ice after freeze-up. Fish sampling with inclined plane fish traps would also be performed to observe any interactions with the turbine.

UAF currently has all permits and authorizations in place for the proposed activities at TRTS, including permits with the Alaska Department of Natural Resources, Alaska Department of Fish and Game, and Army Corps of Engineers, and a land use agreement with the Nenana Native Council. These permits and agreements would be renewed or extended to cover the period of performance of this award. There are no federally listed species or habitats at TRTS.

Potential hazards at TRTS are boating or floating platform failures, line failure, and floating river debris. To mitigate these, all personnel would wear PPE when on the water and all boats would have secondary motors in the case of engine failure. All lines, gear and other equipment associated with the floating platform would be inspected prior to use and inspected weekly for signs of wear and tear along with being cleared of any debris daily. Existing university health and safety protocols would be followed.

DOE has considered potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate adverse impacts on these resources.

EERE is aware of the November 12, 2024, decision in *Marin Audubon Society v. FAA*, No. 23-1067 (D.C. Cir. Nov. 12, 2024). To the extent that a court may conclude that the Council on Environmental Quality (CEQ) regulations implementing NEPA are not judicially enforceable or binding on this agency action, EERE has nonetheless elected to follow those regulations at 40 C.F.R. Parts 1500-1508, in addition to DOE's procedures/regulations implementing NEPA at 10 C.F.R. Part 1021, to meet the agency's obligations under NEPA, 42 U.S.C. §§ 4321 et seq.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

Testing of the turbine in the Edisto River at the T. Coke Weeks Landing would occur only during the timing window of December 1 – February 1.

Notes:

Water Power Technologies Office (WPTO)
NEPA review completed by Melissa Parker, 03/06/25

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



NEPA Compliance Officer

Date: 3/6/2025

FIELD OFFICE MANAGER DETERMINATION

- ☒ Field Office Manager review not required
☐ Field Office Manager review required

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

Field Office Manager's Signature: _____

Field Office Manager

Date: _____