

SCIENCE / ENVIRONMENT

BC company leading race to enviro-friendly car emissions

BY CHRIS PRITCHARD

VICTORIA (CUP)—A high-tech company that started a decade ago in a North Vancouver garage is leading the global race to develop a zero-emission vehicle while providing British Columbia's transit system with a new environmentally-friendly option.

Burnaby-based Ballard Power Systems has supplied BC Transit with three new buses, each powered by a revolutionary hydrogen fuel cell—a power unit that emits only water vapour and heat.

BC Transit is helping the company perfect the new engine technology.

Authorities with the public transit system say they've received a positive response about the trial buses.

"The feedback we're getting from our drivers and passengers is very good," said BC Transit spokesperson Paul Clarke. "Our drivers are saying the buses are quiet and comfortable to drive and have good acceleration, comparable to our electric trolley buses.

"And the only thing that's coming out of the exhaust pipe is

water," he added.

BC Transit and Chicago Transit Authority are believed to be the first transit companies in the world to use hydrogen fuel to power buses in a real-world test environment.

The two-year test period for BC Transit's three buses began last October.

Ballard spokeswoman Debby Roman says the test results will have wide-reaching implications.

"Everything we're learning is going into commercial applications, both in bus design and in automotive applications," she said. "There's nothing like a real-life operation to provide that kind of information as opposed to being on a test bed."

The Ballard fuel cell uses an electro-chemical process to make hydrogen give off electricity as it turns into water. Unlike conventional engines that use combustion as the means of generating power, fuel cells are clean, emitting heat and water vapour into the environment instead of pollutants.

Ballard's partners—the German and US automobile

manufacturers Daimler-Benz and Ford Motor Company—are equally impressed by the fuel cell buses.

In the last two years, Daimler-Benz and Ford have committed to spending more than \$1.2 billion on developing the hydrogen fuel cell in passenger cars, and now own a 20 and 15 percent share in Ballard respectively.

Ballard has also signed deals with Chrysler, General Motors, Honda, Mazda, Volkswagen, Volvo and Hitachi, among others, to develop zero-emission engines.

The company is also developing applications for submarines.

Hydrogen fuel cell technology itself has been around for more than 150 years, but it's only within the last decade that car manufacturers, under increasing pressure to curb their vehicles' carbon dioxide

emissions, have begun to apply it to the huge passenger car market.

The key to the success of hydrogen-powered vehicles is finding environmentally-responsible and efficient ways of producing hydrogen gas.

The hydrogen fuelling the three B.C. Transit buses is extracted from city water using off-peak power from B.C. Hydro.

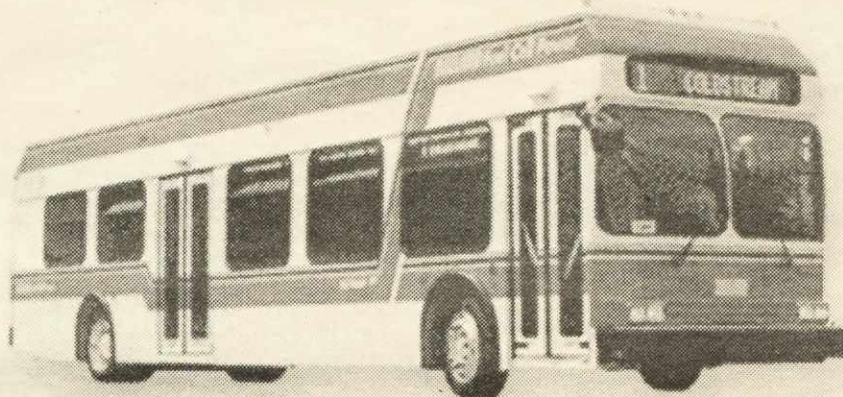
Through a process called water electrolysis, hydrogen and oxygen are separated from the water, oxygen is vented into the atmosphere and the hydrogen is pumped directly into the overhead tanks on the roof of the bus.

Hydrogen is one of the most abundant elements on Earth, but isolating it from either water or any fossil fuel such as gasoline, diesel, propane, natural gas or methanol requires energy.

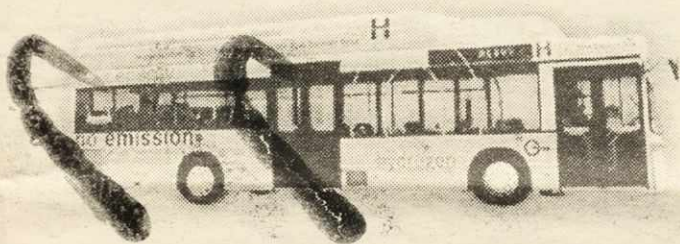
"At this point in time there

really isn't any environmental savings in transforming fossil fuels or water into hydrogen because this process takes energy as well," said Larrie Adam, senior advisor of transportation policy at the Ministry of Environment, Lands and Parks in Sydney, NS.

Adam says that the real way to get clean energy is through sun, wind, wave and falling water.



Ballard 275 HP public transit bus prototype.

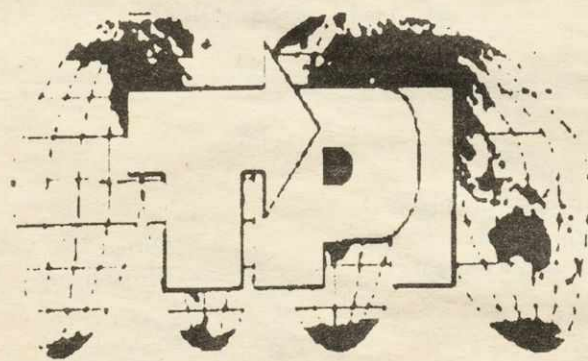


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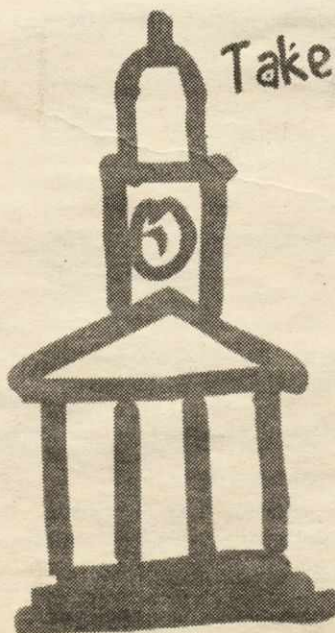
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