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Fuel-Cell Test Station at SERC



To help it continue to guide the future of fuel cells, Humboldt State University's Schatz Energy Research Center has designed and built a testing station for the technology.

The station was powered up at an informal ceremony Monday with Congressman Mike Thompson, whose support helped SERC obtain the \$500,000 grant for the center's "Fuel-Cell Advanced Materials Research and Demonstration Project" from the U.S. Department of Energy's Office of Science.

According to SERC Co-Director Peter Lehman, "Our goal is to improve durability and reduce costs of fuel cells. With the testing station, we can control and measure the physical variables and improve performance." (*Winning HSU ID number: 939697324*)

Anchored to a lab bench at SERC's University Annex facility, the station – a network of wires, hoses and pipes connected to motors, gauges, tanks and valves – allows the fuel cell's traffic of electricity, water and gases to be monitored.

A fuel cell is a quiet, efficient and clean generator that chemically produces electricity from hydrogen and air. With layers of cells, called a stack, it produces direct current like a battery but, unlike a battery, it never discharges; it continues to produce power as long as fuel is supplied. The only exhaust from its energy production is pure water. An animation at the SERC's web site depicts the process: www.humboldt.edu/~serc/animation.html.

Fuel cells have been used on spacecraft for decades, providing direct-current power and drinking water for astronauts.

Since SERC built its first fuel cell in 1992 (to power aquaria pumps at the university's marine laboratory), the center has produced an array of stacks, ranging from 200 watts to 9 kilowatts, providing energy for various uses across the state.

Past SERC stacks have powered a small fleet of vehicles for the City of Palm Desert, a mountaintop radio repeater station to provide telecommunications to a remote region of Northern California, and an ice-cream maker in a project for schoolchildren in Santa Cruz.

SERC also has a \$200,000 contract to build a similar fuel-cell test station for Kettering University in Michigan.

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