



Hawaiian Electric Company

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**Hawaiian Electric and Phycal, Inc. sign agreement for
algae-based biofuel for testing at Kahe Power Plant**

(Honolulu, Hawaii) Hawaiian Electric has reached agreement with Phycal, Inc. for a supply of biofuel derived from algae for testing at Kahe Generating Station. The agreement calls for delivery of 100,000 to 150,000 gallons of algae-based biofuel meeting Hawaiian Electric specifications by April 2014.

The biofuel will be provided at a fixed price not tied to the price of fossil fuels. The contract must be reviewed and approved by the Hawaii Public Utilities Commission with input from the State Consumer Advocate.

Hawaiian Electric and Phycal expect a subsequent agreement for up to three million gallons per year for three years for a full-scale demonstration project to build upon the anticipated success of the algae-based biofuel testing at Kahe.

In January 2010, Phycal, Inc. was competitively selected by the U.S. Department of Energy's National Energy Technology Laboratory (NETL) to develop a pilot algae farm to test the viability of growing and harvesting algae, extracting its oil, and converting the oil into renewable fuels.

Phycal received a \$3 million Phase 1 award from the DOE-NETL to develop a feasibility plan for the pilot farm. A year later after completing Phase 1, Phycal received an additional \$48.5 million Phase 2 award, providing the company with funds to advance towards the next step of designing and constructing its pilot farm. Phycal plans to design, permit, build and operate a 34-acre pilot farm near Poamoho Camp in Wahiawa, Oahu that will use carbon dioxide from industrial producers on Oahu. The algae will then be harvested and their oils extracted, using Phycal's patented processes, and converted into renewable biofuel. Phycal expects to break ground for the pilot farm in late 2011 or early 2012.

"Hawaii's abundant sunlight and temperate climate are ideal for cultivating algae," said Kevin Berner, president and CEO of Phycal, Inc. "If successful, our pilot project will also demonstrate the economic viability of displacing petroleum imported into Hawaii with locally grown feedstock for biofuels."

"This is another contract resulting from our call for local biofuels," said Robbie Alm, Hawaiian Electric executive vice president. "After decades of near-total dependence on

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foreign oil, we must take advantage of diverse local energy sources, including solar, wind, geothermal, waste-to-energy, hydro, ocean and biofuel.

"In helping develop a market for locally grown and processed biofuel we are seeking diversity as well, including biofuel from different crops and algae."

Interest in algae as a major source of biofuels has grown as it is believed that algae may be able to produce more than 10 times more oil per acre than land crops. In addition, algae can be grown on non-productive land using non-potable water and recycled carbon dioxide to create useful products cost-effectively.

Hawaiian Electric has already conducted successful tests of biofuels processed from plant materials at the Kahe power plant, the largest in the state. The tests included crude biofuel alone and in blends with low sulfur fuel oil. The new test will confirm the ability to use algae-based biofuel as well.

Phycal's project is expected to cost \$65 million over a four-year period and employ about 30 scientists, engineers and workers at the Poamoho location.

"We met on several occasions with the Wahiawa and North Shore neighborhood boards and business organizations," said Berner. "All were extremely supportive of our plans to use vacant agriculturally-zoned lands to grow algae as a crop, and turn it into renewable energy."

Phycal will not use genetically modified algae strains in Hawaii. The company is partnering with several local businesses with experience in water management and algae development.

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Phycal Hawaii R&D, LLC, a subsidiary of Phycal, Inc., was created to oversee and implement the pilot project. Formed in 2006, Phycal's operations are dedicated to developing an integrated production system for growing algae and extracting energy products. With more than 40 employees today, Phycal is based in Highland Heights, Ohio and currently operates a research laboratory in Missouri and a sub-pilot facility in Ohio. For more information, go to www.phycal.com.

Hawaiian Electric Company and its subsidiaries, Maui Electric Company and Hawaii Electric Light Company, serve more than 400,000 customers on the islands of Oahu, Hawaii, Maui, Lanai and Molokai, home to 95% of Hawaii's people. Hawaiian Electric is a subsidiary of Hawaiian Electric Industries (NYSE: HE). For more information, visit www.heco.com.