

## Wind And Waves To Generate Juice\*

By Gary Beckett

In what is being described as one of the largest green-energy projects in the country, a Seattle company hopes to harness energy from ocean waves, tides, and wind to generate electricity using offshore platforms that would resemble oil rigs. In December 2008, Grays Harbor Ocean Energy had applied to the Federal Energy Regulatory Commission (FERC) to develop seven offshore ocean-energy systems, in California, Hawaii, Massachusetts, New Jersey, New York, and Rhode Island waters. The company is one of dozens developing wave and tidal energy-generation systems but Grays Harbor wants to add wind power to the mix.

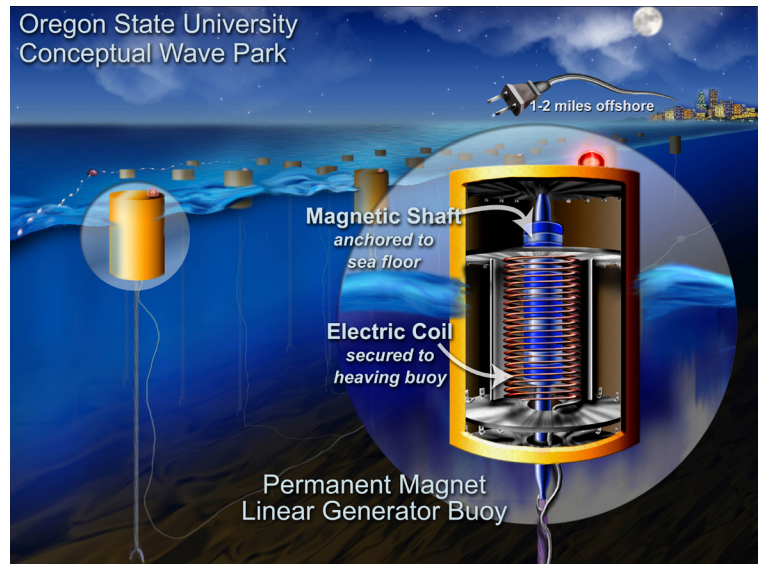
Systems vary, but all use wave motion and tidal flow to generate electricity. Some capture water in a floating tube or buoy and use it to turn a conventional water turbine to generate electricity. In others, the buoy contains a magnetic shaft and electric coil. As the buoy bobs in the water, the shaft slides through the coil to generate electricity. The Grays Harbor system also would add wind turbines on top of the platforms. The company estimates that the power generated from one of its “wave farms” — made up of about 100 platforms grouped in a 100-square-mile area approximately 10-15 miles offshore, should supply electricity for 300,000 homes.

Wave-energy systems come with environmental considerations. A recent report to California’s Ocean Protection Council and the state energy commission questioned if such systems might disturb normal wave patterns and harm some marine life. Projects also could diminish energy from waves, interfering with shoaling and beach building, which could adversely affect species living in the high-tide line out to the continental shelf.

Last November FERC set a 60-day comment period on the Grays Harbor application as the first step in what is expected to be a lengthy review process. A proposed site off the Rhode Island coast is in the most advanced stage of application development.

“There, if everything went well, I think it could start making power around 2015 or 2016,” said Grays Harbor president Burton Hamner. Other proposed sites could be producing electricity not long after, he added. Rhode Island has been the most aggressive state at promoting offshore renewable energy. In December 2007, the state signed an agreement with an Australian wave-energy developer to build a generation system off its coast. The program is part of an overall mission by Governor Donald Carcieri of obtaining at least 20 percent of the state’s energy from renewable sources by 2011. Grays Harbor in August 2008 also received a FERC permit to study a site off the Washington coast.

Several wave-energy systems, constructed by competing companies, are in operation already, one off the coast of Portugal. One system reportedly generates about 2.25 megawatts of power, enough to power around 1,500 homes. Hamner said wave energy systems are expensive to build, averaging around \$4 million per megawatt. Projects must generate at least 1,000 megawatts of power to be cost-effective. Sites need to be at least 100 square miles to be viable, Hamner said. Given their cost, wave/wind energy projects of the type Grays Harbor would build must be located in larger markets and in states offering sizable incentives to developers.



\* Reprinted from *BoatU.S. Magazine*, March 2009, a publication of the Boat Owners Association of The United States. Gary Beckett is a free-lance writer.