City man aims to tap into power of the wave

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By Jennifer Bell
The Intelligencer

Since his youth, Gerald Vowles has been trying to build devices that will make the world a better place.

He and brother Alan inherited their love of inventions from their father.

"I remember when other kids would be out playing sports, Alan and I would be in the garage tinkering with some idea we had cooked up," said Vowles, grinning.

Not all of the inventions panned out. But those experiments were to lead to bigger and better things for the brothers.

Alan, who lives in Flin Flon, Man., and Gerald, a Belleville resident, have invented a device hailed as a "technological and environmental energy breakthrough."

During a visit several years ago, the brothers were tossing around ways to solve the world's energy crisis when they hit upon the idea of harnessing power from the planet's largest renewable resource: ocean waves.

Wave power is nothing new. Several countries use the technology in one way or another. But the Vowles figured out a way to double the efficiency by harnessing the energy from both the rise and fall of each wave.

And although they were told a device couldn't be built to efficiently extract that power source, they went ahead and did it anyway.

"We had several scientists tell us there was no way to harness power from both the rise and fall of ocean waves, but we've proved it can be done," said Vowles, showing a video of his Wavemill energy device.

The Wavemill floats on the water and converts wave energy into electricity, which then be used to power desalinating devices. Clean hydrogen fuel (produced by splitting the water molecule) and fertilizers can also be produced without pollution.

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The Wavemill can convert sea water into fresh water at half the cost countries currently pay for desalination, he explained.

A typical Wavemill powered desalination system will produce about 270 million gallons of fresh water annually from sea water at a cost of under $1.60 US per gallon, less than half that of competitive technologies, said Vowles.

The "beauty of the Wavemill," says Vowles, "is that it's a source of virtually free power, and it operates without pollution."

Vowles' device capitalizes on the continuous action of waves, which are simply accumulated wind energy and are 14 times more efficient than solar energy panels.

The Wavemill has won the brothers first prize honors in the Canadian Industrial Innovation Centre's 1996 Green-Vention Awards.

The Innovation Centre, based in Waterloo, offers assistance and scientific expertise to Canadians who have innovative ideas and devices they wish to market.

To date, the non-profit centre has assisted over 50,000 innovative Canadians and evaluated over 10,000 new product ideas.

The Wavemill is patented in Canada, the United States, and several western European countries, although Vowles believes the best markets for the device are island nations with an obvious demand for fresh water.

There is enough energy in the ocean's waves to produce all the world's energy at any given moment, said Vowles.

"Up until now, producing energy from waves has been more expensive than energy from fossil fuel, but with our invention, which doubles the amount of energy harnessed, wave energy can be the cheapest, and most environmentally responsible, source of energy on the planet."

Exciting news, thought Vowles, and took his plans to the federal government's business sector.

But there he received the disappointing news that the Canadian government "has shifted away from supporting startup companies and moved to lower risk, existing ventures."

The lack of government funding has seen Vowles — a strategic planning consultant — sink $250,000 of his own finances into the project in the last six years.

But it's a gamble he's willing to take.

He and brother Alan (who communicate regularly by phone and e-mail) are now negotiating with private investors, who have indicated that they're interested, and will hopefully contribute the funding needed to build a prototype, install it, and have it validated by the National Research Council in Ottawa.

If everything goes according to plan, Vowles anticipates launching a prototype in Bay of Quinte, near Lake Ontario, next spring.

"I guess we'll have to wait until the ice is off the bay," he joked.

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VOWLES, Gerald.

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