

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



RECIPIENT: Water Bros Desalination, LLC.

STATE: NC

PROJECT TITLE: Long-duration testing and scalability of a lightweight, rapidly deployable, wave-powered reverse osmosis system

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002793	DE-EE0010980	GFO-0010980-001	GO10980

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.)
- B3.16 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.
- 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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Water Bros Desalination, LLC, for the design, fabrication, and testing of a wave-powered desalination system. Project activities would consist of information gathering and analysis, research and development, laboratory operations and testing, and the deployment, operation, and removal of a passive scientific measurement device in an aquatic environment.

Design, development, analysis, and fabrication would occur at the University of North Carolina (UNC) in Charlotte, NC. Laboratory testing would occur at four sites: UNC; the O.H. Hinsdale Wave Research Laboratory in Corvallis, OR; the Eastern Carolina University Coastal Studies Institute in Wanchese, NC; and the National Renewable Energy

Laboratory in Arvada, CO.

DOE previously completed a ND related to this project, the Waves to Water Prize competition (CX A9, A11, B3.16, B3.2, and B3.6; 4/15/2021, GFO-WavesPrize-003). At-sea testing would occur at pre-authorized testing berths at Jennette's Pier in Nags Head, NC. The floating device would be held in place with a gravity anchor that would become embedded in the sand before and during the testing periods. Deployment of the device at Jennette's Pier was previously reviewed as part of the previously mentioned ND. That review covered existing permits and consultations with external agencies:

#### Permitting

The North Carolina Ocean Renewable Energy Program has a Coastal Area Management Act major permit for the Wave Energy Test Center at Jennette's Pier, which is a joint permit between the North Carolina Division of Coastal Management and the U.S. Army Corps of Engineers (USACE). Additionally, the USACE issued the Program Nationwide Permit #5, Scientific Measurement Devices, for the Wave Energy Test Center at Jennette's Pier. Additional permits that could be required include U.S. Coast Guard Private Aids to Navigation or Notice to Mariners; and/or a Land Use permit. Project activities covered under this ND shall not commence until all required permits have been obtained.

#### FWS Consultation

There are 16 federally listed threatened or endangered species under FWS's jurisdiction that could occur in the Project area. DOE determined that the proposed project would have no effect on 15 species and may affect, not likely to adversely affect, one species, the West Indian manatee. The Prize team would implement WIM Guidelines: Precautionary Measures for Construction Activities in North Carolina Waters. Manatees are not likely to encounter the Project given the time of year, but if a manatee is seen within 100 yards of the project, all appropriate precautions shall be implemented to ensure their protection. NREL communicated this determination to FWS on February 12, 2021. The FWS concurred with this determination on February 19, 2021.

#### NMFS Consultation

There are 9 federally listed endangered species under NMFS's jurisdiction that could occur in the proposed project area. The proposed project location also includes designated critical habitat for one species, the Loggerhead sea turtle. The proposed project has the potential to impact these species and designated critical habitat, and DOE requested expedited informal Endangered Species Act consultation with the National Marine Fisheries Service (NMFS) on April 5, 2021.

Physical effects to species could include collisions with the vessel and/or project equipment during deployment and retrieval. The likelihood adverse impacts is anticipated to be very low due to: the deployment of anchors in a slow and controlled manner to avoid marine mammal strikes; adherence to NMFS-recommended BMPs and conservation measures; the presence of divers and marine mammal observers and use of the onboard active acoustic fish finder to alert to the team to the presence of marine life; avoidance of sea turtle nesting season (which begins in mid-May); and the spacing of devices and anchors to allow marine animals safe and unrestricted access through the area.

NMFS concurred with DOE's determination that the proposed project is not likely to adversely affect the NMFS ESA-listed species and/or designated critical habitat. The letter of concurrence was received by DOE on April 13, 2021.

The NMFS letter of concurrence was updated on July 27, 2022, to include potential deployments in July or August 2022.

Apart from the ocean testing, all project activities would be completed in existing, purpose-built facilities. No facility modifications would be needed to perform project activities. Potential hazards include the handling and use of machine tools and hydraulics. Award recipients would adhere to established health and safety policies and procedures when performing project work, and would observe all applicable federal, state, and local health, safety, and environmental regulations.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of a historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

## NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

Any additional required or updated permits for anchoring and testing at Jennette's Pier must be submitted to the NEPA Division ([gonepa@ee.doe.gov](mailto:gonepa@ee.doe.gov)) prior to deployment and testing at that location.

Notes:

Water Power Technologies Office  
NEPA review completed by Andrew McClellan, 29 February 2024

**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:

 Electronically Signed By: **Andrew Montano**  
NEPA Compliance Officer

Date: 2/29/2024

**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: \_\_\_\_\_