

Hydrogen fuel cells power TV news crews

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A start-up is targeting what it considers a commercially viable market for hydrogen fuel cells: the evening news.

[Jadoo Power Systems](#), based in Folsom, Calif., has developed hydrogen fuel cells for portable, professional video cameras that it claims are cheaper and last longer than conventional batteries.

Camera operators can also swap fuel cell cartridges without powering down the camera, said CEO Larry Bawden, something that is not possible in all cameras with regular batteries.



"If they miss a shot because of a dead battery, it's \$100,000," he said.

[Sinclair Broadcasting Group](#), an investor in the company, is retrofitting the news crews in its 62 stations to adopt the hydrogen fuel cells. Sinclair, Mohr-Davidow Ventures and Venrock Partners recently led a recent funding round that raised \$11 million for the company.

Like [voice recognition](#) and artificial intelligence before it, hydrogen fuel cells have become a technology where expectations have outpaced reality.

[Panasonic](#) is teaming up with a Japanese utility on a pilot program for hydrogen-powered home heating systems, while a U.S. company is working on a hydrogen fuel cell for [notebooks](#).

Not perfect

Still, difficulties in storing and producing the gas in large quantities have delayed many hydrogen projects. In hydrogen fuel cells, hydrogen is passed through a membrane, which separates electrons and protons. The electrons go to power a device, while the protons combine with oxygen to make water.

The peculiarities of the professional video market are well suited for hydrogen power, said Bawden. Conventional battery systems for video cameras--which come with four batteries and a recharger--can cost up to \$3,400.

Jadoo's NAB II system--which consists of a recharger/filling unit, two four-inch gas canisters and a fuel cell that converts hydrogen to energy and attaches to the camera--costs \$3,000. Two four-inch gas canisters will provide four hours to eight hours of power, depending on the camera. Hydrogen runs about \$50 a year.

"It is a nice, large price point to compete under," Bawden said. "Because (hydrogen) has been around so long, there is some skepticism, so we are going for niches."

A new version of the NAB II system with eight-inch long gas canisters, providing more power, will come out this week at the [National Association of Broadcasters](#) convention in Las Vegas.

Jadoo's power system also weighs less for the power it can provide, depending on the configuration, Bawden added. Jadoo's fuel cell--the item that converts hydrogen to energy-- weighs 4.7 pounds. Each four-inch canister weighs 2 pounds, and only one canister fits on the fuel cell at any given time.

While professional video cameras require more power than the average notebook, they don't need nearly as much as a car. Thus, the fuel-run time ratio is not inconvenient.

A single four-inch gas canister, which plugs into the fuel cell attached to the back of the camera, will provide about 130 watt/hours of power. In a camera that draws 30 to 60 watts camera, that's two to four hours of run time. An eight-inch canister provides 275 watt/hours of power. Two of these larger canisters can thus provide well over 10 hours of power.

Government exemption

The weight puts the Jadoo system on the slightly heavy side, but the run time "sounds pretty good," said freelance cameraman Bill Corona.

Although the usual configuration comes with two fuel canisters, the recharging station can accommodate four canisters. All four can be charged at once in about an hour or partially charged in twenty minutes.

Extra fuel can be carried in a tank in the news van, he added. And getting hydrogen is fairly easy. Most sellers of compressed gas carry it.

The company has also landed an exemption from the Department of Transportation to carry its cameras on planes. Thus, the power systems can go to war zones.

Along with professional video cameras, the company is also pitching its technology at the security camera industry, which has grown since the Sept. 11, 2001, terror attacks.

Jadoo will likely not target the notebook market, though. Notebooks use only about 20 watts of power--far less than the amount of energy Jadoo's 60-watt systems deliver--but weight is at a greater premium.

The company's name, Bawden noted, does not derive from an obscure Star Wars character. It means "magic" in Hindi. "We'd show it to people, and they'd see gas going in one end and water coming out the other and say 'It's magic.'"