

Algae-Based Biofuels Gets Gov't, Military Support

Jason Dearen, Associated Press

SOUTH SAN FRANCISCO, Calif. (AP) — The forest green algae bubbling in a stainless steel fermenting tank in a suburban warehouse may look like primordial pond scum, but it is a promising new source of domestically produced fuels being tested on the nation's jets and warships.

In a laboratory just a few steps away from the warehouse, white-coated scientists for a company called Solazyme are changing the genetic makeup of algae to construct a new generation of fuels.

These "bioengineered" algae are placed into tanks, where they get fat on sugar beets, switch grass or a host of other plants. The sun's energy, which is stored in the plants, is transformed by the hungry algae into oil, which can be refined into jet fuel, bio-diesel, cooking oil or even cosmetics.

While it may sound far-fetched, the U.S. Navy in September ordered more than 150,000 gallons of ship and jet fuel from Solazyme and the company received a \$21.8 million grant from the U.S. Department of Energy last year to build a new refinery in Riverside, Penn., to help push production to commercial levels.

"Most of the planet is producing some kind of plant matter, even in the oceans," said Jonathan Wolfson, the CEO and co-founder of Solazyme. "(Our) unique microbial conversion technology process allows algae to produce oil in standard industrial fermentation facilities quickly, efficiently and at commercial scale."

The U.S. military hopes to run 50 percent of its fleet on a mixture of renewable fuels and nuclear power by 2020. As part of this drive, the Department of Defense has been investing in companies like Solazyme to help jump-start the young industry.

The military as a whole uses more than 90 percent of the energy consumed by the federal government, officials said. The federal government uses about 2 percent of the energy consumed by the U.S.

The U.S. Navy has already tested Solazyme's algae fuels on part of its fleet, with promising results, and plans to have its entire non-nuclear fleet tested by the end of 2012.

Focusing on making fuels for the military was an easy choice for Solazyme — the biofuels market for passenger cars has taken a backseat to electric vehicles as the focus of the future consumer market.

However, billions of dollars of military aircraft and ships will not be replaced anytime soon, so finding a cleaner, domestically produced source of fuel compatible with the current generation of equipment is the best way to decrease reliance on

Algae-Based Biofuels Gets Gov't, Military Support

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

foreign sources of oil.

"These alternative fuels provide some strategic advantages," said Deputy Assistant Secretary of the U.S. Navy for Energy Tom Hicks.

"We purchase fuels today from some parts of the world that are not very friendly to the U.S. Having sources to replace those unfriendly fuel barrels with domestically grown fuel barrels is (important)."

Fuels made from algae oil burn cleaner than fossil fuels and require no drilling to acquire, which means fewer greenhouse gas emissions from the beginning to the end of the fuel's life cycle. Wolfson said Solazyme's diesel fuels can reduce greenhouse gas emissions by more than 85 percent versus petroleum diesel, when you take into account the drilling, shipping and refining required in traditional fuel.

Currently, only about 1 percent of the fuels used by the Navy would be considered renewable by most standards. Sixteen percent of the Navy's energy and fuel needs are achieved through nuclear power, with the rest from traditional sources.

For the Navy to achieve its 50 percent goals alone, production of algae and other renewable fuels will have to increase exponentially. Hicks said the Navy will need 8 million barrels of renewable fuels in 2020 to achieve its goals.

The U.S. government's interest in algae fuels is nothing new. The first spike in attention to algae's potential for making oil spiked in the 1970s as a response to the energy crisis.

The National Renewable Energy Laboratory has been researching algae oils and fuels since the 1980s, but in the 1990s the effort was curtailed as petroleum prices dropped and algae fuels were considered too costly to compete.

However, this decade's rise in petroleum prices and an increased interest in moving the nation away from foreign sources of oil has brought algae back.

Initial efforts at converting algae to oil required large ponds, where algae were exposed to sunlight to create oil. By replacing sunlight with plants, which have already processed the sun's energy through photosynthesis, Solazyme does not need large ponds. The algae and plants put together in a vat and placed in a dark room will create oil faster and cheaper than ponds, Wolfson said.

Solazyme's use of plants to create its algae based fuels have raised some concerns from environmental groups. The sustainability of other biofuels like ethanol or bio-diesel encountered the same problem because each rely on a specific crop, such as corn or soy beans, which can take a lot of energy to grow.

"Solazyme still faces all of the same landscape challenges that traditional biofuels face," said Nathanael Greene, director of renewable energy policy at the Natural Resources Defense Council.

Algae-Based Biofuels Gets Gov't, Military Support

Published on Industrial Maintenance & Plant Operation (<http://www.impomag.com>)

"Today they are using sugar cane or beets, so they need the same plant matter that today's biofuels do."

CEO Wolfson said the company's research has shown that Solazyme's algae don't rely on a specific crop to make oil, which means a host of different plants can be used, providing a flexibility that other biofuel types do not.

"We've demonstrated that the process works, and you end up with exactly the same oil off of all of these different (plants)," Wolfson said.

Source URL (retrieved on 11/23/2014 - 12:08pm):

http://www.impomag.com/news/2010/10/algae-based-biofuels-gets-govt-military-support?qt-most_popular=0&qt-digital_editions=0