

Summary:

For the May 6th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt, U.S. and Asia Indices increased 3.2%, 5.0% and 1.0%, respectively. The S&P 500 and Russell 2000 grew 1.9% and 1.2%, respectively.

Executive Director James Greenberger writes about the central role that reducing advanced battery costs will play in promoting the acceptance of electric vehicles in the United States. Read "***It's the Battery Costs, Stupid!***" in the Executive Director's Notes section of this newsletter below.

Key Highlights:

- **NAATBatt** will hold a quarterly members' meeting at **Cabot Corporation** in Albuquerque, New Mexico on June 16, 2011. The meeting will include a tour of Cabot's micro-powder manufacturing facility, an update on NAATBatt activities and a briefing by the Electrification Coalition on energy legislation pending in Congress that will impact the market for advanced batteries in the United States. The meeting is open to NAATBatt members only. For more information, go to www.naatbatt.org.
- **The Hertz Corporation** will introduce **Tesla Roadsters** into its global electric vehicle (EV) fleet as part of **Hertz Entertainment Services (HES)**. HES provides single-source car and equipment rental solutions to the entertainment and special events industries.
- The **German Government** may offer tax breaks for electric cars (ecars) and commit billions of euros in order to help put a million ecars on the road by 2020. The subsidies could be worth as much as 3.8 billion euros (or \$5.6 billion) over a period between 2012 and 2014.
- The initial results of the world's largest all-electric taxi fleet in the **City of Shenzhen** are likely to be seen as a significant boost for electric vehicles (EVs). The trial is being expanded to 300 vehicles with an additional 250 being delivered to the **International University** in **Shenzhen**.
- **Canada Post** has added the first fully electric small delivery vehicles to its fleet. The company has purchased four **eStar** trucks from **Navistar**.
- **Nanotune** has developed a way to make electrodes that result in ultracapacitors with 5 to 7 times as much storage capacity as conventional ones. The company is manufacturing electrodes with pores that are about 4 to 5 nanometers across which enables it to store more charge.
- The **i-MiEV** will be tested on **Manitoba's** roads and highways in the coming months. This effort is part of the province's plan to put 4,000 EVs on the road by 2015.
- All-electric garbage trucks will begin to sweep the streets of **France** next week. The **Paris** suburb of **Courbevoie** will receive the first all-electric trucks (etrucks).
- **Western Massachusetts Electric** (a division of **Northeast Utilities**) has announced plans to install three charging stations. The equipment has been installed at the company's headquarters in **Springfield** and at the **Courtyard Marriott Hotel** in **Hadley**.
- **Sanyo** has showcased cutting-edge technology for storing and managing solar energy at its **Kasai Green Energy Park**. The company has connected 310,000 cylindrical lithium-ion (li-ion) batteries (each twice the size of an AA battery) to run as one huge battery.

- **Green Frog Zero Emission Transport** is bringing in 38 electric buses (ebuses) for use in the Philippines. The company will rollout 10 ebuses that will travel along **Buendia** from **Edsa** to the **South Luzon Expressway**.

A Few More Details:

The Hertz Corporation will introduce Tesla Roadsters into its global EV fleet as part of Hertz Entertainment Services (HES). HES provides single-source car and equipment rental solutions to the entertainment and special events industries. The services are tailored to fit the needs of large and small productions with competitive pricing and customized monthly billing.

Source: The Hertz Corporation

The German government may offer tax breaks for electric cars (ecars) and commit billions of euros in order to help put a million ecars on the road by 2020. The plan could include the elimination of motor vehicle tax on ecars for their first 10 years of registration. The subsidies could be worth as much as 3.8 billion euros (or \$5.6 billion) over a period between 2012 and 2014. The German Electrical and Electronic Manufacturer's Association (ZVEI) has recommended temporarily lifting Germany's 40% tax on electricity for drivers of electric cars.

Source: Deutsche Welle

The initial results of the world's largest all-electric taxi fleet (vehicle shown in **Exhibit 1**) in the City of Shenzhen are likely to be seen as a significant boost for electric vehicles (EVs) proving that they can withstand the rigors of intensive inner-city activity during the hot summers and cold winters. The trial conducted by BYD involved 50 cars that accumulated 2.77 million kilometers (or over 1.7 million miles) in aggregate -- over 100,000 kilometers (or 62,000 miles) per EV. The trial is being expanded to 300 vehicles with an additional 250 being delivered to the International University in Shenzhen over summer.

Source: The Independent

Exhibit 1: All-Electric Cab Operating in Shenzhen



Source: BYD

Canada Post has added the first fully electric small delivery vehicles (as shown in **Exhibit 2**) to its fleet. The company has purchased four eStar trucks from Navistar. Each EV has a range of 160 kilometers (100 miles) per charge and can be fully recharged within 6 to 8 hours. Canada Post has the largest delivery fleet in Canada -- over 7,300 vehicles traveling more than 79 million kilometers (over 49,000 million miles) annually.

Exhibit 2: The All-Electric eStar Truck

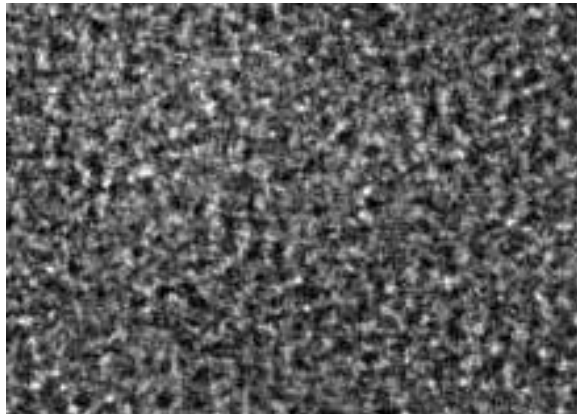


Source: AutoEvolution

Nanotune has developed a way to make electrodes that result in ultracapacitors with 5 to 7 times as much storage capacity as conventional ones. The company is manufacturing electrodes (a shown in **Exhibit 3**) with pores that are about 4 to 5 nanometers across, but can make them smaller leading to higher surface area, which enables it to store more charge. However, the technology is expensive at \$2,400 to \$6,000 per kilowatt-hour. Nanotune is seeking to drive costs to less than \$150 per kilowatt-hour if key materials prices fall as manufacturing is scaled up.

Source: Technology Review

Exhibit 3: A More Porous Structure



Source: Nanotune

The i-MiEV will be tested on Manitoba's roads and highways in the coming months and is part of the province's expanding plan to put 4,000 EVs on the road by 2015. The comparable cost is a litre of gas, which is now at about \$1.20 a litre. The equivalent price in Manitoba in electricity is six to 20 cents a litre
Source: Winnipeg Free Press

All-electric garbage trucks will begin to sweep the streets of France next week. The Paris suburb of Courbevoie will receive the first all-electric trucks (etrucks). All existing trucks will eventually be replaced according to SITA France, a subsidiary of waste management company Suez Environnement. The etrucks were developed by PVI and Semat. The li-ion batteries are made by Dow Kokam and can operate for 8 hours before a recharge is required.

Source: Reuters

Western Massachusetts Electric (a division of Northeast Utilities) has announced plans to install three charging stations. The equipment has been installed at the company's headquarters in Springfield and at the Courtyard Marriott Hotel in Hadley. A third location is planned for Pittsfield.

Source: Associated Press

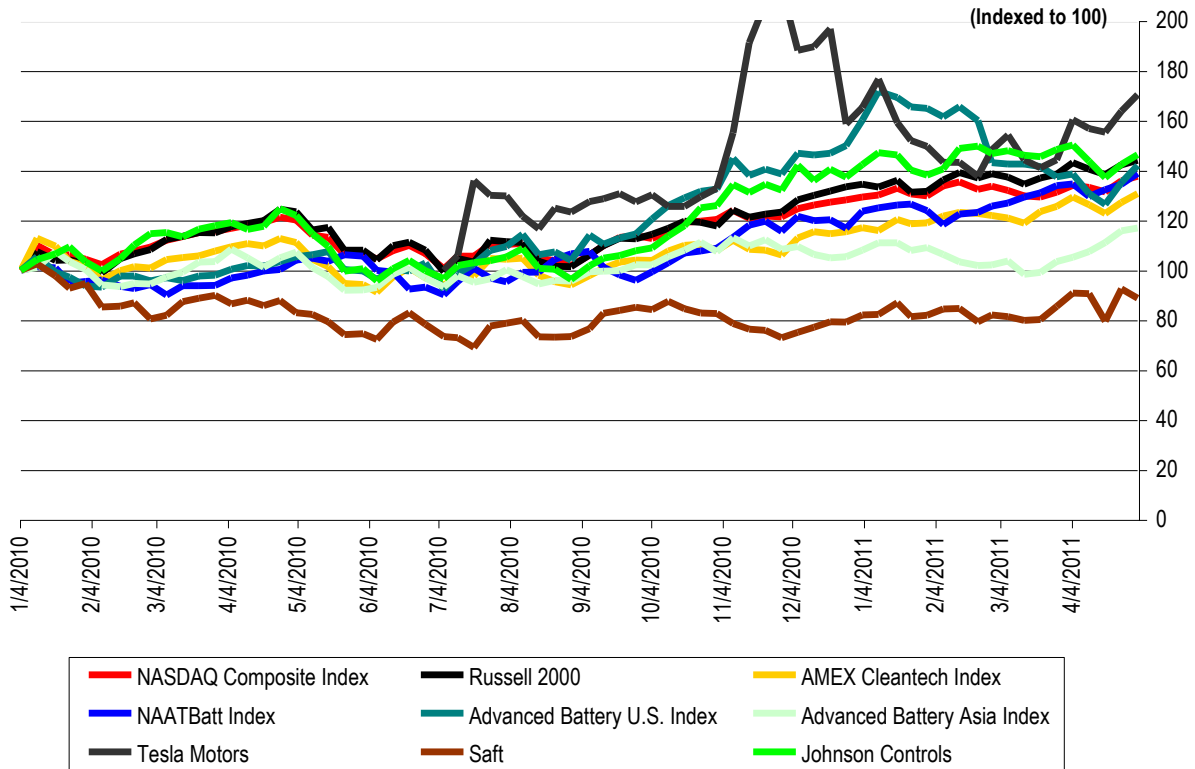
Sanyo has showcased cutting-edge technology for storing and managing solar energy at its Kasai Green Energy Park. The company has connected 310,000 cylindrical lithium-ion (li-ion) batteries (each twice the size of an AA battery) to run as one huge battery. It has a 1.5 megawatt (MW) storage capacity -- equivalent to the energy consumption of 150 homes for a day. The system is charged by MW of Sanyo HIT photovoltaic solar panels, which cover the sides and roofs of the entire plant. There are also charging stations for Sanyo electric bikes and cellphones as well as a hybrid car charge station. The plant's Panasonic-developed LED lights also draw from the park. Sanyo says the park will reduce CO2 emissions by 2,480 tons per year and plans to incorporate the storage system as backup for the entire plant.

Source: The Star Phoenix

Green Frog Zero Emission Transport is bringing in 38 electric buses (ebuses) for use in the Philippines. The company will rollout 10 ebuses that will travel along Buendia from Edsa to the South Luzon Expressway. The project is being jointly undertaken with Makati City. If successful, the company would operate 3,000 electric buses within a seven-year period. Emissions from the transport sector accounts for 30% of all pollution in the country and about 80% of air pollution in Metro Manila.

Source: Philippine Daily Inquirer

**Exhibit 4: Indices Performance
(From January 4, 2010)**

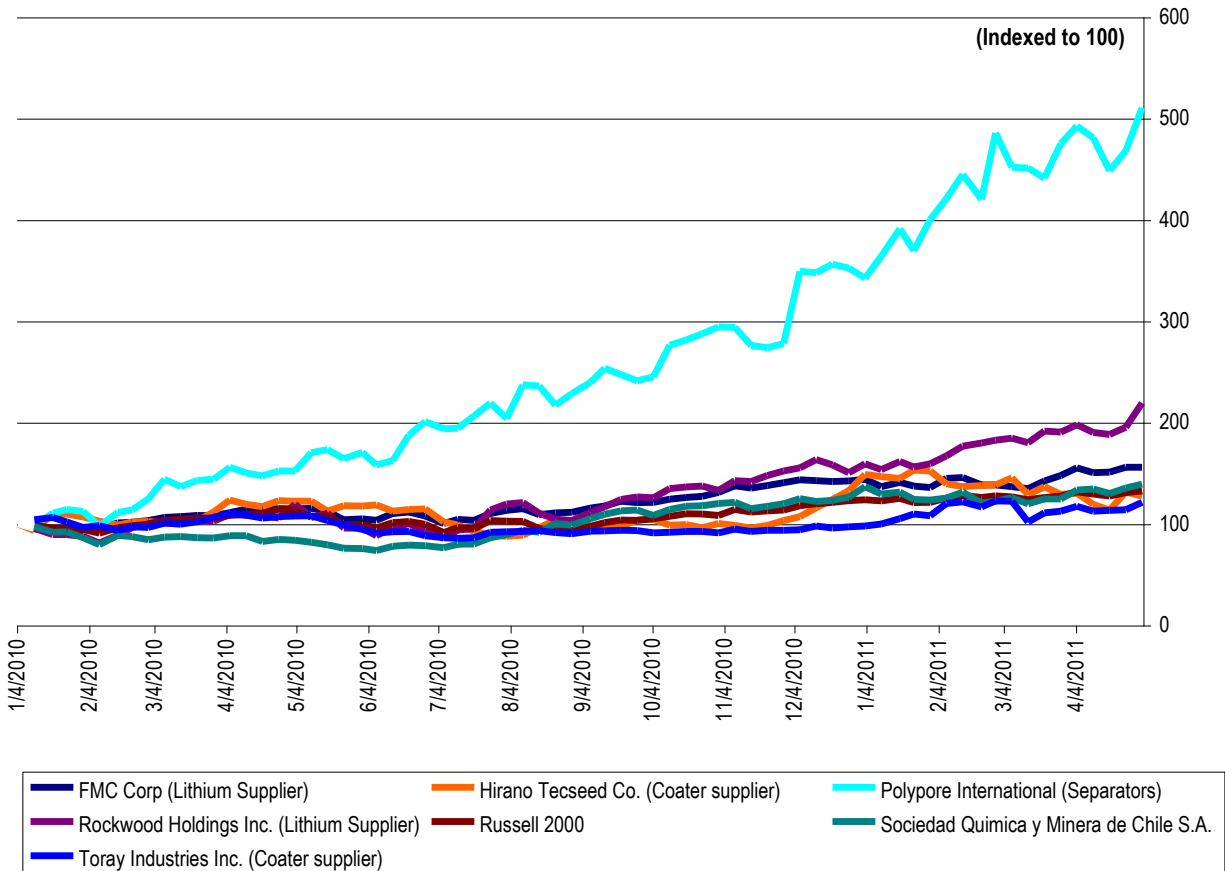


Index	Close on 5/2/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	12,807.4	12,885.9	99.4%	16.3%	9.7%	2.6%
S&P 500	1,361.2	1,370.6	99.3%	14.5%	7.0%	1.9%
NASDAQ	2,864.1	2,887.8	99.2%	15.8%	6.4%	1.4%
Russell 2000	854.8	868.6	98.4%	18.8%	7.0%	1.2%
AMEX Cleantech Index	1,281.9	1,292.4	99.2%	18.8%	11.6%	2.7%

Source: Bloomberg and ThomsonOne

Note: The select NAATBatt Index is a market-value-weighted average and includes ALTI, BASF, COP, ENS and XIDE. The Advanced Battery U.S. Index is a market-value-weighted average and includes HEV, MGA, MXWL, UQM and VLNC. The Advanced Battery China Index is a market-value-weighted average and includes BYD, CBAK, GS Yuasa, LG Chem and Panasonic.

**Exhibit 5: Supplier Performance
(From January 4, 2010)**



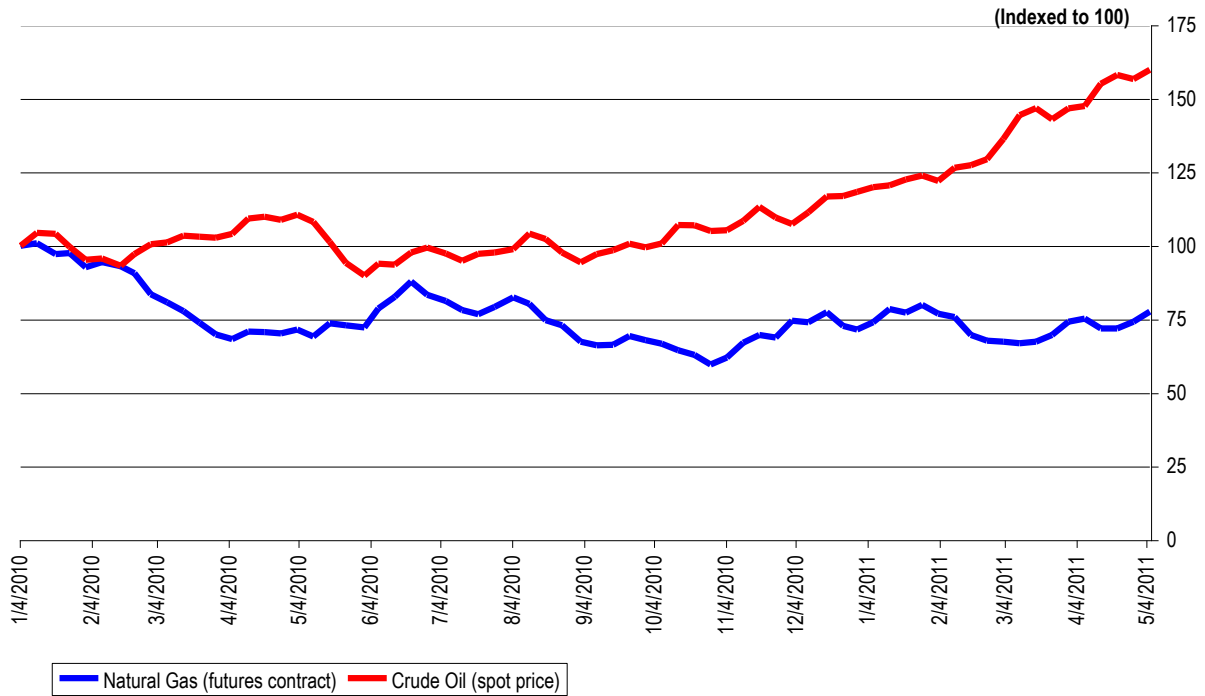
Source: Bloomberg

Exhibit 6: Commodity Prices

Commodity	Price on 5/2/2011	Price on 4/26/2011	Price on 4/1/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	9,240	9,455	9,335	(2.3%)	(1.0%)
LME Lead (cash, \$ per tonne)	2,540	2,582	2,730	(1.6%)	(7.0%)
LME Nickel (cash, \$ per tonne)	26,405	26,230	25,550	0.7%	3.3%

Source: LME

**Exhibit 7: Natural Gas and Crude Oil
(From January 4, 2010)**



Source: EIA

Executive Director's Notes



IT'S THE BATTERY COSTS, STUPID

Earlier this week, USA Today reported that during the first quarter of 2011, four-cylinder cars accounted for nearly half (46.5 percent to be exact) of all new car sales. This represents almost a five percent jump over the same period last year. Highlighting the same trend, four-cylinder models have accounted for 46 percent of all Chevrolet sales this year, up from a mere 23 percent in 2007. The trend has caused J.D. Power to raise its four-cylinder sales prediction for 2012 from 48 percent to 51 percent.

The lesson in all of this is that the American automobile consumer is highly sensitive to the cost of fueling his or her vehicle. He or she is apparently willing to sacrifice performance and utility in order to gain meaningful cost savings.

This is good news for electric vehicles. While range, refueling and new technology anxiety are real issues, it is highly likely that for most consumers the decision to buy an electric vehicle will largely be a price-based decision.

The recent run up of gas prices certainly makes electric vehicles potentially more attractive to consumers. But counting on high gas prices alone to promote electrification is not a good bet. Consumers have many options to reduce gas expense—buying fuel-efficient four cylinder cars being an obvious and inexpensive one. To capture the automobile consumer and break the stranglehold of petroleum on the U.S. economy, the price of electric vehicles must be brought sharply down. There is only one way to do that: By reducing the cost of the advanced batteries that power them.

The success or failure of electric vehicles in the United States depends upon one, and only one thing: Reducing the price of advanced automotive batteries, to the point where buying an electric vehicle becomes a smart economic decision for consumers.

There is no secret as to what it will take to reduce battery costs: Higher production volumes of advanced batteries, new technologies that will increase battery power densities, and new ownership models for batteries, which will allow consumers to capture the residual value of their PEV battery. This is what is necessary to make vehicle electrification in the United States a reality. Everything else is a side show.

What the four-cylinder sales numbers seem to predict is that if we can reduce the cost of electric vehicles, the consumers will come. Reducing those costs must become the primary focus of our industry and, more importantly, must become the primary focus of our energy policy makers. To borrow a line from James Carville: It's the battery costs, stupid.

A handwritten signature in black ink, appearing to read "James J. Greenberger".

James J. Greenberger
Executive Director

May 5, 2011



NAATBatt Membership Applications for 2011

2011 Membership Applications and Dues Structure

NAATBatt is accepting applications for membership for the 2011 calendar year. Membership dues for 2011 are \$10,000 for Corporate Members, \$10,000 for OEM Members, \$10,000 for Utility Members, \$5,000 for Associate Members, \$1,000 for Individual Members, and \$500 for Non-Profit/Government Members. Please click on <http://naatbatt.org/membership-inquiry/> and indicate that you are interested in a 2011 membership.

Why Join NAATBatt?

NAATBatt's mission is to grow the market for advanced electrochemical energy storage technology in North America. NAATBatt provides regular educational programming on topics of interest to the advanced battery community, a weekly newsletter chronicling developments in the North American advanced battery market, networking opportunities for industry participants and their customers, including our recently concluded conference on PEV's and the grid, and public policy initiatives, such as the recent NAATBatt-sponsored meeting with Chairman Jon Wellinghoff of FERC and production of written comments to FERC in support of distributed energy storage technology.

NAATBatt recently concluded the highly successful meeting and conference entitled "The Impact of PEV's on T&D Systems: Challenges and Solutions", in Louisville, Kentucky. The conference was the largest cross-industry event to date focused on the impact of plug-in electric vehicles on the grid. The conference outlined the improvements and upgrades that utilities must make to the grid in order for it to accommodate mass-market electric vehicles. The conference emphasized the critical role that grid-connected energy storage can play in promoting vehicle electrification in the United States. Emphasizing the necessary relationship between grid-connected storage and electric vehicles is one of NAATBatt's primary missions.

NAATBatt is a not-for-profit trade association qualified under Section 501(c)(6) of the Internal Revenue Code that is working for the benefit of the entire industry. **Every dollar spent on NAATBatt memberships and programs goes to recouping program costs and to supporting activities intended to benefit the entire advanced battery industry.** At a time when it seems that the only people making money on advanced lithium-ion technology are professional conference organizers, the advanced battery industry should take control of its own market and its own future. NAATBatt exists to market for the industry, not to the industry. But NAATBatt needs your support to do it. Please join us.

North American Industry Announcements and Calendar

**NEW
EVENT!!**

NAATBatt Quarterly Members Meeting and Networking Reception: On **June 16, 2011**, NAATBatt will kick off what we hope to become a series of quarterly meetings at the facilities of our members around the county. The first such meeting will be held at the offices of **Cabot Corporation** in **Albuquerque, New Mexico**. Members will have an opportunity to network with their colleagues from around the industry, to take a tour of Cabot's micro-powders manufacturing facility, and to be briefed about developments at NAATBatt and on Capitol Hill this year that will have a direct impact on the U.S. advanced battery market. The meeting will include a group dinner at one of the top New Mexican restaurants in Albuquerque and is open to all NAATBatt members at no cost. Go to www.naatbatt.org for more information about the quarterly meeting and to register. We hope to see you in Albuquerque.

**SAVE THE
DATE**

NAATBatt 2011 Annual Meeting and Conference: NAATBatt has announced that its 2011 Annual Meeting and Conference will be held on **September 7-9, 2011** in Louisville, Kentucky. The annual meeting will feature a Battery Industry-Academic Summit, featuring presentations by the top university battery programs in the United States and a 5-Year Market and Technology Forecast for Advanced Batteries in North America. More information about the 2011 conference will be posted soon on the NAATBatt Web site at: www.naatbatt.org. Please save the date!

**NEW
MATERIALS
POSTED**

Presentations and Materials from the Workshop on Distributed Energy Storage Posted: Presentation materials, handbooks, attendee lists and working group discussion summaries from the recently concluded April 21 DOE/NAATBatt Workshop on Issues in Distributed Energy Storage have been posted on the NAATBatt Web site at: www.naatbatt.org. The materials are available for review to all Workshop registrants and to all NAATBatt members. If you have lost or never received your password to access these materials, please contact Jim Greenberger at jgreenberger@naatbatt.org.

Speaker Presentations from the NAATBatt 2010 Annual Meeting and Conference are Now Available! NAATBatt's 2010 Annual Meeting and Conference entitled "The Impact of PEV's on T&D Systems: Challenges and Solutions" was a great success. More than 40 industry experts presented and the conference on topics relating to how the grid was going to accommodate the new load that will be generated by plug-in electric vehicles. Copies of the speaker presentations are available on a secured portion of the conference Web site. Access to the Web site is free to NAATBatt members and conference attendees. Access to the presentations is now available to all other for the price of \$250. Please contact Jim Greenberger at jgreenberger@naatbatt.org for more information about accessing the presentations.

NAATBatt Membership Information. NAATBatt is taking applications for membership from well qualified industry participants and supporters. Membership in NAATBatt is a great way to keep abreast of developments in advanced technology batteries and to support the growth of a market for products that could change the world. Your support for NAATBatt programs, newsletters, and committees is essential to the success of our organization and our industry.

To inquire about membership, please complete the following inquiry form: <http://naatbatt.org/membership-inquiry/>. NAATBatt will respond with additional information about membership.

- **The Battcon™ International Stationary Battery Conference:** The Battcon™ International Stationary Battery Conference is a three day, noncommercial, technical event for storage battery users from a broad range of industries. The conference will be held from **May 16 to 18, 2011** at the Swan and Dolphin Resort, Orlando, Florida. The conference Web site is: <http://www.battcon.com/>
- **21st Annual ESA Meeting:** The 21st annual meeting of the Electricity Storage Association will be held on **June 6-8, 2011** at the Fairmont Hotel in San Jose, California. Information about the meeting can be found on the meeting Web site at: http://www.electricitystorage.org/ESA/calendar/21st_esa_annual_meeting_-_save_the_date/.
- **4th Symposium on Beyond Lithium-Ion:** Beyond Lithium-Ion IV will be held **June 7-9, 2011**, at Pacific Northwest National Laboratory in Richland, Washington. The goal of the Symposium is to advance understanding on the directions and challenges in present-day vehicle batteries and the future of storage technologies. The meeting is one of a series of Symposia organized by a consortium of IBM Research and U.S. National Laboratories. The meeting website is <http://beyondli-ioniv.labworks.org/>.
- **Storage Week 2011:** Infocast will host Storage Week 2011 in San Diego on **July 11-14, 2011**. The program, now in its third year, will cover a range of storage policies, markets, project applications and technologies involved in the integration of storage onto the grid. NAATBatt is a Supporting Organization of the program and NAATBatt members will be entitled to a 15% discount on admission.
- **Plug-In 2011 Conference and Exhibition:** The Plug-In 2011 Conference and Exhibition will be held on **July 18-21, 2011** in Raleigh, North Carolina. The Conference Web site can be viewed at: <http://www.plugin2011.com/>.
- **NAATBatt 2011 Annual Meeting and Conference: September 7-9, 2011** in Louisville, Kentucky (see note above).
- **Battery Power 2011:** Battery Power 2011 will be held on **September 20-21, 2011** in Nashville, Tennessee. The show will highlight the latest capabilities, design issues, trends and market forecasts in batteries and battery-powered products and systems. The conference Web site can be viewed at: http://www.batterypoweronline.com/bppt-conf11/bp11_index.php.
- **EV Battery Tech USA:** EV Battery Tech USA will be held on **September 21-22, 2011**, in Detroit, Michigan. The program will focus on reducing the cost and improving the performance of EV batteries and will feature representatives from the leading automotive OEM's. The conference Web site may be viewed at: <http://www.ev-battery-tech.com/>.

- **2nd Battery Safety Conference:** Knowledge Foundation will host the 2nd Battery Safety Conference on **November 7-8, 2011** in Boston, Massachusetts. The conference will discuss safety incidents and product recalls regarding lithium-ion batteries. The conference Web site can be accessed at: http://www.knowledgefoundation.com/viewevents.php?event_id=253&act=evt
- **7th Lithium Mobile Power Conference:** Knowledge Foundation will host the 7th Lithium Mobile Power Conference on November 9-10, 2011 in Boston, Massachusetts immediately following the battery safety conference. The conference will provide a general survey of the lithium-ion battery industry. The conference Web site can be accessed at: http://www.knowledgefoundation.com/viewevents.php?event_id=254&act=evt.



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