

2006 SUMMARY OF PRESENTATIONS

“Oregon’s Ocean: Linking the Science to Policy”

Master of Ceremonies: Dr. George H. Keller, Vice-Provost Emeritus, Oregon State University

Panel I: “Wave Energy Power: Why Oregon Looks So Good”

Dr. Annette von Jouanne, Professor, Electrical Engineering and Computer Science, OSU
“The Technology”

Dr. von Jouanne introduced “The Promise of Wave Power” at this Conference a year ago, extolling the huge potential presented by the last great untapped energy resource of the world. “If 0.2% of the ocean’s untapped energy could be harnessed, it could provide power sufficient for the entire world,” she said. After more than ten years of assessing the wave energy resource off the Oregon coast, researchers report some of the richest ocean wave extraction sites in the world. Further, the seasonal variation for wave power is a good match for the Northwest load demand.

Showing slides on how a magnet linear generator is built into a buoy and converts the motion of waves to electrical energy, von Jouanne said: “Inside the permanent magnet linear generator, we have a magnet shaft that has high density magnets that is stationary. That will be anchored to the seafloor. Surrounding that shaft we have a buoy, which has a coil wound on the inside. By Faraday’s Law, when a coil slices through a magnetic field, voltage is induced, so we’re directly converting the linear motion of the waves to electrical energy.”

Von Jouanne described the advantages for making Oregon the center of the nation’s wave energy research and development. One is the dependable source, since wave energy depends upon consistent winds such as found off our coast. Another is the advanced research facilities together with the direct-drive—without hydraulic fluid—technology found at OSU.

Justin Klure, Senior Policy Analyst, Oregon State Department of Energy
“The Regulatory Context”

Justin Klure is working closely with those developing the technology at OSU to make a successful transition from the lab to the ocean. Klure pointed out that this clean, renewable energy source has great potential because it provides a higher energy density than, say wind power. Further, it has the twofold advantages of availability and predictability. He said wave energy is about where wind power was 15 years ago.

Klure stated that there are many regulatory issues to be addressed and resolved, complicated by the fact that all the technological and installation problems are new, and involve many agencies. In working to get wave energy on line, his Department is keeping the following in mind:

- Create a nurturing environment where all interested parties participate.
- With the faculty and labs at Oregon State, and the Hatfield Marine Science Center at hand, establish Oregon as a world class research center.
- Establish renewable energy goals which will diversify Oregon’s energy portfolio.
- Through this effort, grow and diversify the local economy.

Terry Thompson, Fisherman and Lincoln County Commissioner
"Potential Environmental and Ocean User Impacts"

Terry Thompson speaks from his experience as a fisherman, as a former State representative, as an elected official, and as a member of OPAC. He believes that establishing a wave energy park is good—beneficial. However, his message is to see that the fishing industry has a “place at the table, ” involved every step of the way.

Thompson stated that getting the involvement of fishermen, and reaching a consensus among them, is difficult due to the nature of the industry. At Newport, there are some 300 vessels with each skipper having independent decisions about when and how to fish, and where to go, ranging throughout the Pacific Ocean.

The fishing interest is to keep what is fishable...to not lose a fishing industry while adding a new industry. Therefore, Thompson contends, sites must be found with minimal impact on fishing. And this leads to more and better mapping of the ocean floor—a task for which the fisherman can provide valuable assistance. Therefore, the goal, he says, is to advance the potential of a wave energy park while utilizing all available information and input.