

N H A NEWS

Schatz Energy Research Center Delivers Fuel Cell Powered Vehicle

On 31 August 1996, Humboldt State University's Schatz Energy Research Center (SERC) delivered the first of a fleet of hydrogen-powered fuel cell vehicles to the City of Palm Desert, California, U.S.A. The vehicle is part of a \$3.9 million, three-year project to establish a renewable hydrogen transportation system for the city that will provide pollution-free fuel cell vehicles and an infrastructure to support them.

Schatz Energy Research Center's fuel cell powered vehicle is delivered by Dr. Peter Lehman (left) to Mayor Walt Snyder (center) and Paul Shillcock of the City of Palm Desert, California.



According to plan, SERC (Arcata, California) will build solar- and wind-powered electric hydrogen generating stations, a refueling station, and a fleet of eight vehicles: five golf cart-sized personal utility vehicles (PUVs) and three larger neighborhood electric vehicles. The project is a natural extension of previous work done at the center. In 1992, SERC completed the nation's first solar hydrogen-fuel cell facility at Humboldt's Telonicher Marine Laboratory and last year unveiled a prototype fuel cell powered PUV at Palm Desert's annual golf cart parade.

SERC Director Peter Lehman, an environmental resources engineering professor at Humboldt said, "This project is the first big step toward the transportation system of the 21st Century. We're working our way from golf carts to neighborhood electric vehicles to regular highway cars. Our ultimate goal is to see clean and reliable fuel cell cars on all our nation's highways." The lab also is investigating the integration of fuel cells in other consumer applications.

The first delivered PUV is a regular golf cart with its original 2-hp electric motor. SERC replaced the cart's six lead-acid batteries with a proton exchange membrane fuel cell power system. The 5-kW stack has 64 cells and consumes about 0.29 kWh of hydrogen per mile, an efficiency of 125 miles per gallon of gasoline energy equivalent. The power system for the vehicle took eight months to build and includes air delivery, fuel storage, cooling, electrical, and software subsystems.

After a safety review of the cart, SERC engineers delivered the vehicle to technicians at Palm Desert's College of the Desert for on-site operation, testing, and data collection. SERC engineers also designed, tested, and built a temporary hydrogen refueling station at the college.

With the delivery of the PUV, SERC has entered a new stage. What began in 1989 as a small project has burgeoned into a vibrant facility with 20 researchers.

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