

Department of Ocean and Resources Engineering

Seminar

Renewable Power from Waves at MCBH

By

Kendall Kam C.E.M.

**Electrical Engineer
Utilities Management Branch
Pacific Division, Naval Facilities Engineering Command**

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Abstract

The Office of Naval Research (ONR) has sponsored a wave power electrical generating project that Pacific Division, Naval Facilities Engineering Command (PACDIV) is working on. Utilizing its Small Business Innovative Research (SBIR) program, ONR has contracted with Ocean Power Technologies, (OPT) Inc. of New Jersey to develop and deploy a system that will convert the mechanical energy of ocean waves into electricity. The SBIR program is well known for its dual use technological opportunities -- technologies that have both military and civilian applications.

For this project, two to six buoy-like structures (called the PowerBuoy™), 40 to 65 feet in length, will be anchored approximately four to 13 feet below the surface of the ocean. Inside, a hydraulic cylinder moves up and down pumping hydraulic fluid to a hydraulic motor, which turns a generator resting on the ocean floor, producing electricity. The electricity is sent to shore via a shielded underwater cable. The project site is an area approximately 3,500 feet off Marine Corps Base Hawaii

This is a demonstration project principally intended to develop and validate the technology base required to design and reliably operate wave energy converters in the ocean and connect them to an electrical grid. OPT first conducted ocean tests on it this technology 1997. They improved the design in 1998 before testing and validating a prototype in 1999.