

Bloom Energy unveils fuel cell of the future (Update)

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A man stands next to a Bloom Energy server called a "Bloom Box" during a product launch at the eBay headquarters in San Jose, California. Bloom Energy, a Silicon Valley start up, introduced the "Bloom Box", a solid oxide fuel cell server that can generate electricity at a cost of 8 to 10 cents per kilowatt hour using natural gas.

Stealth start-up Bloom Energy on Wednesday publicly unveiled an [innovative fuel cell](#) that promises to deliver affordable, clean energy to even remote corners of the world.

Compact Bloom Servers built with energy cells made from silicon -- a plentiful element found in sand -- made their formal debut in an eBay building here partially powered by the energy source.

"Bloom fuel cell technology has the potential to revolutionize the energy

industry," California governor Arnold Schwarzenegger said while introducing Bloom founder K.R. Sridhar.

"He is someone shaping the future of energy not just for California but for the world," Schwarzenegger said.

A high-powered audience gathered for the invitation-only event included Google co-founder Larry Page, eBay chief executive John Donahoe, and former US secretaries of state George Shultz and Colin Powell.

"The core of our technology simply is sand," Sridhar said pulling a black cloth off a clear glass container of sand and then holding up a greeting-card sized cell made from the material.

"It is available in plenty... and it has the scientific property that enabled us to make a fuel cell," he said.

Fuel cell technology dates back to the mid 1800s, but Bloom found a way to eliminate the need for expensive metals such as platinum and to generate electricity by pushing around oxygen molecules.

Bloom servers work with a variety of fuels, meaning users can freely switch to whatever is locally available or most affordable, according to Sridhar.

The servers, referred to by some as "Bloom boxes" despite Sridhar cringing at the nickname, have been secretly tested in California by a group of major corporations including eBay, Wal-Mart, and Coca Cola.

Google was Bloom's first customer, buying four servers that it installed at its campus in Mountain View, California.

"I'm a big supporter of this," Page said during an on-stage chat with

renowned Silicon Valley venture capitalist John Doerr of Kleiner Perkins Caulfield & Byers, a major backer of Bloom.

"I'd love to see us have a whole data center running on this at some point when they are ready," Page said.

Bloom servers capable of pumping out 100 kilowatts of electricity each cost 700,000 to 800,000 dollars but the price is expected to plummet as production ramps up and efficiencies of scale are achieved.

Sridhar predicted it will take about a decade for the technology to get to the point where it can be used in homes.

Bloom servers are 60 percent cleaner than coal-fired power plants and produce reliable energy on-site instead of having electricity routed through wires from far-off generation plants, Schwarzenegger said.

The inspiration for the fuel cell is rooted in Sridhar's decade as a university professor working on ways to sustain a human colony on Mars.

"I was trying to make Mars our second home," Sridhar said. "The technology was robust but, unfortunately, I couldn't say the same thing about the funding and the rockets."

Sridhar focused his inventive energy on Earth's need to curb pollution and satiate growing energy demands. "If we continued the way we were going we would be handing our children a broken planet," he said.

The cells are described as being twice as efficient as the US electricity grid, meaning it takes half the fuel to produce the same amount of energy.

Sridhar hefted a brick-sized fuel cell in one hand, saying it could power a standard light bulb but will soon be able to satisfy the electricity needs of a typical US home.

"In a few years we will use it to make a home energy server of the future," Sridhar said.

Sridhar pulled back a curtain to reveal a set of Bloom Servers -- refrigerator-sized metal boxes housing stacks of fuel cells.

"That's my baby," he said. "Isn't she beautiful."

Electricity generated by Bloom servers costs about nine cents per kilowatt/hour as opposed to the 14 or 15 cents typically charged here by utilities.

The cost of the servers is recovered in three to five years by energy savings, according to Sridhar. The servers are guaranteed for 10 years. Sridhar would not disclose the lifespans of the fuel cells.

"We sent our chief financial officer to make sure this thing penciled out," Donahoe said of eBay's decision to try Bloom technology. "It is something that makes good green sense making good business sense."

Former secretary of state Colin Powell, a Bloom board member and retired general, said the servers could be a boon to the military, which has grown increasingly energy-dependent as technology infuses the tools of war.

"This is a breakthrough," Powell said. "Sooner or later it is going to be in homes all across America. Think what it will ultimately do for humankind."

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