STATE OF MAINE
DEPARTMENT OF MARINE RESOURCES
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GOVERNOR

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COMMISSIONER

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Comments on the proposed ORPC Eastport Tidal Energy Project
ORPC Eastport Tidal Energy Project (P-12680-003)

Dear Secretary Bose:

On September 3, 2009 the Maine Department of Marine Resources (MDMR) submitted a letter in response to the Federal Energy Regulatory Commission's (Commission) notice of intent (Notice) to file hydrokinetic pilot project license application, filing of draft pilot license application (DPLA), request for waivers of integrated licensing process regulations necessary for expedited processing of a pilot project license application and soliciting comments for a hydrokinetic project in the Atlantic Ocean in Western Passage and Cobscook Bay in Eastport, Maine. MDMR subsequently completed a further review of the license application, and wishes to amend its previous letter with the following comments.

General comments

During Phase 1 the proposed Eastport Tidal Energy Project would consist of a single one-megawatt (MW) hydrokinetic device in Western Passage with an estimated annual generation of 2,760 megawatt-hours (MWh). This estimated annual generation is based on peak current velocity of 6 knots for both ebb and flood tides, assuming a 35% capacity factor. However, field studies conducted by SMAST (Appendix C Technical Memorandum dated October 4, 2007; Appendix C Technical Memorandum dated November 16, 2007; and Appendix C Technical Memorandum dated June 24) indicate that peak current speeds rarely exceed 2.5 knots. We recommend the estimated annual generation be recalculated.

The DPLA incorrectly states on page E-84 that there are currently no state endangered or threatened marine fish, reptiles, or mammals listed under the Maine endangered species program. The MDMR list can be found at the following site: http://www.mainelegislature.org/legis/statutes/12/title12sec6975.html

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The DPLA indicates on page A-19 that the single turbine generator unit (TGU) will be anchored with four Danforth-style anchors and four clump weights. However, there is no description of the anchoring system that will be used in Phase 2 when four TGUs are deployed in Western passage. Please describe the anchoring system in Phase 2 when additional units will be deployed at the Western Passage site.

The DPLA cites Verdant (2008) and the Verdant Roosevelt Island Tidal Energy (RITE) Project in several places, but the citation is not included in references, and study reports from the RITE project are not readily available (are not available through Commission's e-library).

Study plans

The Draft Environmental Assessment identified six potential effects of deploying and operating the project on marine life: turbine strike, collision/entanglement, underwater noise/vibration, electromagnetic field (EMF), habitat alteration, habitat avoidance, and Essential Fish Habitat. ORPC considers the likelihood of turbine strikes on marine mammals and fish to be low because the turbine blades rotate at a relatively slow speed with a low tip speed; the pressure wave created by the rotating blades will serve as an effective barrier; and marine mammals have an inherent ability to detect and move around structures in the water. ORPC has indicated that the module mooring lines and submarine cables were designed to avoid marine mammal entanglements, that underwater noise and vibration associated with the different phases of the project will not adversely affect marine mammals, and that any EMF effects of the pilot project are expected to extremely minor and localized. ORPC has concluded that there will be local direct effects to benthic habitat from placement of project components on the seabed, that the extent to which the project may attract fish and other marine life is unknown, and that while fish and marine mammals will be able to detect and avoid the turbines the project likely will not deter species from using habitat in the project area.

ORPC proposes to study the potential of turbine strikes and potential impacts of underwater noise, vibration, and alteration of habitat on marine biota primarily through post-deployment monitoring and the use of emergency shutdown procedures.
In a July 1, 2009 letter to Mr. John Ferland, MDMR raised concerns regarding the lack of information concerning the environmental impacts of tidal generation using the TGU technology, and the limited information on fish and marine mammals in the proposed deployment area. Given this lack of information, MDMR is very concerned about the limited assessment being proposed. In the following discussion we have outlined the proposed study plan and included comments requesting clarification of the study or recommendations for additional study.

Post deployment draft fisheries monitoring plan
ORPC proposes a DIDSON study of fish resources in the near field of the TGU. One DIDSON would be deployed to monitor upstream activity and one would be deployed to monitor downstream activity.

The study plan proposes that data be collected in all seasons, but does not indicate how often data will be collected or how many samples will be taken. In addition, the DIDSON beam will not cover the entire surface of a single TGU, so it is unclear how the data will be interpreted. It also is not clear if this is a separate study or a component of the hydroacoustic study (see below).

Post deployment underwater acoustics assessment

Data will be collected using a Cetacean research C54XES cylindrical omni-directional hydrophone (or similar model), calibrated for frequency range of 20Hz-250KHz) at seven locations (as close to the operating module as possible, 250 m from module, 500 m, 1 km, 1.5 km, 2.0, and 2.5 km from module) and three depths (surface, mean column, bottom).

MDMR requests that *in situ* TGU near-field pressure and near-field approach velocities be measured concurrently. These variable are important in assessing project impacts on marine mammals and fish. The DPLA states on page E-86 that when the turbines are in operation the rotating foils are expected to produce a pressure wave which is expected to deter marine mammals from passing. This validity of this statement should be determined. Maximum approach velocities are set for fish passage at traditional hydropower projects in rivers to prevent fish entrainment through turbines. While a single TGU with maximum foil tip speed of up to 18 ft/sec (for each of four foils) may seem benign, injury of mortality is more likely for a fish entrained through a series of TGUs with foils operating asynchronously.

Hydroacoustic fish survey

This three-part survey includes:

1) A pre-deployment hydroacoustics survey in Western Passage (WP) and Cobscook Bay (CB) in which vertical hydroacoustic profiles will be made for the entire water column (with low frequency equipment such as Biosonics or SIMRAD) and for the top 10 meters (with higher frequency equipment such as DIDSON) from a moored platform around neap tide to determine presence, absence, abundance, and depth distribution of marine animals.

Season	WP deployment area	WP control	CB
Aug/Sept 2009	2 d	2 d	2 d
Spring 2010	2 d	2 d	2 d
Summer 2010	2 d	2 d	2 d

2) A TGU test deployment survey in Cobscook Bay in which the TGU and hydroacoustics equipment will be deployed from a moored platform. Vertical hydroacoustic profiles will be made upstream and downstream of the TGU using Biosonics, Simrad, and/or DIDSON to determine which technology could be used to assess fauna entering and leaving the TGU field flow.

Season	CB
Sept-Oct 2009	8 d

3) A co-deployment survey in Western Passage during which hydroacoustics will be deployed off to the side of deployed modules to determine what is in the water column and at what depth; 8 days of study of unit in final deployment configuration, but not clear if study of 1 unit or all 4 units in water

Season	WP deployment area	WP control
Fall 2010-Fall 2011	8 d	8 d

The stated intent of this three-part study is to collect the environmental information needed to more completely evaluate the potential effects of these technologies with the post deployment portion to evaluate direct effects of turbine entrainment. The pre-deployment portion, scheduled for just 18 days (5% of a year) will be used to determine the presence abundance and depth distribution of biota in the project area; effectiveness of the hydroacoustic technology for studying project impacts will be tested for just 8 days (2% of a year) under controlled conditions; and the impact of a single TGU will be tested for just 8 days (2% of a year).

MDMR recommends a three-phase study:

Phase 1 (one year) -deploy 1 TGU and assess TGU near-field impacts on 18 days using hydroacoustics (Biosonics or Simrad and DIDSON) and trawling to verify hydroacoustic target identification.

Phase 2 (one year) -deploy 1 TGU and assess TGU far-field impacts on 48 days (4 24-hour samples per month) using hydroacoustics (Biosonics or Simrad and DIDSON) and trawling to verify hydroacoustic target identification.
trawling.

Phase 3 (one year) -deploy 4 TGU and assess TGU far-field impacts on 48 days (4 24-hour samples per month) using hydroacoustics (Biosonics or Simrad and DIDSON) and trawling to verify hydroacoustic target identification.
trawling.

If you have any questions please contact Gail Wippelhauser at 207-624-6349.

Sincerely,

George Lapointe
Commisssioner
Cc: Service List
Christopher R. Sauer, ORPC

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