

Lights, cameras, gas

Folsom-based Jadoo Power to unveil hydrogen fuel cell devices

By Clint Swett -- Bee Staff Writer

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When it comes to hydrogen, Jadoo Power Systems is thinking big by thinking small.

The Folsom-based company today will announce a new line of slimmed-down devices to power the video cameras used by TV stations. Rather than standard batteries, Jadoo employs hydrogen fuel cells, which it says weigh less, last longer, recharge more quickly and will cost less than traditional batteries.

Adding weight to Jadoo's assertions are two Bay Area venture capital firms, which in January pledged a combined \$11 million in funding to the 4-year-old firm.



Larry Bawden, co-founder of Jadoo Power Systems, shows a hydrogen fuel cell device designed to replace standard batteries for video cameras used by television stations. Bawden sees a huge global market for the device. Sacramento Bee/Jay Mather

Jadoo co-founder Larry Bawden says the growing popularity of battery-powered devices presents a fertile market for his company.

"When you look at the demands for personal power, they are going up and up. That is an explosive market," he said.

Fuel cells generate electricity through chemical reaction, and hydrogen - a component of water - is abundant and nonpolluting.

Much of the recent publicity over fuel cells has been lavished on big ideas like hydrogen-powered vehicles or electrical generating plants. Jadoo (the name means "miracle" in Hindi) has different aspirations.

It wants to be the power source for such devices as TV cameras, satellite telephones, surveillance cameras and other products that need to be portable but have hefty power requirements.

The market for smaller fuel cell devices is getting lots of attention from technology companies but hasn't resulted in many products yet, said Dan Benjamin, an analyst with ABI Research in Oyster Bay, N.Y.

One Sacramento company, Alteryg Systems, is working on smaller fuel cell devices, but has nothing for sale yet.

MTI MicroFuel Cells, a firm in New York state, is the only company other than Jadoo to have small fuel cells on the market, said Glenn Eisman, a fuel cell consultant and director of the Center for Fuel Cell and Hydrogen Research at Rensselaer Polytechnic Institute in Troy, N.Y.

MTI is working on methanol-based fuel cells, rather than hydrogen. Methanol is considered more promising for small devices like laptop computers.

Eisman, who has consulted for Jadoo, said smaller devices like Jadoo's are promising because many of the technical challenges are already solved. For instance, hydrogen is readily available from industrial gas suppliers, so organizations like TV stations can always have several bottles on hand. One bottle has enough hydrogen to power a camera for a year.

Andrew Burke, a researcher and fuel cell expert at the Institute of Transportation Studies at the University of California, Davis, points out that hydrogen is more expensive than electricity for recharging a device - about 15 cents per fill-up, compared with 2 cents for recharging a battery.

Bawden of Jadoo called the difference "background noise" compared with the benefits of fuel-cell technology. He said Jadoo's new line of cells, which it will show off at a broadcasters convention next week, holds about 130 watt hours of power, enough to run a TV camera and light for four to six hours. A standard battery delivers about 120 watt hours, he said. But he added that standard batteries gradually lose efficiency after repeated chargings, so within six months they hold only about 85 watt hours.

The Jadoo system can recharge a fuel cell canister in about an hour, compared to the six to eight hours it takes to recharge a camera battery, he said.

And two canisters and a power pack weigh about 8.7 pounds, compared with about 20 pounds for four batteries that most camera operators lug around, Bawden said.

The price of a charger and two canisters will be less than \$3,000 - aimed to undercut the most popular camera battery and charger.

Bawden isn't projecting sales, but he said the worldwide market for broadcasting camera batteries is about \$600 million a year.

Jadoo is chasing other markets, too. It has a contract with one government agency, which Bawden declined to identify, to develop power supplies for surveillance cameras.

In addition, it is working with the Pentagon to make power cells for satellite phones that could last up to 11 days in the field.

Eventually the company plans to branch out into smaller fuel cells for personal devices like wireless phones or laptop computers. For now, however, the company wants to cement its position in the broadcasting arena.

Jadoo was founded in 2001 by Bawden, a former Aerojet engineer, and Lee Arikara, a 13-year veteran of the fuel cell industry.

One of Jadoo's early investors was the national TV chain Sinclair Broadcasting Group, which is using one of the company's power packs at KOVR-Channel 13 in Sacramento.

Bob Olson, KOVR's chief engineer, said the unit has been as reliable as advertised, and he would have no problem powering more of his station's cameras with the devices. He added that just two canisters, which are smaller than soft drink cans, provide enough juice for a week of typical shooting.



Diana Salas monitors a hydrogen fuel cell at Jadoo Power Systems in Folsom. The company has received a combined pledge of \$11 million from two venture capital firms. Sacramento Bee/Jay Mather

Jadoo's latest cash infusion comes from two major Silicon Valley venture firms - Venrock Associates and Mohr Davidow Ventures.

"(Jadoo) is in a field where there have been lots of ideas but few actual products. They have something that's already in the market," said Ray Rothrock, Venrock's managing general partner. "They have a system that's interesting to people and it's selling and it works, and that's a great place to be."

Still, a lot depends on overcoming resistance to a new technology, analysts say. "It seems like they have some chance of fitting into this market," said Benjamin, the ABI analyst. "But nobody likes to be guinea pigs."

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