



## *Electricity in a box*

BPA to install high-tech fuel cell generators in Northwest homes to produce clean, efficient electricity

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BPA to install high-tech fuel cell generators in Northwest homes to produce clean, efficient electricity

PORTLAND, Ore. – The Bonneville Power Administration today announced it has signed a contract to purchase 110 fuel cells from Northwest Power Systems (NPS) of Bend. If testing of the new technology is successful, the region will lead a high-tech revolution in the electric power industry.

"Our goal is to adapt clean, efficient fuel cell generators to small-scale consumers and commercial applications," said Jack Robertson, deputy administrator of BPA. "In just a few years, we could see these energy boxes distributed as widely as the home computer."

BPA will take delivery of the first proton exchange membrane (PEM) fuel cell systems this fall. Northwest utilities will test the 3-kilowatt units for use in homes. After the first ten "alpha" units are installed and operated, NPS will make any necessary adjustments and build 100 more "beta" test units, said NPS President Alan Guggenheim.

BPA will work with local utilities to place the beta units in the homes of interested customers. Trials of prototypes by BPA over the last two years were successful and the agency decided to move ahead with a full-scale test, Robertson said.

"Although fuel cells will not replace large central generating plants, they can help meet load growth and provide clean, efficient electricity in homes," Robertson said. "Over time, the efficiency of these and other types of distributed generation will make them the choice of consumers."

The power units are 85-percent efficient when waste heat is recovered for space and water heating. Conventional generators are less than 35 percent efficient in the use of fuel. The cost of producing the beta units is about \$30,000 each, but Guggenheim expects that the price will drop to under \$10,000 per unit when they become commercially available in the year 2002.

Fuel cells produce electricity from natural gas and other fuels such as methanol, ethanol or propane. NPS has designed a processor that chemically removes hydrogen from the fuel. The proton exchange membrane then strips electrons from the hydrogen, thereby generating electricity. The process virtually eliminates the carbon monoxide, carbon dioxide and other harmful gases emitted by combustion engines.

Initially the fuel cells are expected to be particularly useful in remote locations as backup generators, and in applications where reliable power is particularly important. BPA supports the development of clean, efficient energy technologies as part of its conservation and renewable energy program.

Northwest Power Systems is a subsidiary of IDACORP Technologies, Inc., in Boise, Idaho. The company aims to develop automated electric power generating systems ranging from 1 kilowatt to 10 kilowatts in power output by next year.

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