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[\[Energy\] Novel Fuel Cell Uses Solid-state Hydrogen to Power Laptops](#)

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Taipei Times (2012/06/17) The nation's Industrial Technology Research Institute (ITRI) on June 15 unveiled a portable fuel cell that is believed to be the first in the world to use solid-state hydrogen.

The device combines solid-state hydrogen fuel, water and a catalyst in a bottle the size of a beverage can, and it can generate sufficient electricity to power laptops and LED lights, the researchers said, demonstrating the product at a news conference held at an ITRI research park in Tainan.

A fuel cartridge containing sodium borohydride is inserted into a small generator that weighs about 1kg and a chemical reaction takes place that produces hydrogen, they explained. The gas is then released back into the cartridge and generates power through the fuel cell in the cartridge, they added.

"We store hydrogen in tablet form to make it more convenient to carry the fuel around, more user-friendly. We are the only facility in the world to successfully convert solid-state hydrogen into fuel," said Jie-ren KU, Director of the institute's New Energy Technology Division.

A cartridge can produce 20 watts, which is enough to charge five to seven cellphones or three or four laptops, the research team said. Any electronic product with a USB socket can use the device, it added.

The device, which took nearly five years to develop, is suitable for use in remote mountainous areas or after disasters, when power-charging opportunities are limited, the researchers said.

It would be especially useful during war time since the process is completely silent, the developers said, adding that one country's armed forces have already shown interest in the invention.

The institute has commissioned a local manufacturer to begin mass producing the product later this month. The company also plans to raise the power generated by one cartridge to 40 watts.

The ultimate goal is to apply the technology in the automobile industry, the researchers said.

Reference:

[Taipei Times 2012/06/17](#)

[National Science Council International Cooperation Sci-Tech Newsbrief](#)

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