

INTERNET & TECHNOLOGY

A Firm's Patented Pyrolysis Converts Waste Into BioOil

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Biofuels have been around for decades.

People knew long ago that charcoal-burning engines could power cars and trucks. Some countries tapped biofuels during World War II to supplement stretched crude supplies.

Since then, interest in biofuels has surged every time the price of crude jumps to record highs. But like solar and wind power, it has subsided when crude prices drop.

But a growing number of people believe biofuels have finally arrived as an alternative energy source.

Andrew Kingston is one of them. He's president and CEO of **DynaMotive Energy Systems**. The Vancouver, British Columbia-based startup provides technology to produce fuels from organic material.

He says technology in converting organics into fuel lagged in the past, but it's now economically viable.

"I don't believe that cheap

oil's coming back," Kingston said.

Some argue that sand and shale oil reserves, a potentially huge supply of crude, remain untapped in various parts of the world.

Kingston contends that biofuels are cheaper. The hurdle rate — or minimum acceptable return — for extracting oil from untapped sand and shale reserves is \$30 to \$40 a barrel. Kingston says DynaMotive's fuel costs \$27 to \$35 a barrel.

Kingston's 14-year-old firm posted less than \$1 million in sales in the first quarter and remains unprofitable.

But it's patented a fast pyrolysis technology that changes organic waste into fuel oil. The product, dubbed BioOil, can be burned to generate electricity or power factory engines.

DynaMotive uses a thermal cracking process that turns organic substances into oil.

The process involves suspending a mass of solid waste on a cushion of hot gas. The gas seeps through the floating waste, bubbling up to evaporate 85% of the organic

matter. That matter becomes a liquefied mix of carbon, oxygen and nitrogen.

While the fuel can't be used in cars yet — several chemical hurdles remain — it works well in home and industrial furnaces.

Kingston says BioOil doesn't contain sulfur, which pollutes the atmosphere, and is carbon neutral when compared with regular fossil fuels.

Recently, aluminum maker **Alcoa Canada** successfully used BioOil in place of regular oil to heat a furnace at one of its smelting plants.

The test in March in Baie-Comeau, Quebec, may set the stage for extending the fuel technology to other Alcoa plants in Canada.

"If BioOil is found to be a serious technical and economic solution, it may also be contemplated for other sites," said Nicolas Dalmau, Alcoa Canada's director of energy.

DynaMotive is working on a similar pyrolysis project with **Erie Flooring & Wood Products** in West Lorne, Ontario. The plant converts wood scraps into BioOil using a special processing facility.