



United States Department of the Interior

BUREAU OF OCEAN ENERGY MANAGEMENT
WASHINGTON, DC 20240-0001

Dr. Audrey Mayer
Supervisor
New England Field Office
70 Commercial Street, Suite 300
Concord, New Hampshire 03301-5087

RE: Project Code 2024-0013543

Dear Dr. Mayer:

The Bureau of Ocean Energy Management (BOEM) has received and is reviewing a Site Assessment Plan (SAP) amendment for Equinor's (Beacon Wind LLC) Beacon Wind Project as described below. This letter is to initiate an informal consultation under the Endangered Species Act (ESA) for activities that were not fully described in the October 2012 consultation with USFWS for lease issuance, site characterization and site assessment activities on the OCS off Rhode Island and Massachusetts. Foundation testing (see attached) was not previously considered as part of site assessment activities in Lease Area OCS-A 0520 (Lease Area).

If BOEM approves the SAP amendment, Beacon Wind would be authorized to carry out the foundation testing, as described in the attachment. The purpose of the foundation testing is to collect site-specific data during installation and removal of a single suction bucket foundation at up to 26 locations within the Lease Area. The foundation tests are necessary to assess site conditions and gather information to support engineering design of foundations for wind turbine generators and offshore substations in support of the construction and operations plan for the Beacon Wind project.

BOEM used USFWS IPaC system to obtain a species list and determination keys. The IPaC results indicated that roseate tern is potentially present in the project area. Based on BOEM's responses to the Service's Northeast DKey, the proposed activity will have no effect on roseate terns. Although IPaC did not identify other species in the project area, Red Knot and Piping Plover may pass over the project area during migration. Given that these species do not feed in the lease area, the proposed activity will have on effect on Red Knot and Piping Plover.

12-13-2023

Thank you for your continued coordination on the proposed Project. Please contact David Bigger (david.bigger@boem.gov) with any questions or additional information that may be required. We request your concurrence with this determination.

Sincerely,

JESSICA
STROMBERG

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JESSICA STROMBERG
Date: 2023.12.21
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Jessica Stromberg, Acting for David Diamond
Deputy Chief for Operations,
Atlantic Outer Continental Shelf
Office of Renewable Energy Programs

Attachment

ATTACHMENT – BEACON WIND FOUNDATION TESTING BIOLOGICAL ASSESSMENT

Proposed Project

The Bureau of Ocean Energy Management (BOEM) is reviewing the SAP amendment submitted by Beacon Wind to conduct foundation testing in the Lease Area as part of Beacon Wind's site assessment activities. If BOEM approves the SAP amendment, Beacon Wind would be authorized to carry out the foundation testing, as described below. The purpose of the foundation testing is to collect site-specific data during installation and removal of a single suction bucket foundation at up to 26 locations within the Lease Area. The foundation tests are necessary to assess site conditions and gather information to support engineering design of foundations for wind turbine generators and offshore substations in support of the construction and operations plan for the Beacon Wind project.

The proposed foundation testing includes the installation and removal of a single steel suction bucket foundation at up to 26 sites within the Lease Area (**Figure 1, Table 1**). Multiple suction bucket tests are anticipated at some of the 26 sites, resulting in a total of 35 tests. Each test site would be 984 by 984 feet (300 by 300 meters). For each test, the suction bucket foundation would be installed and removed once over a period of approximately six to nine hours (three to five hours for installation and three to four hours for removal). In total, foundation testing at all 26 locations is planned to be conducted over a period of 10 to 15 days, plus additional days for inclement weather or other potential delays. Foundation testing could begin as early as February 2024, pending agency approval, and would be completed no later than August 2024.

For each test, a steel reference frame would be lowered to the seabed prior to installation of the suction bucket foundation, where it would remain stationary for the duration of the test. The reference frame would be used to assist with the placement of the foundation onto the targeted location, ensuring accurate positioning of the suction bucket. The footprint of the frame would be approximately 11 square feet (one square meter). Studs at the edge of the reference frame may penetrate approximately 2 inches (5 centimeters) into the seabed.

Once the reference frame is in place, the suction bucket would be lowered into place at a rate of approximately 13 inches (30 centimeters) per second (0.7 miles [1.1 kilometers] per hour) or less. The suction bucket would be 36 to 39 feet (11 to 12 meters) in height with a diameter of 30 to 39 feet (9 to 12 meters) and a thickness of 2 to 2.8 inches (5 to 7 centimeters). The foundation would weigh approximately 200 tons (181 metric tons) and would be designed to penetrate 33 to 39 feet (10 to 12 meters) into the seabed. Up to two remotely-operated vehicles (ROVs) may be used to assist in positioning the suction bucket. After the suction bucket has settled into the sediment, a low-flow suction pump mounted to the top of the bucket, approximately 19 feet (6 meters) above the seabed, would remove water from within the bucket, creating an area of reduced pressure that would assist in installing the suction bucket to the target penetration depth. The pump is expected to operate at a typical flow rate of approximately 1,320 gallons per minute (5 cubic meters per minute) with a pump velocity of 5.2 feet per second (1.6 meters per second) and a maximum intake diameter of 7 inches (18 centimeters) while pumping water from the water column into the suction bucket. In total up to 1,775 cubic yards (1,357 cubic meters) of water may be removed from inside the suction bucket and released into the water column

immediately outside the bucket. The hydraulic zone of influence of the pump, defined as area in the water column that would experience an increased flow velocity of greater than 10 percent towards the intake, is expected to be up to 20 square feet.¹ The suction pump would generate noise during operation, but observations conducted at other OSW facilities suggest that noise from suction pumps would attenuate to background noise levels at a relatively short distance from the pump (e.g., within 1,640 feet [500 meters]; Koschinski and Lüdemann 2020). As the suction bucket penetrates the seabed, the ROV(s) may be used to observe and gather data on the penetration process.

During installation of the suction bucket, imaging equipment mounted inside the top of the suction bucket would be used to monitor the soil plug and to gather data to be used in refinement of foundation engineering for the Beacon Wind project. Imaging equipment may include sonar and/or an echosounder. The sonar would be operated at frequencies of 600 to 900 kilohertz, and the echosounder would be operated at 400 to 600 kilohertz.

¹ Stream function theory was used to model the zone of influence based on the pump flow rate and ambient ocean current data collected from the Lease Area by Beacon Wind during site assessment activities. Modeling results indicated that the zone of influence would have a radial distance of 2.5 feet (0.8 meter) and a depth of 1 foot (0.3 meter) in the fall, resulting in a total area of 20 square feet (1.9 square meters). In the other seasons, the radial distance of the zone of influence would be reduced to 2 feet (0.6 meter), resulting in a total area of 13 square feet (1.2 square meters).

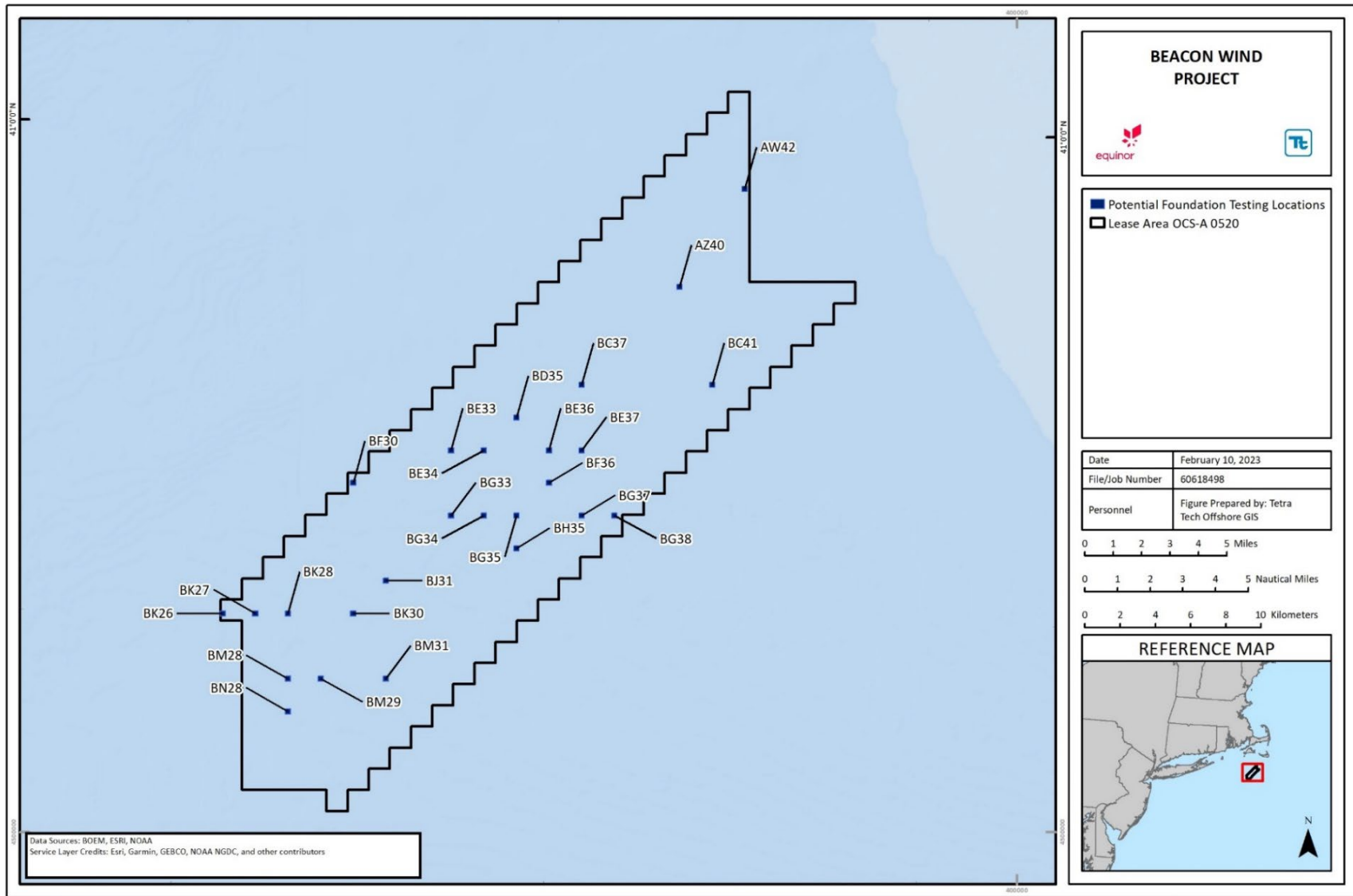


Figure 1 – Potential testing sites for foundation testing

Table 1 – Coordinates for potential test sites for foundation testing

Wind Turbine Location Name	Latitude (Center of Foundation Testing area)	Longitude (Center of Foundation Testing area)
AW42	40.97132	-70.3722
AZ40	40.92075	-70.4151
BC41	40.87099	-70.3921
BC37	40.86989	-70.4800
BD35	40.85264	-70.5235
BE33	40.83538	-70.5671
BE34	40.83567	-70.5451
BE36	40.83625	-70.5012
BE37	40.83654	-70.4792
BF30	40.81778	-70.6325
BF36	40.81957	-70.5008
BG33	40.80202	-70.5663
BG34	40.80232	-70.5443
BG35	40.80261	-70.5224
BG37	40.80318	-70.4785
BG38	40.80346	-70.4565
BH35	40.78593	-70.5220
BJ31	40.76806	-70.6094
BK30	40.75108	-70.6309
BK28	40.75045	-70.6748
BK27	40.75013	-70.6967
BM28	40.71709	-70.6739
BM29	40.71741	-70.6520
BM31	40.71803	-70.6082
BN28	40.70042	-70.6735
BK26	40.74980	-70.7186

After installation has been completed and the necessary information has been gathered, the suction pump would reverse flow, moving water into the suction bucket and increasing the pressure within the bucket, which would assist in removal from the seabed. During removal, the ROV(s) may be used to observe and gather data on the process of recovering the foundation from the seabed. Once the bucket is released from the seabed, it would be lifted vertically with a crane and placed back aboard the testing vessel. Then the reference frame would be lifted vertically with a separate winch and brought aboard the vessel. If weather conditions make lifting the bucket onboard hazardous, the bucket may be left suspended under the vessel as the vessel transits at 1 to 2 knots (2 to 4 kilometers per hour) to the next testing location. The reference frame can be brought aboard regardless of weather conditions due to its smaller size and would not be transported suspended under the vessel at any time.

At the completion of testing, no materials or debris would remain on the seabed. Photo documentation of all installed and removed equipment would be used to ensure that no equipment is left in place. Additionally, a post-test photographic survey using ROVs would be conducted to confirm that the seabed has been cleared of any obstructions created by the foundation testing activities.

A single vessel equipped with dynamic positioning (DP) thrusters and multiple cranes would be utilized for foundation testing. The vessel would be approximately 515 feet (157 meters) in length with a maximum draft of approximately 28 feet (8.5 meters). The vessel would be equipped with multiple two work-class ROVs. The ROVs would be operated from the vessel to support foundation testing, as described above, and would operate within the water column using hydraulic propellers or thrusters so as not to make contact with the seabed.

The vessel will travel from Europe, with the suction bucket, to ports in Canada and/or U.S. where the crew will mobilize. Ports currently under consideration include Halifax, Nova Scotia; New Bedford, Massachusetts; Providence, Rhode Island; and Davisville, Rhode Island. From the mobilization port(s), the vessel will make a single trip to the Lease Area to conduct the foundation testing; once testing is complete, the vessel will depart the Lease Area for ports in eastern Canada or the eastern U.S. to demobilize the crew.

Beacon Wind proposes to implement the following measures to avoid or minimize potential impacts of foundation testing activities:

- The vessel would utilize its DP thrusters during suction bucket installation and removal, which will avoid anchoring impacts to benthic resources;
- Foundation testing would be conducted at sites without sensitive benthic habitats (e.g., hard bottom, seagrass), which will avoid impacts to these benthic resources;
- Beacon Wind would conduct marine debris awareness training, as described in Project Design Criteria (PDC) 3 of the *Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection* (BOEM 2021);
- The foundation testing vessel, regardless of length, would observe a 10-knot speed restriction in the Block Island Sound Seasonal Management Area from November 1 through April 30 and any Dynamic Management Areas when in effect;
- In compliance with the Beacon Wind lease (Lease OCS-A 0520), the foundation testing vessel would operate at 10 knots or less in all waters between November 1 and July 31; and
- Beacon Wind would comply with measures to minimize vessel interactions with protected species, as described in PDC 5 of the *Project Design Criteria and Best Management Practices for Protected Species Associated with Offshore Wind Data Collection* (BOEM 2021), including the use of trained lookouts, maintenance of a 1,640-foot (500-meter) minimum separation distance from any sighted ESA-listed species, and implementation of vessel strike avoidance procedures. These measures are described in more detail in the assessment of vessel traffic effects below.

Additionally, BOEM would require Protected Species Observers (PSOs) or trained project personnel to monitor for listed species in the area prior to and during deployment and retrieval of the suction bucket and reference frame and work would be stopped if ESA-listed species are observed within 1,640 feet (500 meters) of the vessel.

Description of the Action Area

The action area is defined as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR §402.02). For this project, the action area includes the Lease Area (**Figure 1**) and the transit corridor between the vessel’s

port of origin in Europe, the mobilization/demobilization port(s), and the Lease Area. This area is expected to encompass all of the effects of the proposed project.

Habitat within the action area was described in BOEM's (2014) *Environmental Assessment for Commercial Wind Lease Issuance and Site Assessment Activities on the Atlantic Outer Continental Shelf Offshore Massachusetts*, which is incorporated here by reference. The Lease Area is 128,811 acres (521 square kilometers) in size and located in the center of the Massachusetts Wind Energy Area (WEA), approximately 20 miles (32 kilometers) south of Nantucket, Massachusetts and 60 miles (97 kilometers) east of Montauk, New York. Water depths in the Lease Area range from 118 to 223 feet (36 to 62 meters) (Beacon Wind 2023a). Videographic data demonstrate that the seabed within the action area is characterized by soft-bottom habitat composed primarily of fine sediment (i.e., very fine sand and silt) (Beacon Wind 2023a, 2023b). No hard-bottom substrates or sensitive habitats/communities were identified at any testing sites (Beacon Wind 2023a).