

PMC-ND
(1.08.09.13)

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

**RECIPIENT:** NREL**STATE:** AK

PROJECT TITLE: Model Validation and Site Characterization for Early Deployment MHK Sites – Tidal Instrumentation Deployment - Cook Inlet, AK; NREL Tracking No. 18-013

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	NREL-18-013	GO28308

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.)
- A11 Technical advice and assistance to organizations** Technical advice and planning assistance to international, national, state, and local organizations.
- 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.
- B3.2 Aviation activities** Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) is proposing to collect high-fidelity tidal resource characterization measurements at a potential tidal energy site in Cook Inlet, Alaska. The purpose of the project is to better define resource characteristics at early market wave and tidal energy sites, and to develop a wave classification scheme.

The proposed project area lies offshore of East Foreland, in close proximity to the west coast of the Kenai Peninsula in the vicinity of Nikiski, Alaska. NREL and two subcontractors, Integral Consulting Inc. and TerraSond Ltd., would conduct mobile transects and deploy bottom mounted instrumentation and moored equipment to collect velocity, turbidity, depth, and turbulence data throughout the water column.

Project activities include: (1) Equipment and Instrumentation Preparation; (2) Clearance Surveys and Equipment and Instrumentation Deployment and Retrieval; (3) Mobile Transects; and (4) UAS Flights. The activities are summarized below.

Equipment and Instrumentation Preparation

Equipment and instrument preparation would take place at TerraSond's facility in Palmer, Alaska. Project equipment would then be shipped to Homer, Alaska for calibration and to be loaded onto the vessel M/V Peregrine. The equipment would be briefly wet-tested in Kachemak Bay for final testing and approval before project activities commence.

Clearance Surveys and Equipment and Instrumentation Deployment and Retrieval

Once approved, project equipment would travel on the M/V Peregrine to three testing locations. At each location, a clearance survey would be conducted to identify a suitable seafloor location for the equipment. Once identified, a TerraSond High Energy Oceanographic Mooring (THEOM) and Mid-Water Mooring (MWM) would be deployed from the vessel via a winch. It would take approximately 4 days to conduct the clearance surveys and deploy project equipment.

The THEOM is a bottom-mounted mooring that houses an upward-facing acoustic Doppler current profiler (ADCP), acoustic velocimeter, and a satellite beacon. The MWM is housed within a custom StableMoor buoy equipped with an upward and downward facing ADCP and an acoustic velocimeter. The buoy is anchored to the seafloor via a TerraSond Recoverable Anchor (TRA). Both the THEOM and MWM would be anchored to and suspended close to the seafloor such that the equipment is in the water column below the water surface and well below the mean lower low water mark.

Project equipment would remain at the testing locations for approximately 60-80 days. At the conclusion of the testing period, the M/V Peregrine would retrieve the equipment and return to Homer, which would take approximately 3 days to complete. Project equipment would be retrieved via an acoustical release which brings the equipment to the surface, and then pulled onto the vessel via a winch. The equipment would be shipped back to NREL for use in future research.

Mobile Transects

After the project equipment is deployed, mobile surveys would be performed along a transect line across the channel; the line would include all three project locations. A downward facing mobile ADCP, mounted on the M/V Peregrine, would be used to measure current velocities throughout the water column. Hourly measurements would be collected over two tidal cycles (i.e., two 12-hour periods).

A vertical Laser In Situ Scattering Transmissometry (LISST) profile would also be collected along the transect line to measure turbidity. The LISST, mounted on the M/V Peregrine, would take continuous measurements as it is lowered and raised throughout the water column. A LISST profile would be collected after the project equipment is deployed, and once again prior to recovery.

The mobile transects would take approximately 4 days to complete.

UAS Flights

An unmanned aircraft system (UAS) would be deployed to document the project. The UAS unit that would be deployed is the Parrot Anafi (FAA Registration # FA374M7EHX). Flights would be conducted at the Homer Marina, onboard the M/V Peregrine at the project locations, and during the transit to and from Homer. All flights would be conducted by a Pilot-in-Command and Visual Observer.

At the Homer Marina, the UAS would be deployed from both the dock and M/V Peregrine; it would collect photographs and videos of dock activities. These flights would be limited to 99' above ground level and would travel at approximately 10 mph. At the project locations, the UAS would be deployed from the M/V Peregrine to capture various vessel activities including buoy deployment and retrieval. Flights at these locations would be limited to 399' above ground level and would travel at approximately 30mph.

Permitting and Authorization Requirements

U.S. Army Corps of Engineers: On February 10, 2020, the U.S. Army Corps of Engineers determined that the proposed project qualifies for non-reporting Nationwide Permit #5, Scientific Measurement Devices.

Navigation: Prior to commencing project activities, NREL and/or their subcontractors would contact the U.S. Coast Guard to determine if a Private Aids to Navigation permit would be needed, and to post a public local notice to mariners advising them of the locations of project equipment. If a permit is required, project activities shall not commence until the permit has been approved.

UAS Flights: Prior to initiating any UAS flight from the Homer Marina, permission would be obtained from the Homer Harbormaster. A Federal Aviation Administration (FAA) Low Altitude Authorization and Notification Capability authorization would also be required for flights at the Homer Marina due to its proximity to the Homer airport. All flight activities would be conducted by NREL staff as authorized and in accordance with OPP 650-7, "Unmanned Aircraft Systems" and under FAA Part 107 regulations. The Golden Field Office Aviation Manager would also approve the proposed flights. All required permissions shall be obtained prior to conducting any UAS flight.

Land Use: The proposed project location is located within 1.8 miles (3 km) of shore. A land use permit application has been submitted to the State of Alaska Department of Natural Resources, Division of Mining, Land, and Water for the proposed project locations. Project activities shall not commence until the permit has been approved.

NMFS Consultation

There are 6 federally listed endangered species that could occur in the proposed project area. These species are: Cook Inlet beluga whales, western distinct population segment (DPS) Steller sea lions, Mexico DPS humpback whales, western North Pacific DPS humpback whales, North Pacific right whales, and fin whales. The proposed projects' location also includes designated critical habitat for three species, the Cook Inlet beluga whale, North Pacific right whale, and Steller sea lion. The proposed project has the potential to impact these species, and an informal Endangered Species Act consultation was requested with the National Marine Fisheries Service (NMFS) of NOAA on December 11, 2019.

The proposed project could result temporary impacts to these species, such as noise and sediment disturbance; these impacts are anticipated to be on the order of minutes to a few hours. To minimize noise impacts, acoustic equipment would not operate if a marine mammal is located within 50 yards of the vessel.

Noise and visual impacts to species could occur during UAS flights. The UAS would fly at a minimum altitude of 9 m, except during takeoff and landing from the vessel. If marine mammals are observed within 50 meters of the vessel, the UAS would be landed. The likelihood of adverse impacts to species from the UAS flights are anticipated to be low.

Physical effects to species include collisions with the vessel and/or project equipment during deployment and retrieval. The likelihood of these impacts are anticipated to be low due to the short timeframe needed to deploy and retrieve project equipment and low vessel speeds (below 10 knots). In addition, all in-water work would be delayed or stopped if a marine mammal is within 50 yards of the vessel, and vessel operators would watch for and avoid protected marine species in accordance with 50 CFR 224.103 Special prohibitions for endangered marine mammals and NMFS/PRD-recommended BMPs.

Marine species could be entangled with the mooring line, but the likelihood is low due to the taught line configuration, relatively short line length (the moorings are suspended close to the seafloor and do not extend to the surface), and short project duration (60-80 days). In addition, each buoy would have a GPS to alert the project team to mooring failure, buoy drift, anchor movement, or entanglement of a marine mammal; if alerted, NREL would contract a vessel to mobilize and investigate within 24 hours, depending on weather conditions and boat availability.

For the reasons outlined above, NMFS concurred with DOE's determination that the proposed project may affect, but is not likely to adversely affect, Cook Inlet beluga whales, western DPS Steller sea lions, Mexico DPS humpback whales, western North Pacific DPS humpback whales, North Pacific right whales, or fin whales. NMFS also concurred with DOE's determination that the proposed action is not likely to adversely affect the critical habitat of the Cook Inlet beluga whale, North Pacific right whale, or Steller sea lion. The letter of concurrence was received by DOE on April 28, 2020.

Additional Impacts

Cultural resources were not identified in the project area. The THEOM and MWM anchors would disturb approximately 8.4 square meters of the seafloor; this disturbance would be temporary (60-80 days). Temporary deployment of project equipment and operation of the vessel would not affect the use, availability, or quality of water resources, or planned or ongoing land uses. Vessel use would result in de minimus air emissions, and noise generated from the vessel during transit to and from the project locations would be short-term and intermittent.

Seabirds and migratory waterfowl may encounter the project area during spring and summer. During UAS operations, the UAS would be landed when large birds or flocks of birds are present.

Individuals working on this project could be exposed to various hazards during equipment and instrument assembly, testing, deployment, and retrieval. Existing corporate health and safety policies and procedures would be followed, including employee training, proper protective equipment, and engineering controls; additional policies and procedures would be implemented as new health and safety risks are identified. A Marine Safe Work Plan and Aviation Safety

Plan would be development prior to commencing project activities. Project activities would be conducted in accordance with all applicable policies, procedures, and safety requirements.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

All required permits, permissions, notifications, and approvals shall be received prior to commencing project activities. Workers shall abide by all of the mitigation measures resulting from DOE's consultation with NMFS as outlined in the Letter of Concurrence.

Notes:

NREL
Nicole Serio 5/19/2020

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: Lisa Jorgensen
NEPA Compliance Officer

Date: 5/21/2020

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: _____