SAIL VENTURE PARTNERS

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FlexEnergy Opens Lamb Canyon Powerstation

Project Turns Landfill's Methane into Electricity

FlexEnergy is a SAIL II portfolio company

On August 12, FlexEnergy, an Irvine based company, showed off its new installation that converts previously unusable methane gas from a Riverside County landfill into 100 kilowatts of electricity. The LA Times reported that the 100 kilowatts could be used to help run the sprawling landfill operations or provide electricity for more than 100 homes.

The company envisions its generators being installed at many of the country's 2,300 currently operating or recently closed landfills. In 2008, trash in municipal solid-waste landfills produced 22% of all methane emissions nationwide, second only to the amount produced by animals as they digest food, according to the Environmental Protection Agency.

Riverside County's Lamb Canyon Landfill could produce up to 1.5 megawatts — enough to power 1,500 homes — if more FlexEnergy units are installed, the company said.

The project is the latest in a move to use landfills to produce electricity. At more than 500 landfills in the U.S. — 74 in California — methane already is being converted into electrical power.

But the Flex Powerstation technology is the first to use a low-emission process to deal with landfill methane, which can hover in the atmosphere for years, according to the company. Many dump operators deal with the gas by burning it up using flares, a technique that often releases more pollutants such as nitrous oxide and carbon monoxide.

Most waste-to-energy technologies can function only when gas with high methane content is available. But the methane levels degrade as landfills age, making those generators less efficient and shorter-lived than the Flex Powerstation, the company said. Even using gas with a small percentage of methane, the FlexEnergy option is still able to produce power.

On top of government stimulus funding, the company has picked up $13 million in venture capital investment over the 10 years it has been working on the technology. It attracted $7 million of that in the last two years, from RNS Capital and Costa Mesa-based SAIL Venture Partners.

Next up for the company: working with the Department of Defense. FlexEnergy has identified hundreds of sites run by the U.S. Army that could use generators and is installing a system at Ft. Benning in Georgia in February, said Chief Executive Joe Perry.

Left: Stephen Johnson, former head of the EPA and Flex Board Member
Right: Joe Perry, FlexEnergy CEO

Flex Board of Directors at the Flex Powerstation

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- FlexEnergy featured in the Los Angeles Times (June 2010)
- Xtreme Power featured in the New York Times (July 2010)
- Alan Sellers Joins Planning Committee of Southern California Sustainability Conference (July 2010)

SN Tech Opens U.S. Manufacturing Facility

SNTech
SAVING NATURAL RESOURCES

SN Tech is a SAIL I & II portfolio company

SN Tech Inc., a leading manufacturer of electronically commutated electric motors, announced the company has formed a partnership with ElectroCraft Arkansas Inc. to produce a "green" motor at ElectroCraft's Searcy manufacturing facility. The companies will hire about 55 new employees combined, taking total employment in Searcy from 70 employees to about 125.

The initial products to be produced at ElectroCraft will be ¼- to one-horsepower motors for the residential market which will be available this fall. The company plans to roll out two- to five-horsepower motors for the commercial market in late 2011 or early 2012.

The technology that creates these motors was developed in South Korea, where SN Tech has a manufacturing facility. It's SN Tech's hope that all products for the U.S. market will eventually be produced in Searcy.

"The electronically commutated motor (ECM) has a level of efficiency that exceeds 90 percent, costs less to produce, is more durable and has successfully penetrated the market," said SN Tech CEO Shannon Bard. "The combination of SN Tech's patented motor technology and ElectroCraft's 40-plus years of motor manufacturing experience

will yield the most efficient EC motor ever produced on U.S. soil. In addition, the partnership represents the only domestically manufactured EC motor on the market."

More than 800 million electric motors are used in the U.S. each year. Sixty percent of all electricity generated in the United States is used by these electric motors. However, less than 10 percent of electric motors installed in residential heating and air conditioning systems (HVACR) are energy efficient. SN Tech and ElectroCraft estimate that more than 62 million residential HVAC motors are 8 years or older and will soon need to be replaced.

Arkansas Governor Mike Beebe said. "These businesses are succeeding and expanding because their 'green' products are practical, efficient, and often cheaper for consumers. In Arkansas, we will continue increasing our presence in

these industries for the betterment of our economy and our environment."

Water Scarcity: Our Thirsty World

There is no substitute for water. We use it to grow food, keep clean, stay healthy, and produce energy, computers, clothing, and virtually every manufactured good on the planet. The average American diet alone demands an estimated 1,320 gallons of water a day, once you account for the irrigation of thirsty crops and the huge water costs associated with raising animals and processing meat.

The increase in population and the growing demand for food, energy, and material goods has drained aquifers, dried up rivers, and degraded ecosystems. An increased demand for water has contributed to scarcity in some regions and in some cases a massive extinction of fish and other freshwater species.

The global challenge is how to meet the water demands of an estimated 8 billion people by 2025 while protecting the ecosystems that support life on the planet.

In a Special issue titled "Water, our thirsty world," National Geographic explored the looming and growing issues of water demand. But why? The majority of the world is covered by water. The problem is that over 97% of water is salty. Of the remaining freshwater, 2% is locked in snow and ice leaving less than 1% available for the population. Further, by 2025, 1.8 billion people will live in regions that are water scarce.

While the amount of freshwater on the planet has remained fairly constant over time—continually recycled through the atmosphere and back into our cups—the population has exploded. This means that every year competition for a clean, copious supply of water for drinking, cooking, bathing, and sustaining life intensifies.

Xtreme Power: Hawaii's Energy Grid Solution

Xtreme is a SAIL I & II portfolio company

The rapid growth of wind farms, whose output is hard to schedule reliably or even predict, has the nation's electricity providers scrambling to develop energy storage to ensure stability and improve profits.

As wind installations multiply, companies have found themselves dumping energy late at night, adjusting the blades so they do not catch the wind, because there is no demand for the power, while grid operators, accustomed to meeting demand by adjusting supplies, are now struggling to maintain stability as supplies fluctuate.

Hawaii is on the cutting edge of a potential solution, where state officials want 70 percent of energy needs to be met by renewable sources like the wind, sun or biomass by 2030. It is impossible for generators on the islands to export surpluses to neighboring companies or to import power when the wind towers are becalmed.

On Maui, for example, wind generating capacity over all will soon be equal to one fourth of the island's peak demand, but peak wind and peak demand times do not coincide, raising questions about how Hawaii can reach its 70 percent goal. For now, the best option seems to be storage batteries.

However if the energy source is intermittent, "you can't do that without batteries of some sort," said Peter Rosegg, a spokesman for the Hawaiian Electric Company (HEC).

HEC has agreed to buy electricity from a wind farm on the northern shore of Oahu where the Boston-based power company First Wind has just broken ground.

The 30-megawatt wind farm, which will have enough power to run about 30 Super Wal-Marts, will have Xtreme Power of Austin, Tex., install a 15-megawatt battery.

Xtreme CEO, Carlos Coe estimated the battery system's round-trip efficiency at over 90 percent of the electricity the batteries could deliver per megawatt-hour stored in them. If that figure is borne out, it would be a significant advance from the largest form of energy storage now in general use, pumped hydropower, whose efficiency is put at 70 to 85 percent.

Dow Kokam Powers World's Quickest Street Legal Car

Dow Kokam is a SAIL I & II portfolio company

A 1972 Datsun has become the world's quickest street legal car after being converted to an electric vehicle using Dow Kokam lithium polymer batteries to beat its drag race competitor and earn its speed title.

The White Zombie -- a converted 1972 electric Datsun 1200 -- set a new world record for a street legal electric car by running a 1/4 mile drag race in 10.4 seconds at a top speed of 117.21 mph, according to a report on Plugincars.com.

According to the site, John Wayland and his team at Plasma Boy Racing set the record with the car's 22.7 kWh battery pack while beating a Nissan Skyline GTR with a combustion-engine.

Wayland, who is the owner and principal architect of the White Zombie, estimates that the car did 0-60 mph in about 1.8 seconds during the run. Even the world's most expensive, and quickest, street legal, combustion-engined supercar, the Bugatti Veyron, can only squeeze out a 0-60 time of 2.5 seconds. "That's why I love this little whipper snapper of a car... in one fell swoop it gives the ultra-luxury, insanely rich car crowd something to think about and quiets those who might say that plug-ins are toy cars that will never be able to compete against combustion engines" said Wayland.

Wayland said in a blog post that in addition to being fast, the car has a 90-120 mile range depending on if it is driven in the city or on the highway.

The day after busting out a 10.4 second 1/4 mile, Wayland took the Zombie for a 48 mile trip and only used up about half of its 22.7 kWh battery pack.

***SAIL* Venture Partners** (www.sailvc.com) is a leading cleantech venture capital firm with a global vision of technologies, markets and opportunities. We invest in cleantech companies with proven technologies, visionary leadership and exciting growth potential. We have invested in a number of today's leading cleantech companies including: The Cleantech Group, Xtreme Power, Ice Energy, Dow Kokam, Enerpulse, Activeion, SNTech, FlexEnergy, Paragon Airheater Technologies, M2 Renewables and WaterHealth International. SAIL has offices in California, New York, and Washington D.C. and a global network of investors and advisors.

SAIL Venture Partners
600 Anton Blvd
Suite 1010
Costa Mesa, CA 92626

Inquiries and Sources:
Peter Polydor
ppolydor@sailvc.com
www.sailvc.com

Sources:

- PRNewswire
- National Post
- Cleantech Group
- Reuters
- Marketwire
- CNBC
- Forbes
- New York Times
- Greentech Media
- Bloomberg
- Bloomberg Businessweek

Speaking of *SAIL*

Sept 28 - Chicago

Hank Habicht will be a keynote speaker at the 2010 Water Innovations Alliance Conference. The conference focus is to educate attendees on new water technologies, innovations and prospects.

Sept 27 - Irvine, CA

Dave Jones will be a panelist at the Cleantech OC 2010 Conference. His panel will focus on the state of private investment in cleantech.

Sept 21 - San Diego

Walter Schindler will be a panelist at the 8th Annual IMN Alternative Investment Summit. His panel will focus on the venture capital sector and the opportunity to invest in cleantech.

July 13 - Irvine, CA

Mike Hammons was a VIP speaker at the Net Impact Cleantech Professionals event. Net impact is a non-profit professionals network dedicated to socially and environmentally responsible business.

June 21-25 - Anaheim, CA

Hank Habicht and Walter Schindler were panelists at the 2010 Clean technology Conference by TechConnect. Hank focused on the global water market and the Energy-Water Nexus.

Walter spoke on two panels, first discussing venture capital and cleantech and the second one on energy storage and the new smart grid.