

# Fuel-cell advance may be the 'iPod of clean energy'

BY VITO PILIECI, CANWEST NEWS SERVICE FEBRUARY 27, 2010



A bank of 'Bloom Boxes' powers eBay headquarters in San Jose, Calif.

**Photograph by:** Robert Galbraith, Reuters, Canwest News Service

An electricity generator that some say could revolutionize the way people power their homes is already being referred to as the "iPod of clean energy."

Commonly called the Bloom Box but officially known as the Energy Server, the device is basically a new twist on fuel-cell technology that turns natural gas or other fuels into electricity.

Its inventors this week unveiled a car-sized unit with the ability to provide up to 100 kilowatts, or enough to power 50 homes, but said their goal is a shoebox-sized version that could be installed in backyards and provide every house in the world with its own power station.

"We believe that we can have the same kind of impact on energy that the mobile phone had on communications," said K.R. Sridhar, a former NASA scientist who is co-founder of Bloom Energy in Sunnyvale, Calif.

The buzz that led up to Wednesday's announcement has already triggered the skepticism that greets any supposed scientific or technical breakthrough, from cold fusion to Segway.

But investors have put up more than \$400 million US in venture capital financing since Sridhar created Bloom Energy eight years ago.

And businesses are buying in, with more than 20 globally known companies, including Google, Walmart, Staples, Coca-Cola and FedEx, already installing Bloom generating units and using them to power their facilities.

One early subscriber, Internet auctioneer eBay Inc., began installing Bloom Boxes last year at its facilities in San Jose, Calif. It says the technology allows it to generate 15 per cent of its energy needs, producing two million kilowatt hours of electricity in six months and trimming \$100,000 from its energy costs.

"When Bloom came to us, it was an easy decision to become an early adopter of their cutting-edge new technology," said John Donahoe, chief executive of eBay, in a release. "As a result, we're meeting financial and environmental goals with the project while fuelling a more energy-efficient global marketplace."

Google, meantime, has used Bloom products to power a data centre for 18 months.

The industrial-sized generators cost \$700,000 US. However, Bloom says businesses that buy them will recoup their money in energy savings in three to five years.

While the company is focusing on business applications first, it says a \$3,000 consumer version should be available within five to 10 years that would allow homeowners to unplug from the municipal grid entirely.

News of the company's device has sparked a whirlwind of publicity, with the San Francisco Chronicle asking if the Bloom Box will turn out to be the "iPod of clean energy." An exclusive behind-the-scenes report on CBS's 60 Minutes stated the device may do to the power plant what the laptop did to the desktop.

At its heart, the Bloom Box is really just an innovative twist on well-known power-cell technologies. In automobiles, fuel cells create energy by mixing oxygen and hydrogen in an electrochemical process. Where the Bloom unit differs is that it uses air and natural gas, or a wide range of bio-gases, to produce electricity.

At its core are a stack of thin plates made of sand. Proprietary inks painted on the sand allow the gases to react with oxygen from the air and create electricity.

The highly technical process has prompted skeptics to question how much it actually costs to generate electricity with the device and whether it can pay for itself. Bloom's California-based customers receive state subsidies covering up to 50 per cent of the cost of installing the device, according to analysts.

Others have pointed out that the Bloom Box still emits gases such as carbon dioxide, and question just how "green" the device is.

The company contends that business can reduce their carbon footprints by 40 to 100 per cent by switching to the device.

Richard Miller, an innovation platform leader at the Technology Strategy Board in England, is calling for more details of the technology to be made available so researchers can make informed judgments.

Others question why Bloom Energy is receiving so much applause from big business.

"I definitely think Bloom is over-hyped," Jacob Grose, senior analyst at Lux Research, told CNN. "What Bloom offers does not seem to be unique. Other fuel-cell companies are doing very similar things."

The Bloom Box is the creation of Sridhar, a 49-year-old former scientist for the National Aeronautics and Space Administration. Sridhar once led a team of researchers trying to develop technology to sustain life on Mars. The device was the focus of their research until federal funding for the mission fell through. Sridhar then began to rethink it for commercial use.

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