

A Programmatic Approach to Wave Energy Planning: Opportunities for the Oregon Wave Energy Trust

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INTRODUCTION

Opportunities for developing commercial sources of wave energy are being recognized nationally and internationally, and the regulatory framework for siting facilities on the US coastline is rapidly evolving. Multiple jurisdictions and ocean governance structures will play significant but as yet unclear roles in how developers of wave energy will plan their facilities, develop information to address regulatory and jurisdictional concerns, and engage with local communities and historic users. This paper describes efforts to develop an integrated coast-wide planning approach that engages local, state, and federal stakeholders. The goal is to reduce uncertainty for developers of this resource by 1) assembling existing baseline information; 2) facilitating local engagement with stakeholders; and 3) promoting a programmatic environmental review with state and federal jurisdictions.

REGULATORY UNCERTAINTY AND RISK

Notwithstanding national incentives and policies intended to promote new hydropower technologies, fledgling industries face significant challenges. In contrast to the mature conventional hydropower sector, many, but not all, alternative hydropower developers have financial limitations; technology firms are typically start-up companies looking for venture capital or equity partners. To attract the necessary capital to deploy technology on a commercial scale, these firms must demonstrate a deployment path with manageable risks and uncertainty and a reasonable return on investment timeframe. Utilities typically avoid financial entanglement in such technologies until they are proven because of difficulty recovering research and development costs from rate payers.

Industry observers assume that the economics of wave and tidal energy will eventually compare favorably to wind power at all equal cumulative production levels (EPRI 2004b). This is especially true if the existing Production Tax Credit (PTC) and Clean Renewable Energy Bonds (CREBs) are continued at a substantial level. This conclusion leaves regulatory uncertainty as the most significant non-technical obstacle to deployment of this new technology, mainly the time and financial resources required for permitting and licensing.

Jurisdictional: Section 388 of the Energy Policy Act of 2005 (EPAct) amends Section 8 of the OCS Lands Act (43 U.S.C. § 1337) to authorize the Secretary of the Interior, through the Mineral Management Service (MMS), to grant leases, easements or rights-of-way authorizing alternative energy activities on the OCS. The MMS is establishing a program to oversee such operations. While EPAct does not extend MMS authority to state waters, it is unclear how EPAct meshes with Federal Energy Regulatory Commission's (FERC) authority on OCS lands, and developers are concerned that use of OCS lands may be subject to two overlapping or even competing federal regulatory processes. Indeed, FERC and MMS have already exchanged views that indicate the need to resolve potential jurisdictional conflict over licensing on the OCS. Although FERC authority preempts State energy siting processes for hydropower, significant state mandates exist in the form of Coastal Zone Management consistency determinations, granting of leases and easements of state owned aquatic lands and, potentially, certifications under Section 401 of the Clean Water Act. Finally, Sections 10j and 18 of the Federal Power Act provide significant legal authority to state and federal fish agencies that could be applicable to these new technologies.

Procedural Incompatibility and ambiguity: Existing FERC licensing processes for conventional hydropower are not well suited to the needs of developers of ocean and wave technologies. Under existing FERC process, a developer who applies for a three-year preliminary permit for exclusive rights to investigate a site must be ready to file a license application at the end of the permit term or risk a competitor filing for a competing application. If the competitor is a municipality, the Federal Power Act requires that preference be given to the municipality. Because a three-year term can often be inadequate for developing a license application, which in the traditional hydropower arena can take more than five years and millions of dollars to complete, a private developer's investment in new technology site investigations may be at significant risk of being lost to a competitor at the end of three years. There are additional problems with identifying an appropriate footprint for potential projects that provide developers with the flexibility to optimally site their projects while not impairing the ability of other developers to locate projects nearby.

User Conflicts: Conventional hydropower operates where questions of property ownership is relatively clear and concerns of management agencies can be addressed through relatively well defined mitigation measures. However, the ocean is a common property resource; although submerged lands are typically owned by the state (inside 3 miles) or federal government (OCS lands), water above these lands has a long history of multiple use. Commercial fishermen, who have traditionally used the waters that a wave or tidal power facility may wish to occupy, are just one interest group likely to play an active role in regulatory proceedings. Coastal counties in Oregon are active in exploring mechanisms for providing significant input into the placement and operation of these facilities (Husing, 2007; Lincoln County, 2006; Douglas County 2006).

Adequacy of existing information: Developing information for a traditional hydropower licensing is time consuming and expensive, but developers and interveners

are often aided by abundant existing information and well established FERC and resource agency policies for acquiring and interpreting new information to assess project impacts. Such institutional knowledge and experience is missing from the ocean and tidal power arena; developers and regulators will struggle to agree on the appropriate scope and scale of studies to support licensing and permitting. This could produce a “chicken and egg” situation where regulators desire to understand potential impacts before allowing technology to be deployed on a commercial scale, while needing some level of deployment to better understand those potential impacts.

A PROGRAMMATIC APPROACH TO WAVE ENERGY PLANNING

MMS, FERC, and local and state agencies will need to develop a regulatory process for emerging technology development that addresses environmental protection and stakeholder participation, while being attentive to the unique characteristics, limitations, and needs of this new industry. To promote alternative technologies FERC, MMS, and state jurisdictions should consider regulatory approaches with the following elements:

Foster refinement of technology (Adaptive Management): Most wave and tidal technologies can be deployed incrementally so regulators and developers can gain knowledge of possible impacts and operational or performance challenges. FERC’s April 14, 2005 Declaratory Order created a precedent for deploying and studying experimental devices. FERC will allow installations if they are 1) experimental, 2) short-term, and 3) do not impact interstate commerce. Beyond the preliminary permitting stages, developers are beginning to explore how phased installation may allow agencies to forego exhaustive studies at the outset of a commercial license. Such flexibility will be important for enabling projects to generate revenue early, some of which could provide funds for additional studies and monitoring. Permitting and licensing processes should accommodate this type of phased approach; some pioneers of alternative technologies are including a staged development process in their preliminary permit planning. However, the private sector would not support significant spending on turbines that could be deactivated before a return can be earned (FERC, 2006); thus such an approach may require some risk on the part of regulators in order to learn about this new technology.

Recognize reduce and regulatory duplication: FERC’s role in the context of the state waters and OCS lands will require a melding of regulatory systems: Coastal Zone Management Plan consistency determinations, MMS leasing programs (and yet to be determined permitting requirements), and federal fisheries management entities as authorized by the Magnuson-Stevens Fishery Conservation and Management Act are just some of the authorities and interests FERC would need to work with to develop the necessary agency coordination. Given MMS’s history and expertise in conducting exploration and planning on the OCS lands for oil and gas leases, and the requirements of an MMS program may differ from the FERC licensing process on both substance and policy, thereby leading to confusion surrounding projects that span state and federal waters. FERC has announced a rulemaking covering the preliminary permit process for the new hydropower technologies; it is also accepting comments on the licensing of these new technologies (FERC, 2007). This rulemaking parallels a similar effort by MMS to

address the OCS and it remains to be seen if these two distinct federal jurisdictions develop complimentary or contradictory processes.

Promote comprehensive plans: The common property and historical use of the marine environment also poses uncertainty for developers. FERC requires that developments are consistent with Comprehensive Waterway or Resource Plans (18 CFR 5.6(d)(4)). Stakeholders and developers may find that the development of such plans for ocean energy provides an early opportunity for historical users and regulatory agencies to engage around basic planning to avoid future conflict. Such plans, if executed in collaboration with federal and state regulators, could create opportunities to develop “programmatic” environmental assessments that provide developers with critical information about possible issues and impacts before expensive site investigations are undertaken. Regulators have indicated that a programmatic approach can be appropriate when multiple actions in different places have similar impacts that can be addressed with similar measures (FERC, 2006). Impetus for the development of such plans could come from a variety of sources, including ongoing rulemaking at both FERC and MMS. Similarly, stakeholders could organize at the state or local level to develop comprehensive facility siting plans.

THE OREGON EXPERIENCE

Coastal states with wave and tidal energy resources have developed initiatives aimed at launching new technologies. In Oregon, where wave energy potential has been estimated at 13,800 MW (Oregon SeaGrant, 2004), the Oregon Innovation Council proposed \$5.2 million in state funding for Oregon's wave energy sector, and this initiative has been included in the governor's 2007 budget request (Husing, 2007). The Oregon legislature is also considering legislation requiring one-quarter of the state's utility demand to be met by renewable energy by 2025 and to expand the state's Business Energy Tax Credit program.

Oregon Wave Energy Trust: As described by Husing (2007) the creation of the Wave Energy Trust (OWET) through the Oregon Innovation Council represents a significant step on the part of the State to address some of the shortcomings identified above. OWET is exploring opportunities for preparing a state-wide baseline coastal assessment, developing and implementing a communication and outreach strategy, identifying research needs, and coordinating research efforts. Coupled with Oregon State University's research capabilities, these undertakings begin to address regulation, stakeholder and community concerns, and informational uncertainties.

Oregon Solutions Process: A process was initiated in early October 2006 to promote stakeholder involvement in the regulatory process for the Reedsport Wave Energy Park proposed by Ocean Power Technologies (OPT). The goal is to apply the Oregon Solutions Process to produce a memorandum of understanding (MOU) signed by all parties to provide a coordinated, well-integrated permitting and licensing process. The MOU will provide for assessment of and agreement on the regulatory approach to support project development, an approach to assure timely permitting of a single power

buoy in summer 2007, a project scoping and study plan to support a FERC license application for commercial sale of the output from an array of buoys by summer 2008, and agreement for ongoing stakeholder coordination. The Oregon Solutions effort includes representatives from over 30 different organizations, including local residents, recreation and environmental organizations, and various federal, county, and state governments. The effort is designed to ensure that all issues are identified and addressed in a collaborative manner and may result in a process replicated for other wave energy projects along the Oregon Coast.

Oregon has also created a regulatory agency work group to work through the Oregon Solutions Process to focus on permitting, certification or regulatory review for the installation of buoys.

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