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THE \$41 BILLION ENERGY STORAGE MARKET: THE NEXT BIG ENERGY INVESTMENT

Lux Research report predicts growth to \$64 billion in 2012, but entrants struggle with a complex market

New York, NY – May 29, 2008 – From the mobile phones carried by 3.3 billion people to the half a million hybrid electric vehicles sold last year, the world runs on energy storage technologies – the batteries, capacitors, and other devices that play a hidden, vital role in the energy economy. Energy storage is poised as the next big energy investment field: Venture capital in the field grew 74% to \$709 million in 2007. But a complex market with many competing technologies will challenge firms that seek simple routes to success, according to a new report from Lux Research entitled “Alternative Power and Energy Storage State of the Market Q2 2008: Making Sense of the Next Big Thing.”

“Energy storage is fragmented because it covers a vast range of technologies – from batteries to flywheels to compressed air systems – that play into multiple market segments,” said Ying Wu, Senior Analyst at Lux Research and principal author of the report. “But the prize for companies that succeed is tremendous: The market will grow by 55% over the next five years.”

To make sense of the energy storage opportunity, Lux Research studied the field from two perspectives – analyzing seven energy storage markets, like “transportation” and “consumer electronics,” on one hand, and five technology variations – from batteries to energy harvesting devices – on the other. The team’s methodology combined expert interviews with exhaustive secondary research and rigorous quantitative modeling. Report highlights include:

- The transportation energy storage market will grow from \$12.9 billion last year to \$19.9 billion in 2012, the greatest growth of all seven markets studied – principally driven by light electric vehicle shipments rising from about 500,000 to nearly three million as new plug-in hybrid and pure electric vehicles emerge. NiMH and Li-ion batteries will take center stage in this market, benefiting companies like Matsushita Electric and LG Chem.
- Fuel cells will return from the dead. Commercial sales will rise from \$92 million in 2007 to \$1.8 billion in 2012, driven almost entirely by new

applications in residential combined heat and power systems and distributed generation deployments – not transportation or consumer electronics. Adoption of both polymer electrolyte membrane fuel cells (PEMFCs) and solid oxide fuel cells (SOFCs) will drive growth for leaders like Ballard Power Systems and Ceramic Fuel Cells.

- Bulk energy storage for utilities – shifting large amounts of energy from excess production times to peak usage times – presents the biggest potential opportunity of all markets studied: If even 10% of installed wind power plants adopted large-scale energy storage, the market would hit \$50 billion. However, utility companies' risk aversion and long planning cycles will sharply limit market size through 2012 to only \$600 million.
- After conquering the consumer electronics market, lithium-ion batteries will make similar inroads in the portable and transportation markets – going from \$6.8 billion in 2007 sales to \$16.9 billion in 2012. Nickel metal hydride and nickel cadmium technologies will be almost completely wiped out in consumer electronics.
- Financing activities have swelled in energy storage: 2007 saw the greatest level of venture capital spending to date and a resurgence of IPOs. Expected IPOs from companies like A123Systems will drive venture capital, M&A, and IPO activity further upward in the next two years.

“The energy storage landscape will change over the next five years as new technologies enter in earnest from 2011 onward,” said Wu. “Flywheels will branch out from datacenter backup power to grid frequency regulation; fuel cells will finally achieve scale in stationary applications; and new battery types including zinc-bromide and vanadium redox flow batteries, silver-zinc batteries, and zinc-air rechargeables will stake out valuable niches. Opportunities abound for investors to take a portfolio approach to the market and for corporations to partner with start-ups for market development, system integration, and large-scale manufacturing.”

“Alternative Power and Energy Storage State of the Market Q2 2008: Making Sense of the Next Big Thing” is part of the LR Alternative Power and Energy Storage Intelligence service. Clients receive: 1) State of the Market reports every six months; 2) ongoing technology scouting reports and proprietary data points in the weekly Lux Research Power Journal; and 3) on-demand inquiry with Lux Research analysts. For information on how to become a client, contact John Schwartz at john.schwartz@luxresearchinc.com or (646) 649-9582.

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