

Summary:

For the April 29th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt, U.S. and Asia Indices increased 1.7%, 7.0% and 4.2%, respectively. The Russell 2000 and S&P 500 grew 2.8% and 2.3%, respectively.

NAATBatt calls for extending federal investment tax credits to stationary advanced batteries used for distributed energy storage. NAATBatt believes that there is no reason why advanced batteries should be treated less favorably under the federal tax code than fuel cells. Read "**Investment Tax Credits for Stationary Advanced Batteries**" in the Executive Director's Notes section of this newsletter below.

Key Highlights:

- **Panasonic** is shifting more lithium-ion (li-ion) battery production to **China** (from **Japan**) in an effort to reduce production costs and to maintain its market leadership position. The goal is to cut manufacturing costs by 30% while increasing battery output in China to 50% by 2015.
- **A123 Systems** has signed a distribution agreement with electric motorcycle manufacturer **Mavizen**. The exclusive agreement initially covers the **nanophosphate AMP20** prismatic lithium ion (li-ion) cells and could expand to other products lines.
- The **i MiEV** will launch in **Hawaii, California, Oregon** and **Washington** in **November 2011**. Customers in Hawaii will be eligible for a \$4,500 clean energy rebate, reducing the out-of-pocket cost to under \$16,000 after rebates and credits.
- **Toyota Motor** and **WiTricity** have signed a technological collaboration agreement for automotive wireless charging systems. The WiTricity technology uses resonance as opposed to induction.
- **Walgreens** recently installed a **geo-thermal** powered charging station at the **Madison Street** and **Oak Park Avenue** location in **Chicago**. The station was provided by **350Green**, which offers various payment plans for EV owners including \$75 a month for unlimited charges.
- **ESB ecars** announced rollout plans for fast-charge points in service stations across **Ireland**. The first charging points will be operational at service stations in **Monaghan** and **Tipperary**.
- **Mitsubishi and Manitoba**, along with local partners, have announced that they will jointly develop and test an all-electric transit bus with advanced battery and charging technologies. The project will also include **Manitoba Hydro, Red River College** and **New Flyer Industries Canada**.
- **Wheego Electric Cars** has begun deliveries of its **Wheego LiFe** that is powered by **lithium iron phosphate** batteries. The neighborhood EV can reach a speed of 65 MPH and can travel up to 100 miles on a charge.
- **Polaris Industries** announced an agreement to acquire Global Electric Motorcars LLC (**GEM**), a subsidiary of **Chrysler Group LLC**. GEM manufactures low-speed EVs and has sold over 45,000 worldwide.

- **ECotality** announced that **Macy's** has become an EV Project partner. Through the partnership, the company will install **Blink EV Level 2 Commercial Pedestal Charging** stations at Macy's store locations in the **San Diego Metropolitan** area.
- **Luxgen (Taiwan-based)** has unveiled the electric **Neora** concept. The front wheel drive EV is powered a 48 kilowatt-hour (kWh) li-ion system and can be charged to 80% within one hour.
- The **Utilities Telecom Council** trade group reports that electric vehicles will require a 16-fold increase in power usage in the next decade. It predicts electricity demand from plug-ins will grow from 146,000 megawatt-hours in 2010 to 2.6 million kWh by 2020.

A Few More Details:

Panasonic is shifting more lithium-ion (li-ion) battery production to China (from Japan) in an effort to reduce production costs and to maintain its market leadership position. The company is planning to invest 20 billion-30 billion yen (\$244 million-\$366 million) by the end of 2012 to build a new plant in China and to upgrade facilities. The goal is to cut manufacturing costs by 30% while increasing battery output in China to 50% by 2015. Panasonic currently makes 80-90 percent of its li-ion batteries in Japan and the rest in China.

Source: Reuters and Nikkei

A123 Systems has signed a distribution agreement with electric motorcycle manufacturer Mavizen. The exclusive agreement initially covers A123's Nanophosphate AMP20 prismatic lithium ion cells and could expand to other products lines. Mavizen is known as manufacturer of electric motorcycles used in the TTXGP racing series

Source: Examiner

The i MiEV (as shown in **Exhibit 1**) will launch in Hawaii, California, Oregon, and Washington in November 2011. The vehicle will be available nationwide by the end of 2012. The MSRP is \$27,990 for the base ES model (excluding federal and state & local tax credits that could drop the price below \$20,000). Customers in Hawaii will be eligible for a \$4,500 clean energy rebate, reducing the out-of-pocket cost to under \$16,000 after rebates and credits.

Source: CNET

Exhibit 1: The i MiEV



Source: Mitsubishi

Toyota Motor and WiTricity have signed a technological collaboration agreement for automotive wireless charging systems. The WiTricity technology uses resonance as opposed to induction. Resonance allows charging without direct contact, but is more efficient than induction. The magnetic fields of two properly designed devices with closely matched resonant frequencies can couple into a single continuous magnetic field. This allows power to be transferred at high efficiency and at a reasonable distance range for real-world applications.

Source: *Electronics News*

Walgreens recently installed a geo-thermal powered charging station at the Madison Street and Oak Park Avenue location in Chicago. The station was provided by 350Green, which offers various payment plans for EV owners including \$75 a month for unlimited charges. The drug store chain plans to install similar stations at 30 other Chicago-area stores this summer.

Source: *Oak Park News*

ESB ecars yesterday announced rollout plans for fast-charge points in service stations across Ireland. The first charging points will be operational at service stations in Monaghan and Tipperary. Drivers will be able to 'power up' their vehicles to 80% of capacity for €6 (or \$9). The company will be installing 30 fast-charging points by the end of the year, along with 1,500 public charging points and 2,000 in people's homes.

Source: *Irish Independent*

Mitsubishi and Manitoba, along with local partners, have announced that they will jointly develop and test an all-electric transit bus with advanced battery and charging technologies. The project will also include Manitoba Hydro, Red River College and bus manufacturer New Flyer Industries Canada. The project is the first to come out of a memorandum of understanding signed last December between Mitsubishi Heavy Industries and the Manitoba government on a collaborative framework of contributing toward an advanced low-carbon society.

Source: *Autos.ca*

Wheego Electric Cars has begun deliveries of its Wheego LiFe (as shown in **Exhibit 2**) that is powered by lithium iron phosphate batteries. The neighborhood EV can reach a speed of 65 MPH and can travel up to 100 miles on a charge. The car has a retail price of \$32,995 and is equipped with driver and passenger airbags, anti-lock brakes and power windows and locks. Air conditioning is optional.

Source: *WSJ*

Exhibit 2: The Wheego LiFe



Source: Wheego Electric Cars

Polaris Industries announced an agreement to acquire Global Electric Motorcars LLC (GEM), a subsidiary of Chrysler Group LLC. GEM manufactures low-speed EVs (as shown in **Exhibit 3**) and has sold over 45,000 worldwide. The company has developed a B2B expertise within the fleet and government markets.

Source: Vancouver Sun

Exhibit 3: The Low Speed GEM



Source: Gemca

ECOtality announced that Macy's has become an EV Project partner. Through the partnership, the company will install ECOtality's Blink EV Level 2 Commercial Pedestal Charging stations at Macy's store locations in the San Diego Metropolitan area. Macy's will work with ECOtality to pilot the use of Blink EV chargers, and if successful, may expand the project to more locations within The EV Project.

Source: ECOtality

Luxgen (Taiwan-based) has unveiled the electric Neora concept (as shown in **Exhibit 4**). The front wheel drive EV is powered a 48kilowatt-hour (kWh) li-ion system and can be charged to 80% within one hour. The vehicle can travel up to 400km (or 249 miles) on a full charge.

Exhibit 4: The Neora Concept EV



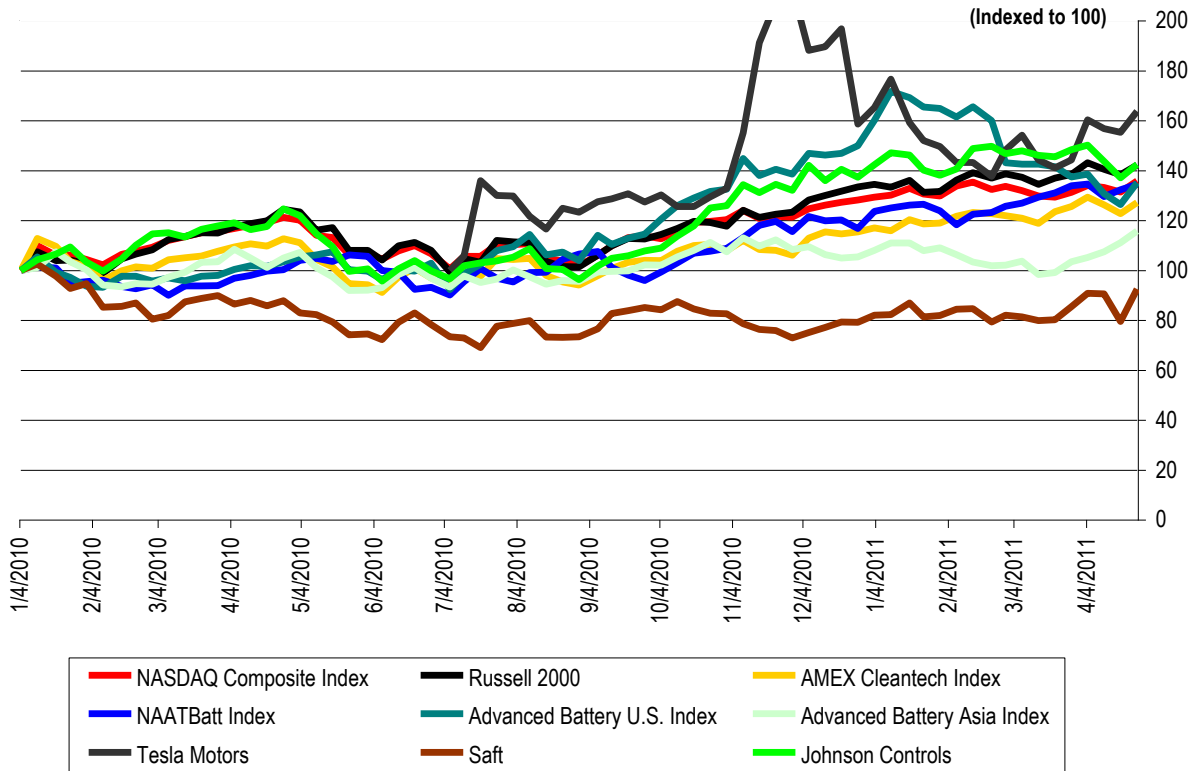
Source: *Independent Online*

The Utilities Telecom Council trade group reports that electric vehicles will require a 16-fold increase in power usage in the next decade. It predicts electricity demand from plug-ins will grow from 146,000 megawatt-hours in 2010 to 2.6 million kWh by 2020. Each plug-in car adds roughly the equivalent of a new house to the local grid's electricity demand, which is something most neighborhood distribution feeders and substations weren't built to supply.

Source: *Earth2Tech and Reuters*



Exhibit 5: Indices Performance
(From January 4, 2010)

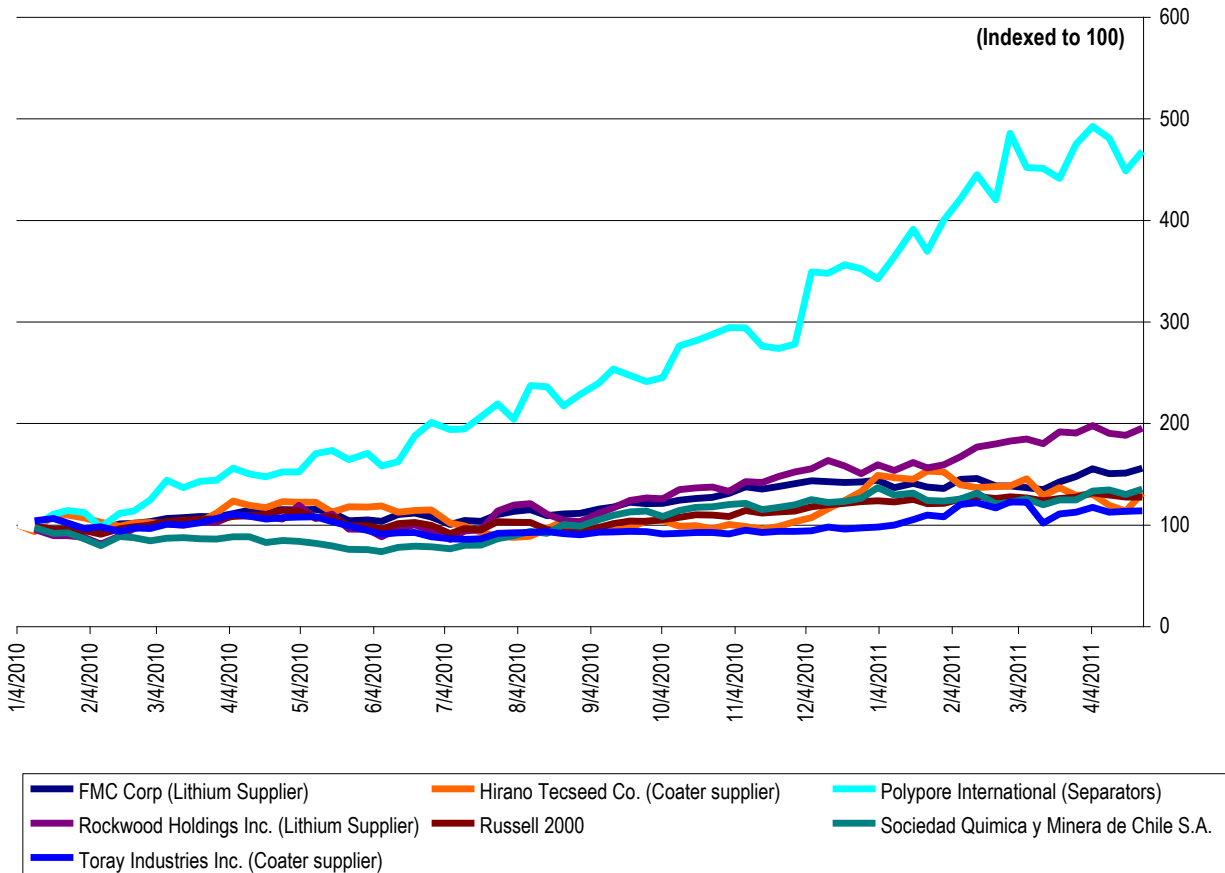


Index	Close on 4/25/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	12,479.9	12,563.9	99.3%	11.4%	6.9%	2.3%
S&P 500	1,335.3	1,344.1	99.3%	9.7%	5.0%	2.3%
NASDAQ	2,825.9	2,840.5	99.5%	0.2%	5.0%	3.3%
Russell 2000	844.2	859.1	98.3%	13.8%	5.7%	2.8%
AMEX Cleantech Index	1,247.8	1,271.0	98.2%	13.0%	8.6%	3.6%

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 6: Supplier Performance
(From January 4, 2010)



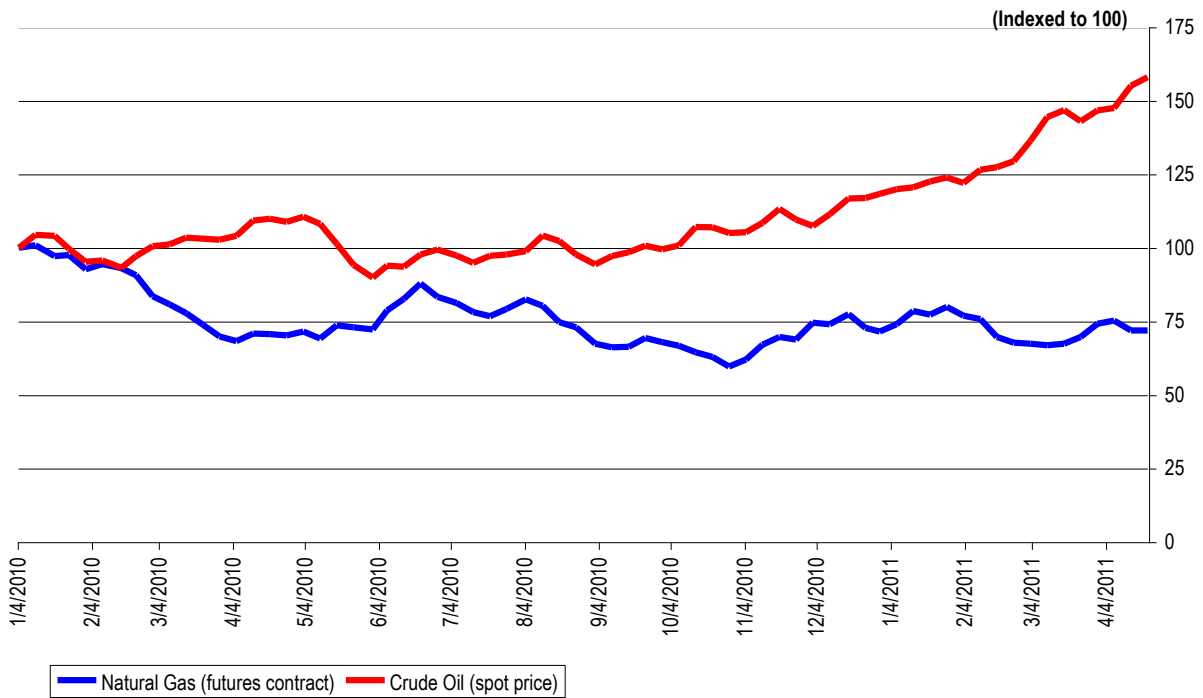
Source: Bloomberg

Exhibit 7: Commodity Prices

Commodity	Price on 4/26/2011	Price on 4/18/2011	Price on 3/25/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	9,455	9,356	9,710	1.1%	(2.6%)
LME Lead (cash, \$ per tonne)	2,582	2,720	2,705	(5.1%)	(4.5%)
LME Nickel (cash, \$ per tonne)	26,230	26,105	27,055	0.5%	(3.0%)

Source: LME

Exhibit 8: Natural Gas and Crude Oil
(From January 4, 2010)



Source: EIA

Executive Director's Notes



INVESTMENT TAX CREDITS FOR STATIONARY BATTERIES

Rising gas prices virtually assure that, whatever the logjam in Congress in 2012, there will be an energy bill. For the past two years the Great Recession has held down petroleum prices. The recession is over and oil prices, driven by diminishing reserves and uncertain supply, have resumed their inevitable long term climb. The American public will demand that their leaders in both political parties take action.

At least part of that action will focus where it should: on building a long-term alternative to petroleum dependence. That alternative is vehicle electrification. Building that alternative means deploying electrification technology today and letting the market develop and perfect it over time, even if market price signals today might not yet call for its immediate deployment.

To deploy electric vehicles today in any meaningful volume, we must sharply reduce the cost of the advanced batteries that power them. Improvements in advanced battery technology will contribute to cost reductions over time. But in the shorter term, government policy must focus on increasing the volume of advanced battery production in order to drive down costs. Increased production volumes will create economies of scale that can bring advanced battery prices down, perhaps sharply.

There is, of course, a market that can provide that volume: the utility market for distributed energy storage systems. Distributed energy storage can enhance power quality, improve system reliability, offer peak shaving services and provide a host of other ancillary services on the grid. As in the automotive sector, the only real obstacle to the deployment of advanced battery systems is the high cost of the batteries themselves. And each of the automotive sector and the utility sector is looking to the other to create the volume that will solve its own problem.

That is no way to run a railroad; Congress must take charge. To date, Congress has recognized the price barrier to storage on the automotive side by providing the tax credits necessary to create an initial market for electric vehicles. Congress has, however, been considerably less attentive on the utility side.

A comparison to fuel cells is instructive. Under Section 48 of the Internal Revenue Code, corporate taxpayers are entitled to a 30% tax credit on investments in qualified fuel cell property. Owners of stationary batteries, which can provide many of the same benefits as fuel cells, get nothing. Under Section 25D of the Internal Revenue Code, individual taxpayers investing in qualified fuel cell property can also receive a 30% tax credit. Individuals investing in stationary advanced batteries get nothing.

It is not comfortable under present budgetary circumstances suggesting that the federal government make additional expenditures or grant new tax credits. But it is important to remember that the high cost of petroleum is itself a tax and Congress must address the total burden on U.S. taxpayers, not just that burden in its individual parts.

If Congress is serious about reducing the burden of high petroleum prices on U.S. taxpayers, it must do what is necessary to build a market for an important petroleum replacement: advanced batteries. Simply extending to stationary advanced batteries that same investment tax credits that Congress has already made available to fuel cells (which are a promising but a much longer term solution to petroleum dependence), would do much to help that market grow.

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

James J. Greenberger
Executive Director

April 29, 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

Save the **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

Date! 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. Visit the NAATBatt Web site for information about the 2010 conference. Please save the date for 2011!

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 James 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.

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- ***The Council for Chemical Research Annual Meeting:*** The Council for Chemical Research will hold its annual meeting on **May 1-3, 2011** in Dearborn, Michigan. The title of the meeting is "Advanced Materials: Driving Transformative Research in Transportation and Automobiles". The conference Web site may be viewed at: <http://www.ccrhq.org/2011-annual-meeting>.
 - ***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://beyondbli-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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