

Venture Firms Chase Battery Makers

By JONATHAN SHIEBER

November 29, 2006

Venture capitalists are charging the market for new battery technologies.

Innovations in chemistry and nanotechnology are creating an opportunity for new technologies to come to market that are safer and more efficient than existing offerings.

"Batteries are the new hot topic for investors," said Sunil Paul, an entrepreneur turned investor who is building a portfolio of clean-technology companies with his own capital. "People have realized that a major advance in energy storage would be a game-changer."

The world-wide market for energy-storage devices is projected to rise at a 7% annual rate through 2010 to \$74 billion from around \$48 billion in 2005, according to a report from research firm Global Information Inc.

New companies developing energy storage technologies like Deeya Energy Inc., Firefly Energy Inc., Gridpoint Inc., Infinite Power Solutions Inc. and Li*On Cells, have raised more than \$75 million in financing from investors since July.

These companies are looking to bring a variety of new devices to market from large-scale, utility-focused energy-storage devices to microbatteries to power things like medical implants and smart cards and everything in between.

Advancements in battery technology mean improving the lifetime of a battery and either its power density, a ratio of the amount of power delivered compared with a battery's weight, or energy density, a ratio of the amount of energy stored compared to battery weight.

After spending time and money on newer battery chemistries like lithium ion, new investment dollars are increasingly finding their way to companies working with utility-scale batteries and new lead-acid technologies.

"Lead acid has been engineered to only about 20% to 40% of its potential," said Firefly Energy Chief Executive Ed Williams. "It has been the least-engineered chemistry of the past 20 to 40 years in terms of the maximum potential of its chemistry."

Two start-ups targeting a utility-scale market that recently raised venture dollars are Deeya, of Fremont, Calif., and Gridpoint, of Washington, D.C. Deeya is looking to build its market in the developing world, where the energy infrastructure is less reliable, while Gridpoint sees its opportunity closer to home, providing utilities with an additional source of power during peak demand hours.

Founded in a garage in 2002 by Chief Technology Officer Saroj Sahu, Deeya Energy raised \$7.5 million in its first round of venture capital in September. It is still developing its technology and is using its capital to build its pilot batteries.

Deeya wants to bring to market an energy-storage device that would work in tandem with distributed power generation technologies like wind turbines or solar arrays to provide uninterrupted power supplies, Mr. Sahu said.

By contrast, Gridpoint has its sights set on the U.S. domestic market. Founded in 2003, Gridpoint initially marketed its valve-regulated lead-acid battery and demand-response technologies to the consumer market. Now, the company has \$21 million in fresh cash from an investment group including new investor [Goldman Sachs Group](#) Inc. and a partnership with Goldman Sachs power generation subsidiary Cogentrix Energy Inc.

With its new capital, Gridpoint is looking to take its energy-storage device to utilities as a way for them to access more energy during peak hours. The company's big battery systems draw power from the grid during off-peak hours and store it. Then, using its demand-response technology, which monitors and manages energy usage, utilities can draw that power from distributed storage devices back to the energy grid when demand is higher.

Another start-up working with a lead-acid technology, but targeting a different market, is Firefly Energy, which this month closed a \$10 million Series B round. The Peoria, Ill., spinoff from Caterpillar Inc. has created a new type of lead-acid battery that replaces the typical lead plate with a micro-cellular graphite foam. The foam used in Firefly's batteries doesn't corrode as readily as existing lead-acid batteries, the company said.

Though the lead-acid battery market is filling with competitors, the most hotly contested battery technology remains lithium ion. Those batteries, used in laptops, cellphones, digital cameras, power tools, and thousands of other applications, have become the dominant chemistry for high-technology devices.

Li*On Cells, a Menlo Park, Calif., developer of a new lithium ion technology, has raised capital from Battery Ventures and Nth Power to take on the industry leaders. A123 Systems Inc., Watertown, Mass., meanwhile, has already raised more than \$60 million from an investment group including one of Silicon Valley's premier names, Sequoia Capital. A123 has a significant advantage over Li*On Cells in that its products are already on the market.

"Our company is now in the mass-production stages," said Ric Fulop, founder and vice president of marketing and development for A123. "We've been making millions of batteries since early this year."

Furthermore, A123 has received a boost in the market as traditional distributors of lithium-ion batteries, like [Sony Corp.](#), trip over the problem of faulty batteries. "That's a key differentiator of our technology over the conventional lithium ion battery," Mr. Fulop said. "Our battery is noncombustible and won't cause thermal runaway."

As A123 and Li*On Cells prepare to duke it out for primacy in consumer electronics, another start-up, Infinite Power Solutions, has launched its own battery technology for a smaller problem.

The Golden, Colo., company has developed a rechargeable microbattery using thin-film deposition technology. The battery can be used in anything from radio-frequency identification tags and smart cards to medical implants to smart munitions.

In August, Infinite Power raised nearly \$35 million from an investment group including Polaris Venture Partners and [Core Capital Partners](#) to build a manufacturing facility for its lithium-based thin-film batteries.