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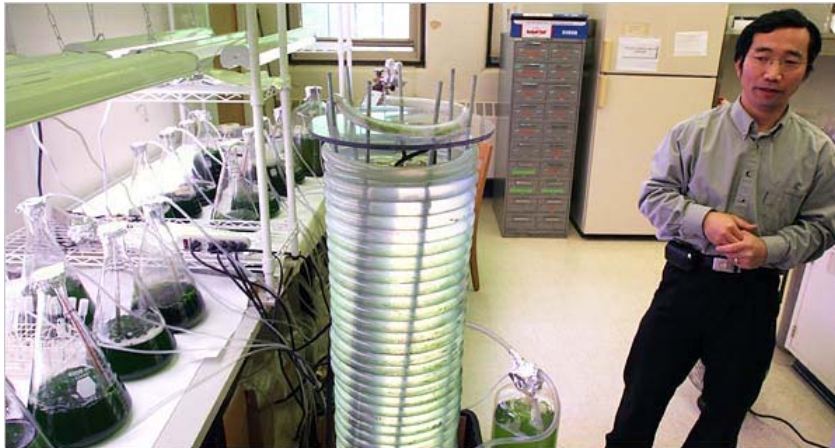
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Algae Emerges as a Potential Fuel Source



Thomas Whisenand/Associated Press

Roger Ruan of the University of Minnesota says algae is a far more efficient fuel crop than corn.

By THE ASSOCIATED PRESS
Published: December 2, 2007

ST. PAUL, Dec. 1 (AP) — The 16 big flasks of bubbling bright green liquids in Roger Ruan's laboratory at the [University of Minnesota](#) are part of a new boom in renewable energy research.

Driven by renewed investment as oil prices push \$100 a barrel, Dr. Ruan and scores of scientists around the world are racing to turn algae into a commercially viable energy source.

Some algae is as much as 50 percent oil that can be converted into biodiesel or jet fuel. The biggest challenge is cutting the cost of production, which by one Defense Department estimate is running more than \$20 a gallon.

"If you can get algae oils down below \$2 a gallon, then you'll be where you need to be," said Jennifer Holmgren, director of the renewable fuels unit of UOP, an energy subsidiary of Honeywell International. "And there's a lot of people who think you can."

Researchers are trying to figure out how to grow enough of the right strains of algae and how to extract the oil most efficiently. Over the past two years they have received more money from governments, the Pentagon, big oil companies, utilities and venture capital firms.

The federal government halted its main algae research program nearly a decade ago, but technology has advanced and oil prices have climbed since then, and an Energy Department laboratory announced in late October that it was partnering with Chevron, the second-largest American oil company, in the hunt for better strains of algae.

"It's not backyard inventors at this point at all," said George Douglas, a spokesman for the National Renewable Energy Laboratory, an arm of the Energy Department. "It's folks with experience to move it forward."

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Ruan said demonstration plants could be built within a few years.

Converting algae oil into biodiesel uses the same process that turns vegetable oils into biodiesel. But the cost of producing algae oil is hard to pin down because nobody is running the process start to finish other than in a laboratory, Mr. Douglas said.

If the price of production can be reduced, the advantages of algae include the fact that it grows much faster and in less space than conventional energy crops. An acre of corn can produce about 20 gallons of oil per year, Dr. Ruan said, compared with a possible 15,000 gallons of oil per acre of algae.

An algae farm could be located almost anywhere. It would not require converting cropland from food production to energy production. It could use sea water and could consume pollutants from sewage and power plants.

The Pentagon's research arm, the [Defense Advanced Research Projects Agency](#), is financing research into producing jet fuel from plants, including algae. The agency is already working with the Honeywell subsidiary, General Electric and the University of North Dakota. In November, it requested additional research proposals.

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