

Department of Ocean and Resources Engineering

Special Seminar

Wave Energy Technology

by

Mr. William Powers

Vice President of Operations
Ocean Power Technologies, Inc.

Wednesday, November 5, 2003 10:30 AM Holmes 242

Abstract

The Office of Naval Research (ONR) is sponsoring a wave energy conversion, electric power generator project at the Marine Corps Base Hawaii, Kaneohe Bay. Utilizing its Small Business Innovative Research (SBIR) program, ONR has contracted with Ocean Power Technologies, Inc. (OPT) of Pennington, 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 PowerBuoy™), 40 to 65 feet in length, will be anchored in approximately 100 foot depth, with the top of the buoy four 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 3,800 feet off Marine Corps Base Hawaii, Kaneohe Bay.

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 in 1997. They improved the design in 1998 before testing and validating a prototype in 1999.