U.S. Department Of Energy Awards Lockheed Martin Contract To Demonstrate Innovative Ocean Thermal Energy Conversion Subsystem

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Lockheed Martin has been awarded a cooperative agreement contract with a maximum value of $1.2 million by the U.S. Department of Energy (DOE) to demonstrate innovative technologies to enable ocean thermal energy power generation.

Ocean Thermal Energy Conversion (OTEC) uses the ocean's thermal gradient to drive a heat engine. Since the ocean's temperature difference is relatively small, large volumes of seawater must be moved to generate commercial levels of power. The fabrication and installation of large diameter cold water piping -- required to reach depths of thousands of feet -- represents one of the largest technical challenges to the successful installation and operation of an offshore OTEC system.

Under the terms of the cooperative agreement, Lockheed Martin will demonstrate a cold water pipe fabrication approach using modern fiberglass technology and recent low-cost composite material manufacturing methods at prototype and pilot plant scales. The company's Manassas-based business will lead the OTEC effort; fabrication work will be performed at Lockheed Martin's Advanced Technology Center in Sunnyvale, CA. West Virginia University's Constructed Facilities Center also will support the project for the pilot plant scale demonstration.

"OTEC holds the promise of providing clean, base-load electricity to energy markets that today rely almost exclusively on fossil fuels," said Denise Saiki, vice president and general manager of Lockheed Martin's Undersea Systems business unit. "It's conceivable, for example, that OTEC could enable Hawaii to achieve energy independence within a generation. Our independent research and development work to date has shown OTEC to be technically feasible. The next step is to demonstrate it on a commercial scale and this DOE contract will help accelerate our progress towards that goal."

Lockheed Martin's experience with OTEC technology dates back 30 years. In 1974 the company, teamed with Bechtel Corp. and T.Y. Lin International, conducted a nine-month study on the practicality of generating electrical power at competitive prices from the solar energy naturally stored in the ocean's thermal gradient. The company followed that National Science Foundation-sponsored research with a self-funded four-month demonstration called Mini-OTEC, with support from the U.S. Navy, Makai Ocean Engineering, Dillingham Construction, and other firms. The Mini-OTEC plant was highly successful and remains the only floating, net-power producing OTEC plant ever built. Mini-OTEC was operated by the Lockheed Martin team for four months off Hawaii's main island to gather technical data on the operation of the system, as well as to prove the feasibility of clean electricity production using ocean temperature differences in an environmentally benign way.

Lockheed Martin is currently exploring a range of potential applications for OTEC technology, including both electric power and fresh water generation. In addition to leveraging cross-corporate resources, Lockheed Martin is working with Makai Ocean Engineering in Honolulu, HI and other companies and universities with expertise in the technologies crucial to the success of ocean thermal energy commercialization.

Headquartered in Bethesda, MD, Lockheed Martin is a global security company that employs about 140,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2007 sales of $41.9 billion.

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