

# Pentagon is investing in a greener military

August 25 2011, By Steve Gelsi

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Think your fuel bill is too high? Have a look at the U.S. military, which spent a whopping \$13 billion on petroleum last year to keep its ships, planes and combat vehicles running.

Add to that the human toll from attacks on supply convoys and an estimated \$400 price per gallon of fuel sent to the front lines, and it's no wonder the Department of Defense is looking for alternatives.

"The [Navy](#) and the [Air Force](#) have set very aggressive goals to change their energy mix over the next decade," said Sherri Goodman, senior vice president of CNA Analysis & Solutions and a former deputy undersecretary of defense.

"Right now we're on the cusp. There's not one single silver bullet, but there's a lot of silver buckshot out there. There's going to be a lot of changes over the next decade in how we power our cars and the military," Goodman said.

Those changes are expected to create opportunities for anyone looking to participate in the Pentagon's drive to diversify its fuel portfolio.

To be sure, alternative energy is still a young, volatile industry and faces major hurdles in its quest for lucrative government contracts, especially given the latest congressional drive to rein in spending.

Given the challenges and recent losses on Wall Street, at least one analyst is shunning publicly traded "clean tech" companies altogether, regardless

of the Pentagon's budding interest in renewable energy.

"We are not recommending the sector right now," said Jesse Pichel, managing director of clean tech research at Jefferies. "Professional investors are not in these stocks."

In the long term, however, Pichel said a gradual switch to solar power at government facilities could benefit makers of photovoltaic panels, including low-cost producers such as First Solar Inc.

Most companies participating in the military's push into green power say their work is still in the early stages. They are also keen to tout prospective growth in the private sector.

"The push is on to develop lighter, more efficient batteries and fuels, for cars, trucks, [planes](#) and tanks," said Goodman of CNA, a research firm based in Alexandria, Va.

"At the same time, energy is tied to security in the battlefield. We are losing soldiers every month when we have to convoy fuel to the front. That puts lives at risk, and so our military leaders said let's find other ways through solar or wind or better batteries to get energy for our troops."

Retail investors interested in gaining some exposure to the military's green energy programs might consider any of several initial public offerings from companies doing business with the government.

Other players haven't yet reached the IPO stage, but are already drawing interest from venture capitalists and institutional investors.

Ocean Power Technologies Inc., which went public in 2007, makes ocean buoy electric generation systems that tap energy from waves.

Chief Executive Charles Dunleavy said the buoys could help the U.S. Navy's efforts to use more renewable energy.

The company's 40-kilowatt PB40 power buoy has been deployed since December 2009, less than a mile off the coast of the Marine Corps Base on Oahu, Hawaii. At peak output, it generates enough electricity for 20 homes. Separately, the company has begun sea trials of a buoy system to power offshore surveillance gear for the Navy as an alternative to diesel-fired generators.

Another firm tied to the military's green push is algae specialist Solazyme Inc., which went public on May 27 at \$18 a share.

Solazyme has worked with a unit of Honeywell International Inc. to supply the Navy with microbe-derived advanced aviation and marine fuel.

In June, the Navy demonstrated Solazyme's fuel in an MH-60S Seahawk helicopter using a 50/50 blend with petroleum-based jet fuel.

Last year, Solazyme's distillate fuel was also used in a Navy Riverine Command Boat.

Larry Goldenhersh, chief executive officer of Carlsbad, Calif.-based Enviance Inc., a privately-held tech company, said the Pentagon's push to go green could double his revenue within three years.

"Our product allows the Defense Department to get data directly on its heaters and boilers and the assets that use energy, so it can have a footprint of consumption to manage its energy and intensify reductions," Goldenhersh said. "We do it in a way that saves the government a lot of money."

Goldenhersh, whose firm is backed by Enterprise Partners Venture Capital of San Diego, doesn't rule out an initial public offering some day.

"We're receiving an immense amount of attention from the market, which would include financial and strategic investors," Goldenhersh said. "We've been told we have many options in the market at this point."

Bill Vass, who left Sun Microsystems to lead Liquid Robotics Inc., said the military's green initiatives often center on cutting fuel and manpower costs.

The Sunnyvale, Calif. company's solar and wave-powered Wave Glider ocean-going robots cost about \$3,000 a day to operate, compared with \$55,000 for the average non-combat, data-gathering Navy vessel.

"If you're going to do ocean current studies, or collect intelligence, or anti-submarine warfare, or mine sweeping, all those things you'd do with a ship, you instead do that with a robot," said Vass, who figures that military contracts now make up about a third of his company's business.

Last June, the company closed a \$22 million round of venture capital financing with support from oil service firm Schlumberger Ltd., which is working with Liquid Robotics on oil and gas exploration.

"There's been a lot of strong interest," Vass said. "People want to invest but we don't need more money. We're generating revenue and we've got cash in the bank and we are hiring. [But] there will be times in the near future where we may need more investment capital."

Rick Wilson, chief executive of Cobalt Technologies Inc. and a veteran of BP PLC, said the company is working with the Navy to turn

vegetation into biobutanol suitable for fueling jets. The company makes butanol for about \$1.90 a gallon and converts it to military-spec jet fuel for roughly half the cost of conventional fossil-fuel blends, he said.

"In the case of the Navy, the real attraction for our technology is that it can be used locally," he noted. "We can use algae growing in a pond, we can use grasses, we can use trees. Having a jet fuel supply around the world creates supply reliability."

Traditional defense contractors will likely pursue a role in a greener military to take the sting out of future cuts to big-ticket weapon and hardware programs.

Two big names in the business, Boeing Co. and Siemens AG, Â have formed a strategic alliance to pitch the Pentagon on smart grid technologies aimed at improving energy access and security.

Navy Secretary and former Mississippi Gov. Ray Mabus estimates gasoline costs the military up to \$400 a gallon when factoring in airlifts, ground transport, guards and final delivery to remote battlefields in Afghanistan.

"We simply buy too much [petroleum](#) from either potentially or actually volatile places on earth and we need to address that vulnerability," Mabus said in a conference call this week.

Mabus argued that using biofuels and installing smart meters and solar panels at military bases could provide critical cost savings for taxpayers.

"If you look out past five years, the savings are tremendous; they are huge for the Navy and the Marine Corps," Mabus said. "So if you're looking for ways to save money, to make the most of the money we have, then this has to be one of our highest priorities."

Jefferies analyst Pichel said these and other new technologies could be major cost-savers while reducing the nation's dependence on foreign oil.

"We think it is ironic that if the USA and U.S. government/military goes green, it would lessen our need to import from the Middle East, and in essence we could reduce our defense spending," he said.

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