

ENTREPRENEUR

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As the price a barrel of oil soars, Ottawa-based Iogen Corp. may be poised to become a hero to fossil-fuel consumers everywhere. The company is pursuing technology that uses discarded plant life to generate ethanol-based fuels that would be less expensive and more eco-friendly than traditional fuel sources.



It has been a 30-year run with more ups and downs than a roller coaster for Iogen Corp. and its controlling shareholders, the Foody family. But the sweat, frustration and long hours have been worth it, says Brian Foody, company president and son of founder Patrick Foody.

Iogen may be on the verge of a breakthrough, one of those happy coincidences of time and technology that come along as rarely as lightning strikes in February. U.S. President George Bush says that, within the next 20 years, he wants the United States to draw half its motor fuel needs from ethanol rather than fossil fuels. Iogen has the technology to make that possible.

"We think that, once into commercial production, we can get the cost of ethanol down to 30¢ a litre," Mr. Foody says. Besides that obvious cost benefit, ethanol is cleaner burning and does considerably less damage to the environment. Ethanol may hold the key to cost and Kyoto at the same time.

Iogen's secret is the biotech equivalent of the philosopher's stone — a substance with properties considered so magical that medieval alchemists thought it could turn lead into gold. Iogen has created enzymes that turn common cellulose from plant stalks into ethanol, the fuel of the future.

Granted, today's technology can create ethanol from corn. Both the federal Liberals and Conservatives have said they want corn-based ethanol to account for 5% of Canada's fuel needs by next decade. The downside is corn is a relatively expensive medium for ethanol production. Iogen,

'ONCE INTO COMMERCIAL PRODUCTION, WE CAN GET THE COST OF ETHANOL DOWN TO 30¢ A LITRE'

however, has enzymes that take ethanol production a giant leap down the corn stalk.

The company has created biotech miracles that turn the cellulose in corn stalks and even hay into ethanol. Plant material now left to rot in fields can be easily scooped up, trucked to local plants and cheaply converted into enough fuel to power cars, trucks and boats — in fact, anything that runs on gasoline today.

"What our enzymes do is offer great hope for the future," Mr. Foody says. "The prospect of ethanol from cellulose is much closer than other clean power sources for vehicles, such as fuel cells. We are looking at something that can be done [in time periods] measured in years, not decades."

Some impressive names in the energy and financial worlds seem to agree. Royal Dutch Shell and PetroCanada have both backed Iogen and earlier this spring, Goldman Sachs, the New York-based investment house, took a position as well. In Germany, Iogen is working with both Shell and Volkswagen on projects designed to replace fossil fuels with ethanol because of its clean-burning properties.

But while the road ahead seems smooth and sunny, Iogen had to follow an up-and-down, rock-strewn path to get where it is today. The company was formed in the 1970s by Brian Foody's father, Patrick, an engineer with an interest in finding out how to break down natural fibre sources and make them suitable for animal feed. His work naturally brought him into contact with others who saw his approach as a way to create renewable fuels by turning plant cellulose into ethanol.

"The work dovetailed nicely," Mr. Foody says. "Dad started this company to make renewable fuels using enzymes and the process technology he had created."



Iogen Corp. president Brian Foody is continuing the work begun by his father, Patrick, which could revolutionize energy production.

During the 1980s, there was great interest in the prospect of ethanol created from widely available substances such as straw and corn stalks. Energy prices were high. The environment topped headlines. Money to support research was available. Then oil prices started to drop and, with it, the interest in ethanol.

"We had to realign and refocus," Mr. Foody says. "We had to come up with commercially viable products that would create cash flow."

What Iogen then created were enzymes in demand by industries such as textiles and pulp and paper. If you own a pair of stone-washed jeans, they may have been treated with Iogen biotech products to make them look faded, soft and comfortable. Iogen also has enzymes that stop materials from pilling — those annoying little balls that can form on sweaters and shirts. And Iogen enzymes treat pulp, turning it from woody, beige porridge into pristine white paper.

"Those products carried us through and kept us profitable," Mr. Foody says.

All the while, however, the company's research and development team kept plug-

ging away at improving its ethanol-creating substances.

But it is this decade's understandable concerns about oil prices and renewable sources of energy that turned soldiering on into a juggernaut's roll toward the future.

With oil at \$70-plus a barrel and with all industrialized nations demanding a greater share of existing energy resources, ethanol from the equivalent of agricultural rubbish presents an almost irresistible goal.

Iogen's plans may involve licensing the technology to third parties or even creating its own ethanol production facilities, Mr. Foody says.

"If the U.S. embraces ethanol the way George Bush proposed in his State of the Union address, then half its fuel consumption will come from new, large operations across the Prairies and the Midwest," he says.

"The scale is monumental. The United States alone wants 250 million gallons in production by 2013."

Best of all, after 30 years, is the short time frame. The goal seems within reach at last.

"We may be looking at all this happening as little as five years out," Mr. Foody says.

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