



Oregon Coastal Zone Management Association

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FREQUENTLY ASKED QUESTIONS ON WAVE ENERGY IN OREGON (June 2008)

For background material, we strongly recommend you read OCZMA's June 2008 newsletter on wave energy entitled, "*Special Report: Wave Energy Development Causes Community Concerns.*" You can download the newsletter posted on www.oczma.org or contact us at OCZMA at 541-265-8918 or via e-mail at onno_husing@class.orednet.org.

Why is there so much interest in wave energy off the Oregon Coast?

Energy prices are skyrocketing due to a growing demand for energy around the world and continued constraints on conventional supplies (oil, hydro, natural gas, etc.). That means the economics of developing alternative energy sources—especially low-carbon clean energy sources—are dramatically improving.

In Oregon, the ball got rolling in May 2004 when a think tank for the energy industry, the Electricity Innovation Institute (EPRI) (www.epri.com), published a report documenting the suitability of the wave environment off Oregon for wave energy development (*E2I EPRI Survey and Characterization of Potential Offshore Wave Energy Sites in Oregon*). Oregon State University has also been investigating wave energy technologies for ten years.

In addition, several years ago, the State of Oregon (through the Oregon Department of Energy (ODOE) and Governor Kulongoski's Office) sent signals to the wave energy industry that the State of Oregon is eager to become a global leader in the development of wave energy. The 2007 Oregon Legislature enacted a Renewable Portfolio Standard (RPS) which requires the majority of Oregon utilities to acquire 25% of their electricity from renewable sources by 2025. In addition, in 2007, the Oregon Legislature allocated \$4.2 million dollars to foster the development of wave energy in Oregon (as part of a \$28 million package). Those state dollars are being allocated by a new non-profit entity called the Oregon Wave Energy Trust (OWET) (www.oregonwave.org). This state legislative initiative was developed and championed by an entity called the Oregon Innovation Council (Oregon InC). Oregon InC is a consortium of influential Oregon business leaders that identify and seek support for emerging industries where Oregon has a unique competitive advantage (www.oregoninc.org). The engineering program at Oregon State University (OSU), the O.H. Hinsdale Wave Research Laboratory on OSU's main campus, and, the Hatfield Marine Science Center in Newport, are among the assets that make Oregon a good place to develop wave energy technology.

Who's in charge of wave energy development off the Oregon Coast?

It gets very complicated. This "*Frequently Asked Questions on Wave Energy in Oregon*" paper offers a brief schematic summary of only the major regulatory programs wave energy developers need to navigate.

There are many state and federal agencies with some regulatory authority over wave energy development. Within Oregon's Territorial Sea (0 to 3 miles offshore), the lead state agency is the Oregon Department of State Lands (DSL). DSL owns (on behalf of the State of Oregon) the seafloor off the Oregon Coast. The State Land Board oversees DSL and is the decision making body (Governor, Secretary of State, State Treasurer). Wave energy developers must acquire a lease from DSL for the rights to occupy a tract of ocean bottom for a wave energy facility. Wave energy developers also need to acquire an easement from DSL to deploy electricity transmission cables to shore. And, they need a Removal-Fill Permit from DSL.

On the federal side, the Federal Energy Regulatory Commission (FERC) is the main federal agency with licensing authority over wave energy in Oregon's Territorial Sea (under the Federal Power Act [FPA]). Beyond three miles, in federal waters, the Department of Interior (DOI), through the Minerals Management Service (MMS), has jurisdiction over hydrokinetic energy projects. Recently, people in California have challenged FERC's jurisdiction in state waters. So, stay tuned to see how this jurisdictional issue plays out. If jurisdictional uncertainty persists, look for Congress to amend the Federal Power Act (FPA) and/or the Outer Continental Shelf Lands Act (OCSLA) to clearly define which federal agency has lead authority over hydrokinetic development. Wave energy developers also need a 404 Permit (under the Clean Water Act) from the U.S. Army Corps of Engineers.

The Oregon Department of Fish and Wildlife (ODFW) and the National Marine Fisheries Service (NMFS or NOAA Fisheries) also have responsibilities to review wave energy development proposals to examine their impact to marine resources and ecosystems. And, at the state level, the Water Resources Commission (WRC) and the Water Resources Department (WRD) has a permitting role. Oregon State Parks & Recreation Department (OPRD) has permit authority over Oregon's Beaches. So, when wave energy companies bring transmission cables to shore, they need an Ocean Shore Permit from the OPRD to cross under the beach. Local governments have control over land use on shore.

When do all these issues with all these agencies get vetted? At present, it's during the license application process with FERC where these state and federal regulatory issues/concerns are worked out. Wave energy developers have three options to choose from when they submit a license application to FERC.

Currently, the projects in Oregon are engaged in a "Settlement Agreement" under the Traditional License Process (TLP)(which is one of three process options). The TLP process requires the applicant for the project to identify and resolve issues prior to receiving a license to deploy and connect a wave energy facility to the grid.

Why not focus on wind and solar energy development?

In the future we may learn that wave energy can't compete with solar and wind energy (or other forms of renewable energy). Many people believe the United States will need all kinds of renewable energy sources to meet our nation's energy needs.

The other potential barrier to wave energy development is the regulatory gauntlet wave energy developers face. The process, by all accounts, is time consuming, uncertain, and expensive. It takes very little time and resources to submit a Preliminary Permit Application (PPA) to FERC. But, once a wave energy company goes beyond a PPA and begins to develop a Notice of Intent/Preliminary Application Document (NOI-PAD)), that's when significant costs are incurred.

Many people assert the wave energy industry is at the stage of development that the wind energy was 20 years ago. Back then, European countries stepped up and heavily subsidized the research and development of that industry. Today, the wind industry is cost competitive with conventional energy sources. Subsidies will probably be available to the wave energy industry (as they are with all energy sources, both renewable and non renewable). Again, only time will tell if wave energy development is economically viable. The wave energy industry (in Oregon and elsewhere) is in an embryonic stage. Until wave energy demonstration projects are deployed *in the ocean*, you can't predict the future for wave energy development in Oregon.

Where will this energy go? Will it stay in the communities or will it be shipped somewhere else?

Right now, the Oregon Coast imports electricity to the coast through the Bonneville Power Administration (BPA) transmission network. By generating electricity on the Oregon Coast, we can lessen our dependence on those outside energy sources. During the early stages of wave energy development, electricity from offshore Oregon will probably be consumed on the Oregon Coast.

This renewable energy will, no doubt, be more expensive than conventional electricity. In 2007, the Oregon Legislature created a requirement that utilities (private and public) must purchase a certain percentage of their power come from renewable electricity sources. As a result, there will be a market for more expensive renewable power in Oregon. Electricity from wave energy, though, will still need to compete with other forms of renewable power.

How do we know wave energy development won't hurt the marine environment?

We don't know. Until demonstration projects (*arrays of buoys* deployed in the ocean), we won't understand what the impacts of wave buoy installations will be on the marine environment. A major workshop on the potential ecological impacts of wave energy was held in Newport, Oregon in October 2007 (partially funded by OWET). At that workshop, a list of major issues were identified that need to be researched as wave energy goes forward. Doubtless, wave energy developers will be required by FERC to address this range of potential issues when they develop their study plans under their FERC license application.

Will fishermen be compensated for lost fishing grounds?

That issue has not been settled yet. Many fishermen, though, prefer to steer wave energy development away from important fishing grounds. If there is little or no impact on fishing grounds, then compensation for existing ocean users will not be an issue. Developing a comprehensive ocean planning process, anchored at the local level, is the best way to avoid conflicts up front. Down the road, if conflicts between wave energy and fishermen appear unavoidable, fishermen can petition FERC to make financial compensation for lost fishing grounds a condition of a FERC license. To make that happen, though, fishermen must be organized and they must engage the license process. And, we strongly recommend a means to document and quantify economic impacts is developed. That will require the sharing of some information about fishing grounds. We believe that can be done subject to strict security. That way, information about an individual's fishing grounds is never released; only some agreed upon form of aggregate information would be used to steer wave energy development away from fishing grounds.

We recommend ocean users work through local ocean resource planning committees to protect their interests. On March 26, 2008 the State of Oregon entered into a MOU with FERC to provide a period of time for a State of Oregon ocean plan to be developed (a bottoms up planning

process). Local ocean resource planning groups that have formed on the Oregon Coast are as follows (alphabetical order): FACT (Fishermen Advisory Committee for Tillamook—Garibaldi); FINE (Fishermen Involved in Natural Energy—Lincoln County); NSAT (Near Shore Action Team—Depoe Bay); POORT (Port Orford Ocean Resource Team—Port Orford); SOORC (Southern Oregon Ocean Resource Team—Coos Bay/Reedsport). And, several other local groups are in the early stages of forming. Because respected people have stepped up and are responding to this historic challenge, we believe a process is being developed that could lead to compensation to fishermen possible if it's needed.

How does wave energy fit in with marine reserves?

Marine reserves, like wave energy facilities or other new uses, may or may not impact traditional uses of Oregon's ocean. It depends on where they are located. Perhaps the best reason to prepare a comprehensive ocean resources planning process in Oregon—anchored at the local level—is to develop an ocean plan that can meet the needs of all interest groups.

Oregon Governor Ted Kulongoski's Executive Order 08-07 (E.O.), and the Governor's public statement to Oregon's commercial fishermen on November 1, 2007, codified a state policy that marine reserves and wave energy facility siting will **not** have a significant impact on the economy and culture of the Oregon Coast. That was an historic announcement.

But, let's be realistic. It will be a challenge to find places offshore where marine reserves and/or wave energy installations won't impact recreational and commercial fisheries. But, that's what the ocean resources planning process will be all about. It will start out as an education and fact-finding process. The process will be about working together to find those places in the ocean so we can avoid conflicts. That's why the meaningful participation of informed ocean users in the process is essential.

Can marine reserves and wave energy facilities be located in the same place? Probably not. The central premise of a marine reserve is to allow a place in the marine environment to not experience human impacts. Placing a wave energy facility in the ocean certainly constitutes a considerable human impact.

What can I do to help ensure wave energy development does not damage the marine environment and hurt existing ocean uses (like commercial and sport fisheries)?

Stay informed. Check the OCZMA web site for updates. You can ask for e-mail updates on projects you care about through FERC's web site (www.ferc.gov). Participate in a local ocean planning committee. There's a strong likelihood that Ocean Power Technologies (OPT) will be granted a license from FERC (and the state authorizations) to deploy 10 buoys off Reedsport in 2010. When OPT's license application for the Reedsport demonstration project becomes available (we will let you know on our web site), we recommend you examine the study plans. And, for several years after the Reedsport deployment, because there will be a lot of monitoring of that project, a tremendous amount of new information about ecological effects will be generated. The information will be in the public domain. Local ocean resource planning groups can play a key role by reviewing the findings of these studies and making recommendations how to adjust these study plans.

What are the potential benefits of wave energy for the Oregon Coast?

At this early stage in the development of this emerging industry, it's hard to say exactly what benefits may result from wave energy. Wave energy development could create many new family wage jobs in certain port communities on the Oregon Coast. Places like Newport, Coos Bay and Astoria—where a deepwater channel provides year round access to the Pacific Ocean—are the logical beneficiaries of economic development associated with wave energy. OCZMA will work with the wave energy industry (and OWET) to estimate how many jobs could be created on the Oregon Coast (based on different scenarios). Again, any job or personal income forecasts will be speculative. The future of the wave energy industry depends on what happens during the early demonstration phase. If the technologies work, or, if the technologies can be modified to make them work, and, if wave energy companies determine it's not too expensive or difficult to work in the Pacific Ocean, and, if we learn that the environmental effects of wave energy development are acceptable, then the wave energy industry in Oregon could be commercially viable. Time will tell.