Pond scum finally gets some respect - as oil resource

Big Oil is investing in algae as a promising alternative. Will the Midwest play a role? The ante was raised this week.

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NEAL ST. ANTHONY

Pond scum is no longer a joke.

There were chuckles a few years ago when University of Minnesota researcher Roger Ruan set up a tiny still in his biofuels lab to experiment with oily strains of algae.

This week, ExxonMobil and a partner, Synthetic Genomics, announced they would invest $600 million to develop bio-based diesel fuel from algae, which can be fertilized with carbon dioxide from power plants.

Ruan has a similar experiment going at a pilot plant next to a Metropolitan Council sewage treatment plant near South St. Paul.

Meanwhile, industrial chemist Clayton McNeff plans to open family-owned Ever Cat fuels by September -- a $7 million pilot plant in Isanti slated to eventually produce 10,000 gallons of diesel daily for less than $1.75 per gallon from a variety of feedstocks, including stinkweed and algae. McNeff also has engaged Great River Energy, at its Coal Creek, N.D., plant in an algae-carbon pilot project.

Last month, Algenol Biofuels and Dow Chemical announced a $50 million, algae-to-fuel pilot-scale plant employing Algenol's technology.

Algae is getting so much attention because big chemical and oil companies increasingly see it as a place where they can "scale up" in alternative fuels.

Traditional ethanol and bio-diesel plants are on track to supplant about 15 billion gallons of oil by next year. That's far short of the near-term U.S. goal of 35 billion gallons, according to energy researchers at Sandia National Laboratories.

We burn about 200 billion gallons annually in planes, trains and automobiles.

Proponents say algae has the potential to yield the equivalent of 1,000 or more gallons of oil per acre compared with 20 to 100 gallons per acre from sources ranging from corn to sunflowers.

Missing the algae boat?

However, the Midwest, the pillar of the ethanol industry, is in danger of missing the algae action, said a veteran alternative-energy lawyer and leader of an algae-commercialization conference in Minneapolis on Aug. 18.

"As biofuels move away from being a purely agricultural play for first-generation ethanol and soy-diesel plants, the action has started gravitating to the coasts," said Todd Taylor of Fredrikson & Byron. "That's unfortunate. The ethanol and bio-diesel industries are mostly about corn and soy. Nothing against my clients and friends in those industries, but it's not rocket science. The next generation will be rocket science ... moving from a corn-ethanol still to genetic manipulation of algae or cellulostic material to create advanced fuels that are drop-in replacements for the oil we use today. We need to be in that game," he said.

"Algae can suck up carbon dioxide from power plants. Because of how much oil you can get from an acre of algae, "the potential is there to have a magnitude of production that is vastly superior to wood waste, corn ethanol or soy diesel," Taylor said.

ExxonMobil views algae as the only potential replacement for oil because of scale, he added. "They don't care about a 50 or 100 million gallon-a-year plant. They are talking billions of gallons. There are challenges. It's going to take years. But algae can get you there."

I'm not excited about Exxon cornering the algae market. Still, home-grown algae from Big Oil beats imports from Iraq, Saudi Arabia and other repositories far from American shores.

Thank goodness for entrepreneurs such as McNeff. His "Mcgyan" process, first developed by a student at Augsburg College, uses metal oxides in a continuous-flow reactor to produce biodiesel using little energy and making little waste from several feedstocks. Engineering students already have constructed small "mobile" reactors that would act as small refineries anywhere on the planet.

The Fredrikson conference, also sponsored by Byrne & Co. and the Initiative for Renewable Energy and the Environment at the University of Minnesota, will be the most significant event of its type so far on our tundra.

In addition to Ruan, there will be extensive sessions on algae oil's promise, commercialization potential, regulations, environmental implications and the prospects for making a buck.

McNeff will be too busy opening his pilot plant in Isanti to attend. But several top names in the industry will be there.

The promise of algae is significant because, even if you don't buy global-warming arguments against burning oil, and carbon-dioxide emissions from coal-fired plants, you can make a national security case for algae.

"This is about energy security and we don't have to get into global warming," said Taylor, a conservative who once worked at the Pentagon. "The military loves this stuff."

Taylor notes that the government-subsidized ethanol industry oversold its potential early on.

"We have to be careful with algae," Taylor said. "We have to engage with environmentalists. Algae uses lots of water and there will be land-use issues. But there is great potential. Right here in the Midwest. We already have a biofuels infrastructure."

For more information about the conference, visit www.fredlaw.com/events/algae.html.

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