

U.S. Military Develops Algae as New Fuel

By JASON DEAREN
Associated Press

SOUTH SAN FRANCISCO, California (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 U.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, Pennsylvania, 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 bio-fuels 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 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 ex-

posed 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 biodiesel 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.

"Today they are using sugar cane or beets, so they need the same plant matter."

Number of Teen Drivers in Fatal Crashes Is Dropping

The number of fatal crashes involving 16- and 17-year old drivers dropped by more than a third between 2004 and 2008, but this doesn't mean that parents and teens should be satisfied with the progress, according to a report by the Centers for Disease Control and Prevention.

Car crashes still remain the leading cause of death for teens in the U.S., though most are preventable, the report says. Graduated driver's licensing programs (GDL), which help new drivers gain skills under low-risk conditions, are widely credited with contributing to the drop in deadly crashes involving teens, it says.

The report further shows wide variations from state to state, with teens in some states more likely than teens in others to be involved in fatal car crashes.

Nationally, the number of 16- and 17-year old drivers involved in fatal crashes de-

creased by 36 percent, from 2,230 in 2004, down to 1,437 in 2008, said the study in CDC's Morbidity and Mortality Weekly Report.

The overall decline in young drivers' fatal crash involvement is an extension of a longer-term downward trend.

Rates of fatal crash involvement for 16- and 17-year-old drivers have fallen by more than 50 percent since 1996 (from 35 per 100,000 persons in 1996 to 16.7 per 100,000 in 2008). Despite this downward trend, young drivers' fatal crash rates are still high in some select areas of the country.

Meanwhile, of the 11,019 persons who died in crashes involving 16- and 17-year-old drivers, some 4,071 (37 percent) were the young drivers themselves, 3,426 (31 percent) were passengers of young drivers, 1,987 (18 percent) were drivers of other vehicles, and 805 (7 percent) were passengers of the other

Chrysler Begins Rollout Of Its New Pentastar V6

Improved fuel efficiency, more power and reduced emissions, all hallmarks of the new Pentastar V6 engine, will soon be available across 13 models from Chrysler.

The Pentastar V6, the most advanced six-cylinder engine ever produced by the Chrysler Powertrain group, is slated to be the new "workhorse" engine across many models and will eventually replace seven different V6 engines over the next three years.

By 2014, the new V6 is expected to account for more than a third of the powertrains in the vehicle lineup and substantially contribute to overall corporate fuel efficiency improvement of more than 25 percent.

"The Pentastar engine is suited to meet the requirements for a full range of vehicle applications in terms of power and fuel efficiency including passenger cars, mini-

vans and sport-utilities," explained Bob Lee, vice president of engine engineering for Chrysler.

"It has been designed for today and many years to come. Already, we are looking forward to adapting future technologies as they become available to the Pentastar V6 for even more fuel efficiency and performance."

Compact and lightweight, Pentastar V6 will be used in front-, rear- and all-wheel-drive models. Already standard on the new Jeep Grand Cherokee, the V6 will gradually phase out seven V6 legacy engines ranging from 2.7L up to 4.0L in the current product portfolio.

Also, overall, the new Pentastar will enable Chrysler Powertrain to reduce major engine components from 189 parts to just 32, greatly simplifying the engine build process and improving quality scores at the same time.

drivers. Another 728 (7 percent) were other road users such as bicyclists or pedestrians.

"These trends show both how much progress we have made — and how much more we can make — to reduce motor vehicle crashes, which remain the No. 1 cause of death for teens in the United States," says CDC Director Dr. Thomas Frieden.

"This is a call to action to teen drivers, parents and communities. It's not right that teens would lose their lives on U.S. roads when there are proven methods for helping teens be safer drivers."

The study reports that graduated driver licensing programs can be partially credited with the recent decline in fatal crashes involving these young drivers.

GDL programs, which are used in 49 states and the District of Columbia, limit driving under conditions such as at night and while transporting

other teen passengers." An earlier evaluation of GDL programs found that these systems can reduce crash risk by up to 40 percent among newly licensed drivers.

There is a wide variability in GDL programs among states, and the more comprehensive programs are associated with higher reductions in crashes. No state has a GDL program which incorporates all the effective means of reducing risk to teens and others.

CDC says that parental involvement is also a key factor that can protect teen drivers. Parents should set and enforce their rules of the road, restricting their teens' nighttime driving and the number of teen passengers they are allowed to drive with. They should also put these rules into writing with a parent-teen safe driving agreement, one that both parents and teens actually abide by.

Siemens Energy Business Adds EV Car-Charging Station Work

Siemens Energy, Inc., last week launched its new product line of EV charging stations, which includes solutions for residential, public and commercial applications, including integration into the so-called Smart Grid.

Siemens' portfolio of EV charging station offer safe, reliable plug-in EV charging for electric vehicle manufacturers, municipalities, corporations, fleets, utilities and residential customers.

The easy-to-use stations provide multiple power options, integrated aesthetics and ergonomics with ruggedized construction, the industrial supplier says.

Siemens' UL-listed electric vehicle supply equipment (EVSE) line includes wall-mountable, community multi-level II models. The company's wall-mountable charging station is a 7.2-kW single-output station designed for residential and light commercial applications.

Siemens' public outdoor charging stations will be available in single Level II and multi-level designs. The multi-level

charging stations incorporate a dual power output configuration, allowing both Level I and Level II outputs to deliver energy simultaneously.

Meanwhile, Siemens' EV charging stations will offer Coulomb Technologies' ChargePoint Network. The ChargePoint Network is an advanced software system that is open to all drivers of plug-in vehicles.

Advanced features of the network include: 24/7 driver assistance, the ability to locate a charging station from any smart phone and more.

Further, the ChargePoint Network provides Siemens charging station owners remote management, flexible billing, fleet management, maintenance and other on-demand software applications.

In addition to charging stations, Siemens provides integration of EVs into the utility grid with advanced metering infrastructure (AMI), load shifting through demand response programs, and the addition of generation capacity to handle widespread EV adoption by consumers.

Johnson Controls Profits Are Up

MILWAUKEE (AP) — Johnson Controls Inc. said last week its fiscal fourth-quarter earnings jumped 50 percent on better sales, global expansion and market share improvements. It also maintained its earnings forecast for the 2011 fiscal year.

The company, which makes automotive batteries and heating and cooling systems for buildings, earned \$449 million, or 66 cents per share in the fourth-quarter that ended in September, compared with \$300 million, or 47 cents per share, a year earlier.

Revenue rose 15 percent to \$9.04 billion from \$7.87 billion in the year-ago quarter.

Analysts polled by Thomson Reuters expected earnings of 57 cents per share on revenue of \$8.71 billion.

Sales in the company's automotive segment rose 18 percent mostly due to higher production and new product

launches. Sales of building efficiency products rose 10 percent to \$3.6 billion. Power solutions unit sales jumped 19 percent to \$1.3 billion on higher sales of both original and aftermarket equipment.

For all of 2010, the company posted net income of \$1.49 billion, or \$2.19 per share, compared with a loss in fiscal 2009 of \$338 million, or 57 cents per share. Revenue rose to \$34.31 billion from about \$28.5 billion in fiscal 2009.

For the full-year 2011, the company expects earnings of about \$2.30 to \$2.45 per share on revenue of about \$37 billion, up 9 percent from fiscal 2010.

Johnson Controls attributes its growth forecast to an expected global market recovery in its buildings business, modestly higher automotive production, growth in emerging markets and market share gains.

Because
**You Keep
America
Rolling**

We want to **THANK YOU**
with savings on wireless from AT&T



BlackBerry Torch.

Because you're part of Detroit's big three automakers, you may be eligible for monthly discounts on qualifying wireless service, including BlackBerry rate plans!

Visit your local AT&T store to learn more!

Please bring proof of eligibility (e.g., corporate badge, paystub or retiree i.d.) as a corporate employee, qualified retiree, or eligible employee of an authorized dealership.

To find the store nearest you, go to www.att.com/find-a-store



IMPORTANT INFORMATION: Limited-time offer. Requires a 2-year agreement on a qualified plan. Other conditions and restrictions apply. See contract and rate plan brochure for details. Subscriber must live and have a mailing address within AT&T's owned wireless network coverage area. Equipment price and availability may vary by market and may not be available from independent retailers. Purchase of additional equipment, services or features may be required. Not all features available on all devices or in all areas. **Phone Return Policy/Early Termination Fee:** No Early Termination Fee if service cancelled within 30 days of purchase, but up to \$35 Restocking Fee may apply to device returns; thereafter, the Early Termination Fee will be up to \$325 if purchasing certain specified equipment (check www.att.com/equipmentETF for list) or up to \$150 for other equipment. Independent agents may impose additional equipment-related charges. Sales tax calculated on un-activated price of handset. Early Termination Fee subject to change. **Smartphone Data Plan Requirement:** Smartphones require a DataPlus (200MB) or DataPro (2GB) plan. If you exceed your initial data allowance, you will automatically be charged an additional \$10 for each additional 1GB provided on DataPro or an additional \$15 for each additional 200MB provided on DataPlus. All data allowances, including overages, must be used in the billing period in which the allowance is provided or they will be forfeited. An Enterprise DataPro Plan is required for access to corporate email, corporate intranet, and business applications. For more details on Data Plans, go to att.com/dataplans. **Monthly Discount:** Available to qualified employees of companies and/or government agencies and qualified students and employees of colleges/universities with a qualified business agreement ("Business Agreement"). Service discount subject to corresponding Business Agreement and may be interrupted and/or discontinued without notice to you. Service discount applies only to the monthly service charge of qualified plans and not to any other charges. A minimum number of employees, minimum monthly service charge for qualified plans, additional AT&T services or other requirements may apply for discount eligibility. Discounts may not be combined. Offer subject to change. Additional conditions and restrictions apply. If you have a question about available discounts and/or your eligibility, you can contact your AT&T representative. BlackBerry(r), RIM(r), Research In Motion(r), SureType(r), SurePress(tm) and related trademarks, names and logos are the property of Research In Motion Limited and are registered and/or used in the U.S. and countries around the world. All other brands, product names, company names, trademarks and service marks are the properties of their respective owners. (c) 2010 AT&T Intellectual Property. All rights reserved. AT&T and the AT&T logo are trademarks of AT&T Intellectual Property.