

Winter 2010

## EARTHRISE OBSERVATORY

*Commentary on energy & environmental technology industry developments*



### ENERGY & ENVIRONMENT NEWS

#### ***Electric Vehicle Financings:***

“Tesla Files S-1 Registration Statement for Initial Public Offering”

Company press release, January 29, 2010.

“Better Place Secures \$350 Million Series B Round Led by HSBC Group”

Company press release, 24 Jan 2010.

“Secretary Chu Announces Closing of \$465 Million Loan to Tesla Motors”

DOE press release, January 21, 2010.

“Fisker Automotive Secures Access to \$115m for Plug-In Hybrids”

Company press release, January 15, 2010.

“Axion Power Completes \$26 Million Common Stock Offering”

Company press release, December 22, 2009.

“A123 Systems Jolts IPO Market”

MarketWatch, September 24, 2009.

“US Energy Secretary Chu Announces \$528 Million Loan for Advanced Vehicle Technology for Fisker Automotive”

DOE press release, September 22, 2009.

### EARTHRISE OBSERVATION

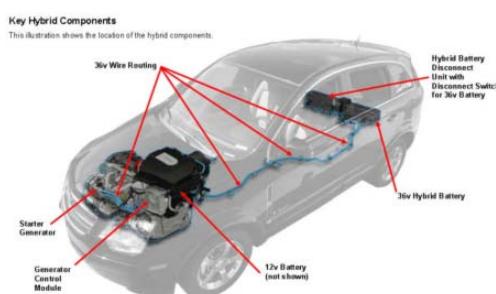
#### ***“When’s Later?” – Timing of Electrification of the Automobile***

Vehicle electrification has become a subject of intense interest to investors, policymakers and automotive industry participants. However, there appear to be widely diverging opinions about the commercialization timetable for various types of electric vehicle configurations.

The recent financings are heavily weighted toward plug-in hybrids and all-electric vehicles requiring robust energy storage systems, utility industry changes and possibly a completely new refueling infrastructure. Alternative electrics are “micro” or “mild” hybrids that offer meaningful emissions and fuel consumption benefits while leveraging the existing fuel network.

A critical linchpin of the PHEV and full EV models is a cheap, reliable and safe lithium-ion battery. However, recent studies from the National Academy of Science and Boston Consulting call into question the prospects for a rapid decline in lithium battery costs.

Earthrise Capital has invested in an advanced lead-acid battery company, Axion Power, which will benefit from the growth we expect in the mild and micro hybrid market and also has applications in stationary power storage markets. (See Earthrise Capital announcement below.)



Source: Axion Power

**ENERGY & ENVIRONMENT NEWS*****Wind Market Growth Dynamics:******China doubles installed capacity for fifth year running – Global markets up 31%***

Brussels, 3 February 2010. "The Global Wind Energy Council today announced that the world's wind power capacity grew by 31% in 2009, adding 37.5 GW to bring total installations up to 157.9 GW. A third of these additions were made in China, which experienced yet another year of over 100% growth.

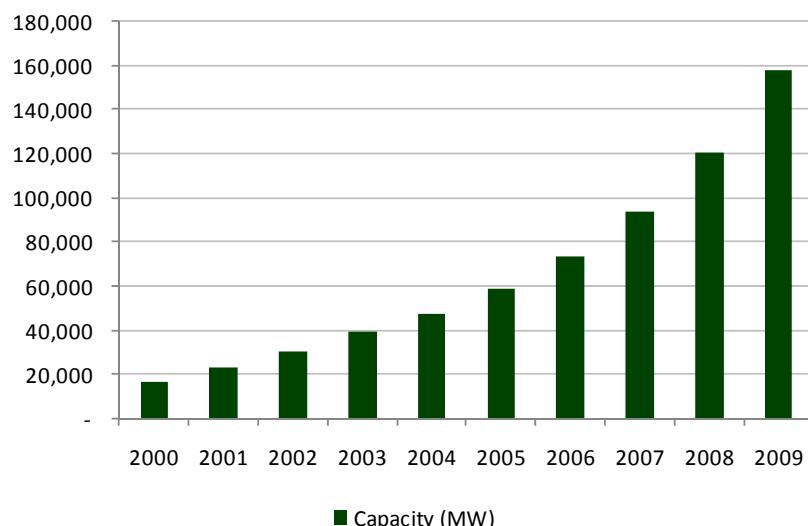
'The continued rapid growth of wind power despite the financial crisis and economic downturn is testament to the inherent attractiveness of the technology, which is clean, reliable and quick to install. Wind power has become the power technology of choice [in] a growing number of countries around the world,' said Steve Sawyer, GWEC's Secretary General. .....Wind energy is now an important player in the world's energy markets. The global wind market for turbine installations in 2009 was worth about 45 bn EUR or 63 bn US\$."

Source: Global Wind Energy Council press release.

**EARTHRISE OBSERVATION*****Wind Power Venture Opportunities:***

U.S installations of wind power in 2009 at 9.9 GW greatly exceeded estimates and almost equaled China's estimated additions for last year, which are driven by aggressive national policies. Innovators in the developed countries will continue to dominate the technology advances, while Asia excels in lowering manufacturing costs and in rapid growth of installed capacity. The need for ongoing subsidies is a concern to us, especially in the current economic climate. The intermittent nature of wind and solar is a limiting factor in their use, absent cheap storage, but their market penetration is still very low in most areas.

In addition to needed transmission investments, further technological developments are required to reduce the cost of wind power: improvements in generator and power systems to enhance conversion efficiency; advances in turbine blade materials and designs; and more efficient and cost-effective energy storage solutions. (See the announcement below regarding Earthrise Capital Fund's investment in Axion Power.)

**Total Worldwide Wind Energy Capacity, 2000 - 2009**

Source: Global Wind Energy Council

**Earthrise Capital**

45 Rockefeller Plaza, 20<sup>th</sup> Floor 212.757.1007 New York, NY 10111

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*Earthrise Capital press release*

### **Earthrise Capital Fund Completes Investment in Axion Power International, Inc.**

**NEW YORK, NY (December 22, 2009)** Earthrise Capital Fund, LP today announced it has completed an investment in common shares of Axion Power International, Inc., (OTC Bulletin Board: AXPW), a developer of next-generation lead-acid batteries for hybrid electric vehicles, electric grid storage and other applications. Earthrise Capital believes that Axion's batteries have important advantages including better performance than conventional lead-acid and better economics than lithium ion batteries. In an oversubscribed private placement, Axion Power issued 45.7 million common shares at \$0.57 per share for gross proceeds of \$26.1 million. Other investors included Special Situations Funds, Manatuck Hill Partners and Narragansett Strategic Master Fund. Proceeds will be used to add battery electrode production lines and for working capital.

In connection with the transaction, the Company effected the conversion of outstanding preferred shares into common stock, simplifying the capital structure and aligning shareholder interests. The common shares issued in the offering have not been registered under the Securities Act of 1933, as amended. Earthrise Capital anticipates that the shares will become freely tradable within a period of 90 to 120 days.

#### **About Axion Power International, Inc.**

Axion Power International is the industry leader in the field of lead-acid-carbon (PbC) energy storage technologies. PbC batteries use sophisticated carbon electrode assemblies to replace the simple lead-based negative electrodes used by other lead-acid battery manufacturers. The resulting device offers energy storage approaching that of lead acid batteries, coupled with far longer cycle life and power output approaching that of super-capacitors. These low-cost devices recharge rapidly and are more environmentally friendly because they use up to 40 percent less lead than conventional batteries.

Axion believes its PbC battery technology is the only class of advanced battery that can be assembled on existing lead-acid battery production lines throughout the world without significant changes to production equipment and fabrication processes. The company also believes it will be able to manufacture carbon electrode assemblies in volume at low cost using standard automated production methods that are commonly used in other industries. When its electrode manufacturing methods are fully developed, Axion believes it will be able to sell carbon electrode assemblies as virtual plug-and-play replacements for lead-based negative electrodes used by all other lead-acid battery manufacturers. Axion's future goal, after meeting demand from filling its plant's lead-carbon battery production, is to become the leading supplier of carbon electrode assemblies for the lead-acid battery industry. See [www.axionpower.com](http://www.axionpower.com) for more information.

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**Ann Partlow**

212.757.1007

[apartlow@earthrisecapital.com](mailto:apartlow@earthrisecapital.com)

**Jim LoGerfo**

646.408.5495

[jlogerfo@earthrisecapital.com](mailto:jlogerfo@earthrisecapital.com)

Earthrise Capital Fund is a venture capital fund which invests in resource efficient technologies, including energy efficiency, clean energy, power conversion, energy storage, alternative fuels, and green chemistry.

**Earthrise Capital**

45 Rockefeller Plaza, 20<sup>th</sup> Floor  212.757.1007  New York, NY 10111