



## Department of Energy

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DOE/EA-1916

### Finding of No Significant Impact and Notice of Wetland Action

#### Ocean Renewable Power Company Maine, LLC Cobscook Bay Tidal Energy Pilot Project, Cobscook Bay in Washington County, Maine

**AGENCY:** U.S. Department of Energy

**ACTION:** Finding of No Significant Impact (FONSI)

**SUMMARY:** The U.S. Department of Energy (DOE) selected Ocean Renewable Power Company Maine, LLC (ORPC Maine) to receive \$10 million in financial assistance for the Cobscook Bay Tidal Energy Pilot Project (Cobscook Bay Project or project). ORPC Maine is proposing to build, install, operate, and monitor a commercial-scale array of five grid-connected TidGen™ hydrokinetic energy conversion devices on the sea floor in Cobscook Bay off Eastport, Maine in Washington County. DOE previously authorized expenditure of approximately \$4 million of the \$10 million to ORPC Maine for pre-deployment activities and is now proposing to authorize the expenditure of the remainder of the funds for the project.<sup>1</sup> The Cobscook Bay Project will have a rated capacity of 300 kW. It will comprise an array of interconnected TidGen™ hydrokinetic energy conversion devices, associated power electronics, and interconnection equipment into a system fully capable of commercial operation in moderate to high velocity tidal currents in water depths of up to 150 feet.

Installation of the Cobscook Bay Project will consist of two phases. Phase 1 includes a single, approximately 98.5-foot-long, cross-flow Kinetic System Turbine Generator Unit (TGU) mounted on a bottom support frame, with a rated capacity of 60 kW that will be installed in year 1. Phase 2 includes (1) four additional, approximately 98.5-foot-long, TGUs mounted on bottom support frames, with a total installed capacity of 300 kW that will be installed in year 2; (2) a direct current P&D cable approximately 4,150 feet long (3,750 feet underwater and 400 feet on shore) extending from the TGUs to the on-shore station house; (3) an on-shore station house 16 feet wide by 20 feet long, housing the power inverter and the supervisory control and data acquisition (SCADA) system; (4) a transformer located adjacent to the station house; (5) a 60-foot-long transmission line connecting with the Bangor Hydro Electric Company transmission

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<sup>1</sup> The activities are associated with the Proposed Project and do not significantly impact the environment nor represent an irreversible or irretrievable commitment by DOE in advance of the conclusion of the EA for the Proposed Project.



system; and (6) appurtenant facilities for navigation safety and operation. The project is estimated to have an annual generation of 1.25 gigawatt-hours (GWh) after the completion of Phase 2.

Because the project would be connected to the existing electrical grid, on September 1, 2011, ORPC Maine applied to the Federal Energy Regulatory Commission (FERC) for an 8-year pilot project license to construct, operate, and maintain the proposed Cobscook Bay project (FERC Project No. 12711). This application required FERC to conduct a review of the potential environmental impacts of the project in accordance with the National Environmental Policy Act (NEPA). Since DOE was considering providing financial assistance for the project, DOE requested to be a cooperating agency during FERC's Environmental Assessment (EA) process.

The operating license application included extensive environmental analyses that FERC, in cooperation with DOE, used to conduct their environmental analysis and prepare the Final EA. FERC completed all requisite public involvement and consultations which are described in the Final EA. On January 4, 2012, FERC issued a FONSI concluding that licensing the project does not constitute a major federal action significantly affecting the quality of the human environment.

On February 27, 2012, FERC issued a pilot project license to ORPC Maine. The license requires a number of measures to protect and enhance fish, wildlife, cultural, and aesthetic resources for the project which are discussed below. Interventions, comments, and recommendations filed by the U.S. Fish and Wildlife Service (FWS), U.S. Coast Guard (Coast Guard), National Marine Fisheries Service (NMFS), and the National Park Service (Park Service) were fully considered in determining whether, and under what conditions, FERC would issue their license.

All discussion, analyses, and findings related to the potential impacts of the project are contained in the Final Cobscook Bay EA (FERC Project No. 12711/DOE/EA-1916) and are incorporated by reference into this DOE FONSI. DOE prepared this FONSI in accordance with the National Environmental Quality NEPA regulations (40 CFR parts 1500 to 1508), and DOE's NEPA implementing procedures (10 CFR Part 1021). This project involves a wetland action. As such, concurrent with its NEPA review, DOE is also required to comply with 10 CFR Part 1022-Compliance with Floodplain/Wetland Environmental Review Requirements. An assessment of potential wetlands impacts is provided in the Final EA and this FONSI serves as DOE's Notice of Wetland Action.

**Supplemental Information:** DOE's Proposed Action would be to authorize the expenditure of federal funding to support the final design, construction, deployment and monitoring phases of ORPC Maine's Cobscook Bay Project. The purpose of DOE's Proposed Action is to support the mission of the EERE Program, which works to improve the performance, lower the costs, and accelerate the deployment of innovative wind and water power generation technologies. The need is to harness greater use of the nation's abundant wind and water resources for electric power generation to help stabilize energy costs, enhance energy security, and improve the environment through reduced use of fossil fuels.

**Environmental Impact Analysis:** In compliance with the Council on Environmental Quality regulations for implementing NEPA, as amended (40 CFR Parts 1500 to 1508), the Cobscook Bay EA examines the potential environmental impacts of licensing ORPC Maine to construct and operate a 300 kW commercial-scale array of five grid-connected TidGen™ hydrokinetic

energy conversion devices, associated power electronics, and interconnection equipment as presented in the above summary.

As a cooperating agency, DOE provided input and reviewed the Cobscook Bay EA for consistency with DOE's NEPA Implementing Procedures at 10 CFR Part 1021 and in Compliance with Floodplain/Wetland Environmental Review Requirements at 10 CFR 1022. FERC's environmental impact analyses are consistent with the resource areas and general level-of-detail DOE normally evaluates in its EAs and are summarized below. With the exception of air quality and safety, DOE notes that occupational and public health and safety impacts were not addressed as part of the impact analyses sections, however, they were addressed in Chapter 2 of the Cobscook Bay EA.

*Air Quality.* With regard to air quality, which is not discussed in the Cobscook Bay EA, considering the ocean environment and limited on-shore activities, and that the tidal system would not emit any air pollutants, DOE has concluded there would be no adverse impacts on the air quality of the region. The project, however, would result in some beneficial impacts because the Cobscook Bay project would reduce the reliance on fossil fuels used to generate electricity.

*General.* ORPC Maine has designed the project in a manner that will minimize the potential for adverse environmental effects during construction and operation. Key features include the small scale of the project; a phased installation plan; a remotely controlled braking system for the turbines that will allow for the project to be shut down quickly in the case of an emergency; and the design of the turbines to have blunt-shaped foils and relatively slow speeds, minimizing the potential for turbine blade strikes on fish, diving birds, and marine mammals. In addition to these design features, the results of the studies ORPC Maine conducted during the barge-mounted deployment of its TGU, referred to as the Beta TidGen™, suggest that environmental impacts from the pilot project would be minor. Additionally, ORPC Maine's proposal includes monitoring measures that are designed to detect and address any unanticipated adverse effects.

ORPC has established several operation and safety plans that work interdependently to ensure that the project is operated and maintained in a safe manner that minimizes the potential for harm to the public and environmental resources in the project area. The Project Operations and Monitoring Plan and Project Inspection and Maintenance Plan include establishing procedures for monitoring project operations and visually inspecting and maintaining project facilities. The Project and Public Safety Plan includes measures for identifying and responding to emergencies at the project site, and the Emergency Shutdown Plan includes procedures for the remote shutdown of the project turbines in response to emergencies.

The Project Removal and Site Restoration Plan includes measures for removing the project and restoring the project site in the case that a new license is not obtained at the end of the pilot project license term. This will ensure protection of the aesthetic and environmental resources in and around Cobscook Bay. FERC's modification to ORPC Maine's plan includes provisions for a specific timeline for the removal and site restoration activities, as well as documenting consultation with the appropriate agencies and the completion of project removal and site restoration activities prior to license expiration. The timeline is 6 months prior to license expiration – this would ensure that the project is removed and the site is sufficiently restored to near pre-project condition prior to license expiration.

FERC's Adaptive Management Plan will include protocols for consultation and modifications to the monitoring plans, as well as consultation and Commission approval regarding Phase 2 deployment. This Plan will be based on the effectiveness of the monitoring and operation of the project in Phase 1 and will ensure that the monitoring plans gather sufficient data to allow for the evaluation of the potential environmental effects of the Cobscook Bay Project.

*Geologic Resources.* Construction and operation of the project would likely have only minor effects on geologic resources, such as modifying localized sediment transport. The Hydraulic Monitoring Plan includes visual and geophysical surveys of the seafloor in the project area and will help to identify any unanticipated adverse effects of the project on scouring or sediment transport processes.

*Aquatic Resources.* Construction and operation of the project would have only minor effects on aquatic resources. These effects may include inducing the slight modification of hydrodynamics and behavior of fish and marine mammals in the immediate project vicinity. The project may harm some fish with turbine blade strikes. FERC's restriction of pile-driving and P&D cable burial activities associated with project construction between April 10th and November 7th of any year will help to avoid any adverse effects to aquatic resources due to construction. The Acoustic Monitoring Plan includes the use of a drifting noise measurement system to measure noise related to project construction and operation. This Plan will help to identify and characterize noise radiated by the project. The Benthic and Biofouling Monitoring Plan includes benthic surveys of the P&D cable burial route and regular inspections of project equipment for biofouling and will help to ensure recovery of the benthic community from construction-related disturbance in the project area. The Hydraulic Monitoring Plan includes measuring tidal velocities in the project deployment area and will provide an increased understanding of the effects of the project on the hydrodynamics in Cobscook Bay during each phase of deployment. Both the Fisheries and Marine Life Interaction Plan and Marine Mammal Monitoring Plan include measures to identify the use of the project area by fish and marine mammals and will help to quantify any unanticipated adverse effects of the project on fish and marine mammal behavior.

*Rare, Threatened, and Endangered Species.* Construction and operation of the project would have only minimal effects on bald eagles and has the potential to disturb nesting habitats or foraging behavior. ORPC Maine will follow the FWS *Bald Eagle Management Guidelines* during project construction and operation which will ensure the protection of bald eagles in Cobscook Bay.

*Terrestrial Resources.* Construction and operation of the project would have only minor effects on terrestrial resources and may disrupt the feeding and resting habitats of migratory and diving birds. The Bird Monitoring Plan includes measures to observe bird species, number of birds, and behaviors of these birds in the proposed project area and will allow for further analysis of the use of the area by birds to ensure any effects of the proposed project are minimized.

The Final EA provides an assessment of the Cobscook Bay Project's impacts to wetlands located within the project area. This assessment meets the requirements of 10 CFR 1022. Construction and operation of the on-shore station and associated appurtenances, and the installation of the P&D cables to the on-shore station could affect up to 2,300 square feet of wetland communities. However, through implementation of the safeguard and erosion-control measures, any effects to wetland resources are expected to be minimal.

*Recreation.* Construction and operation of the project would only have minimal effects on recreational resources, as there is little recreation that occurs in the proposed deployment area and abundant recreational resources are available outside of the project area. An interpretive display will be constructed at the proposed on-shore station house and will include an educational display detailing the TidGen™ technology and the natural environment of the project area. This will enable the public to learn more about the new area of tidal energy development that the proposed Cobscook Bay Project represents.

*Navigation.* Construction and operation of the project would have only minor effects on navigation, such as restricting navigation in this portion of Cobscook Bay during the short periods of project deployment and maintenance. The Navigation and Safety Plan includes measures to provide navigational markers and an exclusion zone around the project, which will ensure the safety of the public using this portion of Cobscook Bay.

*Cultural Resources.* Construction and operation of the project is not likely to affect cultural resources because no cultural resource sites were identified near the proposed project area. ORPC Maine will consult with the Maine SHPO on any unanticipated discoveries of cultural materials or human remains during construction activities, over the license term, and during any new post-construction land-clearing or ground disturbing activities, which will ensure the protection of any cultural resources in the project area for the term of any license.

*Socioeconomics and Environmental Justice.* Although the Cobscook Bay EA did not specifically address socioeconomics and environmental justice, analyses prepared by ORPC Maine for their FERC license clearly demonstrates that their project would not result in adverse impacts to any sector of the human population. On the contrary, the project is expected to contribute to the creation of higher paying technical jobs in several Maine counties, especially Washington County, which has Maine's highest poverty rates as well as low levels of educational attainment and median household income. During the 8-year pilot period the project is expected to create and retain 53 new full-time equivalent jobs in Maine.

**Determination:** Based on the independent review of the Cobscook Bay EA, DOE has determined that authorizing the expenditure of federal funding to ORPC Maine build, install, operate, and monitor a commercial-scale array of five grid-connected TidGen™ hydrokinetic energy conversion devices on the sea floor in Cobscook Bay does not constitute a major federal action significantly affecting the quality of the human environment within the context of NEPA.

Pursuant to 10 CFR 1022.12, DOE is allowing a 15-day public review period from the date this FONSI is posted before ORPC Maine is authorized to expend funds on any activities in a wetland. This condition will be incorporated and enforceable through DOE's financial assistance agreement.

The environmental protection measures committed to by the applicant and recommended by FERC, as summarized above and contained in the Cobscook Bay Final EA, shall be incorporated and enforceable through DOE's funding award documents.

Additionally, ORPC will comply with all requirements contained in the FERC Order Issuing Pilot License, dated February 27, 2012. The preparation of an Environmental Impact Statement is not required and DOE is issuing this Finding of No Significant Impact.

The FERC Cobscook Bay Final EA is available at:

[http://www.eere.energy.gov/golden/NEPA\\_FEA\\_FONSI.aspx](http://www.eere.energy.gov/golden/NEPA_FEA_FONSI.aspx)

For questions about this project or this FONSI, please contact:

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Issued in Golden, Colorado this 16<sup>th</sup> day of March, 2012

A handwritten signature in blue ink, appearing to read "Carol J. Battershell", written over a horizontal line.

Carol J. Battershell  
Golden Field Office Manager