

Summary:

For the May 20th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt, U.S. and Asia Indices declined 3.2%, 5.8% and 5.5%, respectively. The S&P 500 and Russell 2000 declined 1.2% and 2.3%, respectively.

Executive Director James Greenberger writes about the possible dissolution of the JCI-Saft battery joint venture. Read "*Nimble and Opportunistic Wins the Advanced Battery Race*" in the Executive Director's Notes section of this newsletter below.

Key Highlights:

- **Johnson Controls** has taken legal action to dissolve the **Johnson Controls-Saft Advanced Power Solutions** joint venture (JV). The JV is committed to fulfilling its contractual obligations for all lithium-ion (li-ion) supply agreements.
- **BMW Group** has selected **AeroVironment** as the preferred provider of charging equipment, accessories and installation services to support the introduction of the **BMW ActiveE**. The company's EVSE-RS charging station will deliver approximately 25 miles of driving range per hour of charging time.
- **General Motors** is planning to reconfigure its **Detroit-Hamtramck** assembly plant that manufactures the **Chevrolet Volt** to expand production to up to 60,000 (from 16,000) electric vehicles (EVs) annually. Over 1,700 units have been sold through April.
- **Brammo** has won the kickoff to this year's **TTXGP North American Championship** series by clocking the fastest-ever lap speed at **Infineon Raceway** for an electric motorcycle with its **Empulse RR**. The motorcycle powered with an AC induction motor and 12.5-kilowatt-hour li-ion battery pack.
- **East Wind Group** of **Mississauga** has chosen **Windsor (Ontario)** as the manufacturing location to assemble electric buses (ebuses) designed by **BYD**. The "**K9**" ebus is a smaller unit than most municipal buses and is expected to have a range of 250 to 300 kilometres (186 miles) and a top speed of 70 km/h (43 miles per-hour).
- The Metrolina transit company has launched a pilot hybrid in the municipality of **Kfar Saba**. The **Volvo**-made dual diesel-electric engine saves about 30% in fuel consumption and 50% in air pollution compared to most of the country's current buses, but also costs about 1.5x the price.
- **Northern Graphite** has discovered large deposits of graphite at its **Bissett Creek** project in Ontario. The company expects to benefit from the growing demand for li-ion batteries.
- **Ford Motor** is close to launching an entire line of electric cars globally. The company is planning to electrify 25% of its global fleet by 2020.
- The **Powin Corporation** has formed a JV with a **Chinese** manufacturer **Shandong RealForce Enterprises** to market and distribute a line of energy storage products across North America and South Africa. The **RealForce-Powin** JV will work to market a line-up of li-ion batteries, storage batteries, energy storage power plants, solar cells and other related products.

- **Stiles Property Management** is having the first charging station installed in downtown **Fort Lauderdale** at the parking garage of the **AutoNation Building** that it manages. The **Car Charging Group** will provide the Level 2, 240-volt charging station.
- The **City of McKinney** had its first car charging station installed in the parking lot of the **Roy and Helen Hall Memorial Public Library**. The station was manufactured and installed by **AeroVironment**.

A Few More Details:

Johnson Controls has taken legal action to dissolve the Johnson Controls-Saft Advanced Power Solutions joint venture (JV). The company owns a 51% stake with Saft the remainder. The matter arises out of a disagreement between Johnson Controls and Saft about the future direction of the organization. The JV is committed to fulfilling its contractual obligations for all lithium-ion (li-ion) supply agreements.

Source: Johnson Controls-Saft

BMW Group has selected AeroVironment as the preferred provider of charging equipment, accessories and installation services to support the introduction of the all-electric BMW ActiveE. The company's EVSE-RS charging station will deliver approximately 25 miles of driving range per hour of charging time. A complete charge from a fully discharged state will take between four and five hours, delivering the ActiveE's maximum range of 100 miles.

Source: AeroVironment

General Motors is planning to reconfigure its Detroit-Hamtramck Assembly plant that manufactures the Chevrolet Volt to expand production to up to 60,000 (from 16,000) electric vehicles (EVs) annually. The facility will be shut next month. The EV hit the U.S. market late last year, and just over 1,700 have been sold through April.

Source: USA Today

Brammo has won the kickoff to this year's TTXGP North American Championship series by clocking the fastest-ever lap speed at Infineon Raceway for an electric motorcycle with its Empulse RR (as shown in **Exhibit 1**). Brammo's fastest lap time at the Sonoma raceway was 1:55.150, almost two seconds faster than last year's winning electric bike on the 2.5-mile track. The Brammo Empulse RR is powered with an AC induction motor and 12.5-kilowatt-hour lithium ion battery pack.

Exhibit 1: The Empulse RR



Source: Los Angeles Times

East Wind Group of Mississauga has chosen Windsor (Ontario) as the manufacturing location to assemble electric buses (ebuses) designed by BYD. The “K9” ebus is a smaller unit than most municipal buses and is expected to have a range of 250 to 300 kilometres (186 miles) and a top speed of 70 km/h (43 miles per-hour). It takes six hours to fully charge a K9 using conventional 120 or 240-volt chargers but its li-ion batteries can be given a half-charge in only 30 minutes using a proprietary rapid-charging unit designed by BYD.

Source: The Windsor Star

The Metropoline transit company has launched a pilot hybrid bus (as shown in **Exhibit 2**) in the municipality of Kfar Saba. The Volvo-made dual diesel-electric engine saves about 30% in fuel consumption and 50% in air pollution compared to most of the country’s current buses, but also costs about 1.5x the price. The bus runs completely on electric power when it accelerates after stopping at a traffic light, and remains on electric only until speeds of up to around 20 kilometers per hour (12 miles per-hour).

Exhibit 2: Volvo Hybrid Bus



Source: Jerusalem Post

Northern Graphite has discovered large deposits of graphite at its Bissett Creek project in Ontario. The company expects to benefit from the growing demand for li-ion batteries. Future production is likely to be scaled to much higher levels to meet anticipated demand from li-ion batteries and other rapidly growing applications.

Source: Reuters

Ford Motor is close to launching an entire line of electric cars globally. The company is planning to electrify 25% of its global fleet by 2020. Ford expects the movement to replace the gasoline engine with an electric motor and a battery pack is about to start in earnest.

Source: The Globe and Mail

The Powin Corporation has formed a JV with a Chinese manufacturer Shandong RealForce Enterprises to market and distribute a line of energy storage products across North America and South Africa. The RealForce-Powin JV will work to market a line-up of lithium-ion batteries, storage batteries, energy storage power plants, solar cells and other related products. The Shangdong RealForce Enterprises is valued at \$1.2 billion and has more than 2,200 employees, about 200 of which are in research and development.

Source: Portland Business Journal

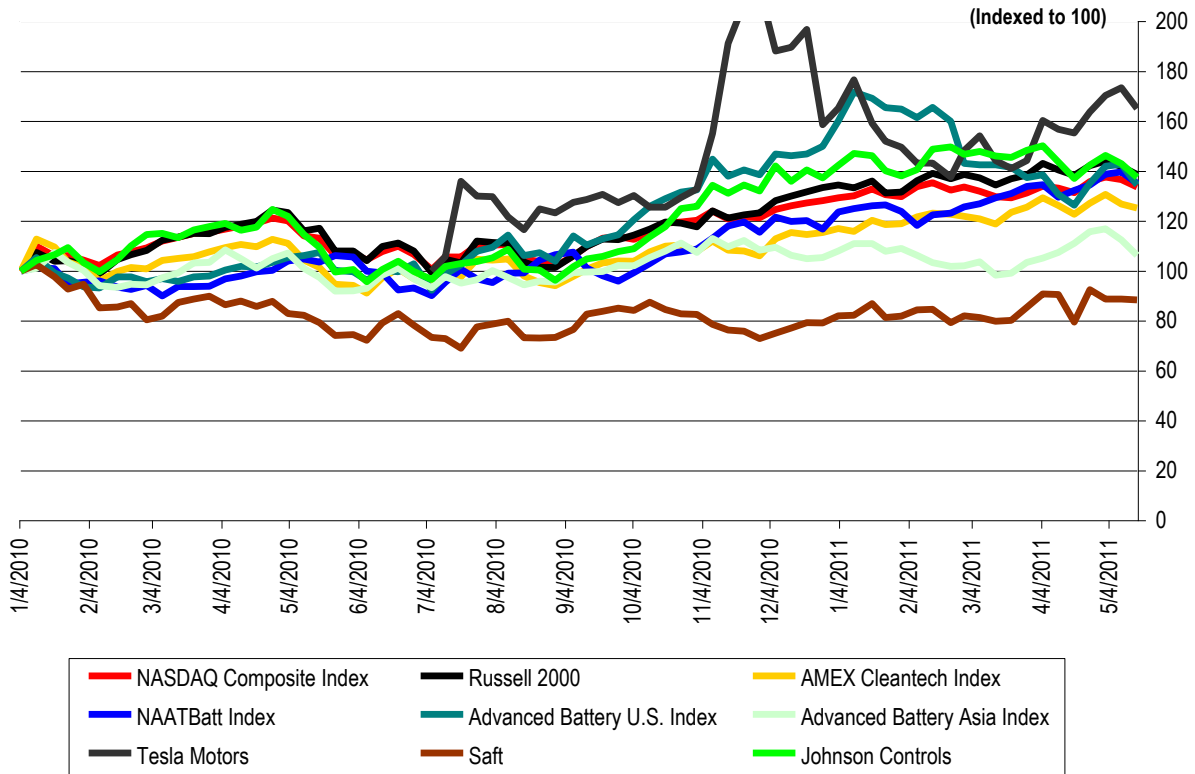
Stiles Property Management is having the first charging station installed in downtown Fort Lauderdale at the parking garage of the AutoNation Building that it manages. The Car Charging Group will provide the Level 2, 240-volt charging station. The cost is \$3 an hour or roughly \$10 for a charge to drive about 100 miles.

Source: Sun-Sentinel

The City of McKinney had its first car charging station installed in the parking lot of the Roy and Helen Hall Memorial Public Library. The station was manufactured and installed by AeroVironment. The station is the first of four coming to the city of McKinney.

Source: Courier Gazette

Exhibit 3: Indices Performance
(From January 4, 2010)

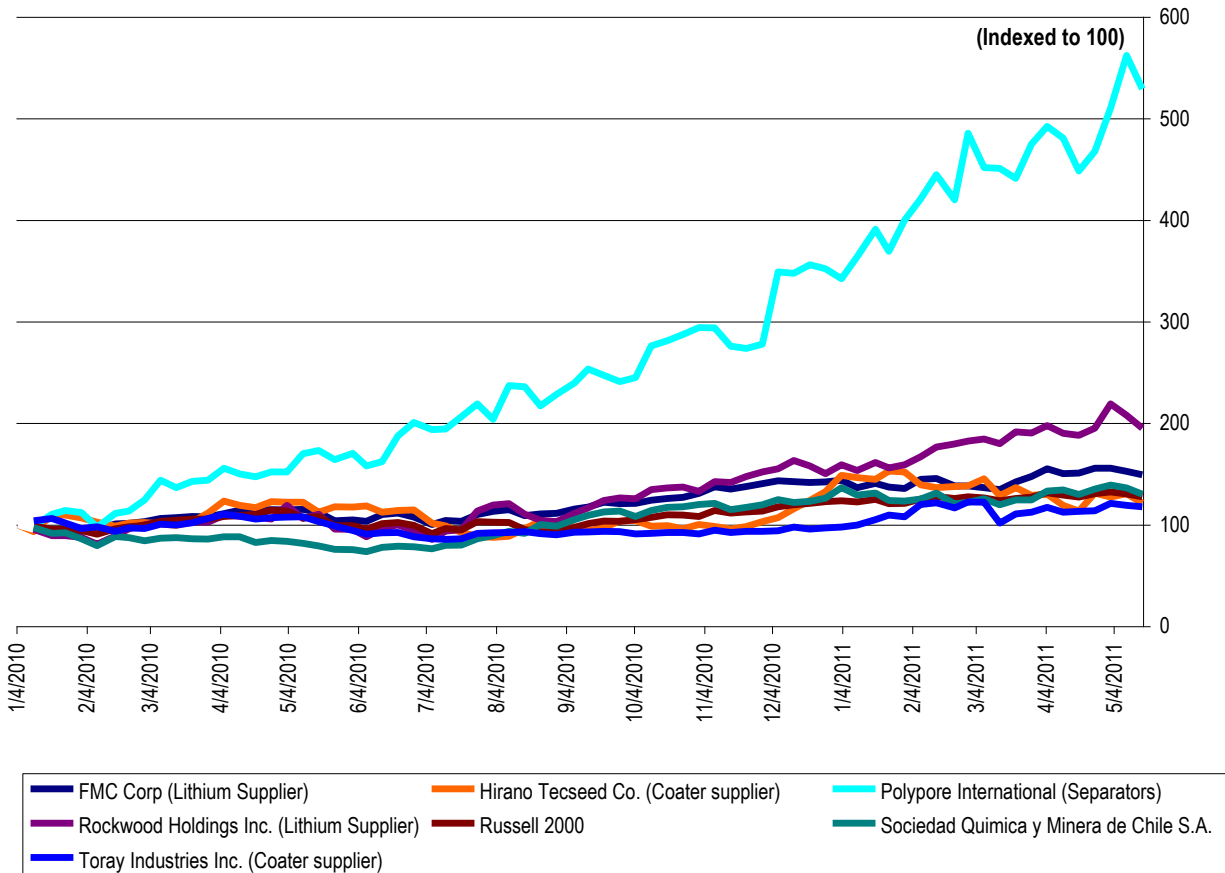


Index	Close on 5/16/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	12,548.4	12,928.5	97.1%	18.2%	7.5%	(1.1%)
S&P 500	1,329.5	1,370.6	97.0%	17.0%	4.5%	(1.2%)
NASDAQ	2,782.3	2,887.8	96.3%	18.3%	3.4%	(2.1%)
Russell 2000	822.9	868.6	94.7%	18.1%	3.0%	(2.3%)
AMEX Cleantech Index	1,228.5	1,292.4	95.1%	23.0%	7.0%	(1.3%)

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 4: Supplier Performance
(From January 4, 2010)



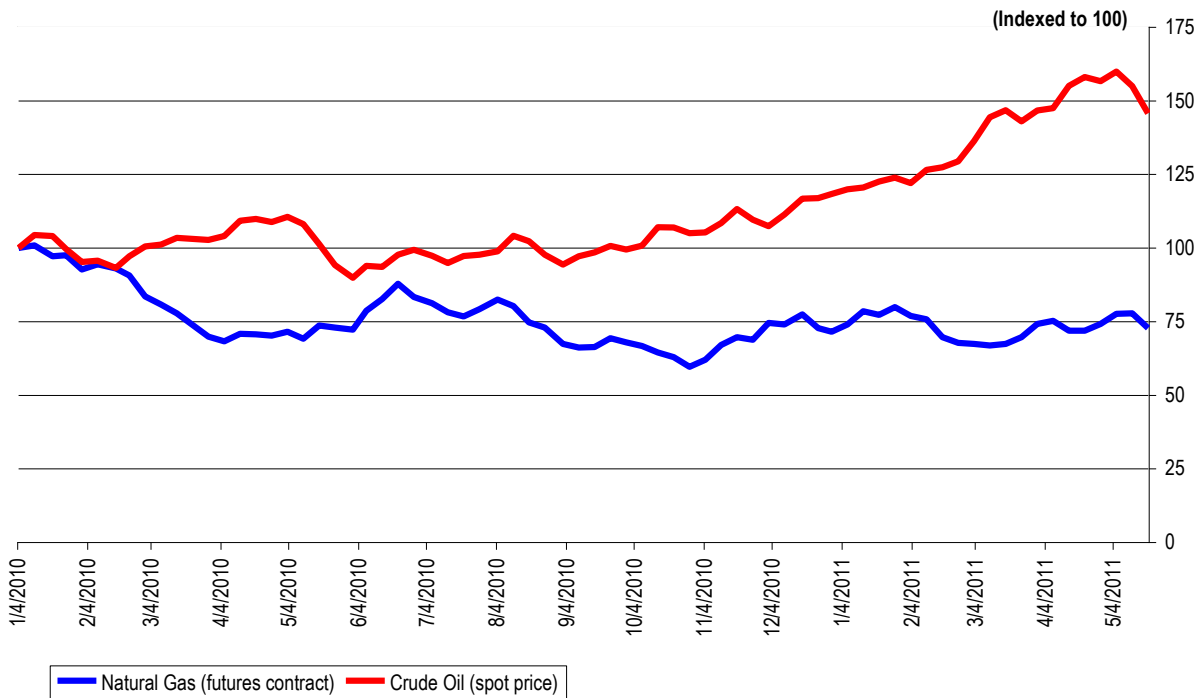
Source: Bloomberg

Exhibit 5: Commodity Prices

Commodity	Price on 5/16/2011	Price on 5/9/2011	Price on 4/15/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	8,709	8,906	9,419	(2.2%)	(7.5%)
LME Lead (cash, \$ per tonne)	2,276	2,379	2,730	(4.3%)	(16.6%)
LME Nickel (cash, \$ per tonne)	24,075	24,770	26,300	(2.8%)	(8.5%)

Source: LME

Exhibit 6: Natural Gas and Crude Oil
(From January 4, 2010)



Source: EIA

Executive Director's Notes



NIMBLE AND OPPORTUNISTIC WINS THE ADVANCED BATTERY RACE

In the spring of 1519, Hernán Cortés landed with a fleet of 12 ships near present day Veracruz, Mexico. The flotilla held 500 Spaniards, a dozen horses and a few cannons. Cortés' aim was to conquer the Aztec Empire and take possession of its great wealth. Many of Cortés' men, impressed by the 25,000,000 Aztecs guarding that wealth, had second thoughts about the venture. But Cortés famously burned his ships, leaving his men little choice but to proceed inland.

Through a series of improbable coincidences, Cortés' strategy worked out well for Cortés, which is the only reason we know the story of the burning ships today. One cannot help wondering, however, in reading this week about the unfortunate end of the JCI-Saft battery joint venture, whether a similar strategy did not work out so well for Johnson Controls, Inc.

On Wednesday, Johnson Controls filed suit in Delaware asking the Chancery Court to dissolve the JCI-Saft joint venture. The Web site GigaOM reported that "Johnson Controls is unhappy because the Saft deal is restricted to automobiles and the partnership is holding [Johnson Controls] back from pursuing a broader focus on selling batteries for the power grid, a multi-billion dollar market that seems to be growing substantially recently."

In 2009, JCI-Saft won a \$299 million advanced battery grant from the U.S. Department of Energy, the largest single grant awarded under the FOA-26 program.

If the GigaOM report is accurate, it would appear that in order to seal its deal with Saft in 2006, Johnson Controls agreed that neither it nor JCI-Saft would manufacture advanced batteries for any market other than the electric vehicle market. That was a Cortés-like move, given that no such market even existed in 2006. It would be tempting to admire the gutsiness of the call, except for the fact much of the bet was placed with U.S. taxpayer dollars.

This was a tough week for the U.S. advanced battery industry. A123 Systems reported disappointing earnings and Ener1's stock price was hammered, in each case because of slower than hoped for growth in the electric vehicle market. It is too soon to know how things will turn out for A123 Systems or Ener1. But both are working hard on new products and new markets, which could help bridge the gap until a more mature electric vehicle market develops.

Advanced batteries are a powerful new technology that can serve a wide array of functions and make the world cleaner, safer and more mobile. But it is still early in the advanced battery age. Which functions

will be called to market and in which order is a story that is still unfolding. The best strategy for companies playing in this market is to be nimble, be opportunistic and keep your options open.



James J. Greenberger
Executive Director

May 20, 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, Facility Tour and "Thank You" Dinner: On **June 16, 2011**, NAATBatt will kick off a series of quarterly meetings at facilities of our members around the county. The meetings are intended to deepen relationships among NAATBatt member firms and to promote business opportunities. This quarter's meeting will be held at the offices of **Cabot Corporation** in **Albuquerque, New Mexico**. Members will tour Cabot's micro-powder manufacturing facility and receive a briefing from NAATBatt and the Electrification Coalition on developments in Washington that could impact the U.S. advanced battery market this year. The meeting includes a group dinner at one of the top New Mexican restaurants in Albuquerque and is open to all NAATBatt members at no cost. NAATBatt members should click [here](#) for more information about the meeting. Non-NAATBatt members should click [here](#) for information on how to join.

**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.

- **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/>.
- **The Battery Show:** The Battery Show and expo for advanced batteries will be held in Novi, Michigan on **October 25-27, 2011**. The conference Web site can be viewed at: <http://www.thebatteryshow.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.
- **The 29th International Battery Show & Exhibit:** The 29th International Battery Show will be held on **March 12-15, 2012** in Fort Lauderdale, Florida. The show will highlight developments in primary and secondary batteries and other technologies. Information about the show can be found at: <https://powersources.net/florida/frameset.html>.



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