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Ames company can refine biodiesel from crude algae oil

By: Bob Zientara

Algae grows in all climates, from the ponds of Mid-Iowa to the icebergs of Antarctica.

Now, due to a process developed by Ames-based Renewable Energy Group, it may grow jobs and income here, too.

Working in laboratories at Iowa State University and in its research and development center in Ralston, REG engineers have developed a means to process large amounts of algae oil into a usable biodiesel fuel.

The prototype machine, which is about the size of a refrigerator but bristling with plastic tubes, metal tanks and valves, sits on a wooden pallet in the ISU Food Science Building. It cleans and refines crude algae oil and is the proprietary invention of Renewable Energy Group.

Researchers who worked on the process include Matt White, oleo chemical engineer, Isa Mbaraka, research chemical engineer, and Shannon Sanford, biochemical engineer.

Alica Clancy, Renewable Energy Group communications specialist, said the process is being advertised to attract supplies of crude algae oil.

"Many processors can produce crude algae oil, but ours is the only one capable of producing refined oil in scale, from just a few gallons to up to 45 million gallons," she said.

"We are the only company we're aware of that is capable of producing algae biodiesel on sample levels, through an intermediate process and up to millions of gallons."

Daniel Oh, chief operating officer, said the company's first job "was to meet or exceed industry standards (for algae biodiesel quality).

"No one else we know of does it this well. The only hindrance at this point is enough of the raw algae oil to put into production. So the process is not economical yet, like it is for soy- or animal fat-based biodiesel."

Oh and fellow company spokesman Glen Meier said Renewable Energy Group is interested in agreements with any and all producers of crude algae oil, wherever they may be.

The process also produces byproducts usable in the food and chemical industries.

"There is a whole range of alternative products, including a green replacement for antifreeze, for example," Meier said.

Biomass produced during the process could be used as an animal feed, a food source for humans, or a burnable substance, he added.

Algae crude oil producers appear to be on track to generate a critical mass of the product within two to four years,



By Nirmalendu Majumdar/The Tribune
Matt White, oleo chemical engineer at Renewable Energy Group, separates refined biodiesel and biomass from crude algae oil at the Iowa State Food Sciences Building Tuesday in Ames.

according to Oh.

"Today, we're more about engineering and making a cost-efficient model than we are working out a source of supplies," he said.

Renewable Energy Group has been working with ISU on other research projects, including one that studied yeast-based oil. That relationship enabled the company to work on the algae project at both the Ralston and Ames sites, Oh said.

Renewable Energy Group's presence in Ames already has led to the creation of 80 new jobs, 60 employees of whom live in the community, he said.

Bob Zientara can be reached at 232-2161, Ext. 487, or rzientara@amestrib.com.

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