

Summary:

For the October 7th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

Chinese acquisition of intellectual property highlights the need for American industry to accelerate the innovation of new technology. Read "**Innovate or Die**" in the Executive Director's Notes portion of this newsletter below.

The NAATBatt and U.S. Indices were down 6.8% and 5.9%, respectively. The Asia Battery Index was up 2.1%. The S&P500 and Russell 2000 declined 5.5% and 8.4%, respectively.

Key Highlights:

- **Tesla** debuted the **Model S** electric vehicle (EV). The sedan has a 300 mile range on a single charge and is able to accelerate from zero to 60 miles per-hour (MPH) in 4.6 seconds.
- **GS Yuasa, Mitsubishi** and **Mitsubishi Motors** are planning to further increase the production capacity of their lithium-ion (li-ion) joint venture (JV) by 70%. The new factory for the **Lithium Energy Japan** JV will be able to produce 4 million cells annually, enough to power 50,000 EVs.
- Researchers at **Kansai University** and **Nissan Motor** have developed a new technology that fully charges electric car batteries in about 10 minutes. The researchers tweaked a capacitor by using a composite made from **tungsten oxide** and **vanadium oxide** for the capacitor's electrode instead of the usual carbon which allows it to hold more power.
- **Nissan** and **General Electric** are partnering to research ways for EVs to connect with homes and electric grids. The organizations are also exploring ways to incorporate the Leaf into GE's **Smart Home** concept, which uses its **Brilliant technology** to allow appliances to "talk" with a system that monitors home energy use.
- **FDK** and **Asahi Kasei** have established a JV company for their combined business operations related to the lithium ion capacitor (LIC), a next-generation energy storage device. The JV will focus on accelerating the development of the LIC market by combining the technologies.
- **Nissan South Africa** could bring the **Leaf** to the domestic market in 2013 if an EV policy were in place in South Africa. The policy would need to include details on charging infrastructure and incentives, such as possible duty rebates on electric vehicles.
- **Tallahassee** transit authority **StarMetro** has ordered three electric buses (ebuses) and a charging station from **Proterra**. StarMetro is planning to have the **EcoRide** ebuses in operation in the spring of 2012.
- **SemaConnect** announced it will be supplying charging stations to **350Green**, which has installed over 100 stations and has contracts to place about 1,100 and expects to have a total of 1,900 locations by year's end. SemaConnect has produced 80 to 100 stations to date for use in **Maryland** and other **Mid-Atlantic** states.
- **General Electric** may lease batteries in an effort to drive EV adoption. A leasing program is a venture that could enable GE to leverage its Capital finance business.

- **Sheetz** (convenience stores) is planning to install charging stations in five of its central Pennsylvania stores. **350Green** will be installing the stations, which will be located at stores in **Mechanicsburg, State College, Lancaster, York** and **Mifflintown**.

A Few More Details:

Tesla debuted the Model S (as shown in **Exhibit 1**) EV. The \$87,400 sedan is able to travel 300 miles on a single charge while reaching zero to 60 mph in 4.6 seconds with a maximum speed of 130 mph. The company is not seeking any additional Department of Energy (DOE) loans, as it has received approval for a \$465 million low-interest government loan, most of which it is using to help finance the Model S.

Source: *The Detroit News*

Exhibit 1: Tesla Model S



Source: *Tesla Motors*

GS Yuasa, Mitsubishi and Mitsubishi Motors are planning to further increase the production capacity of their li-ion JV by 70%. The new factory for the Lithium Energy Japan JV would be able to produce 4 million li-ion cells annually, enough to power 50,000 EVs. Construction of the 20-30 billion yen (\$7.8 billion) plant, which will be built next to one of Lithium Energy Japan's under-construction factories in Ritto, Shiga Prefecture, is scheduled to begin in 1H12. This second plant, which would start operations in 2014, would increase the JV output capacity to equip 120,000 EVs per year.

Source: *Reuters and Nikkei*

Researchers at Kansai University and Nissan Motor have developed a new technology that fully charges electric car batteries in about 10 minutes. The researchers tweaked a capacitor by using a composite made from tungsten oxide and vanadium oxide for the capacitor's electrode instead of the usual carbon which allows it to hold more power. Tests with the new capacitor resulted in it being able to fully recharge within 10 minutes, while maintaining nearly the same storage capacity and voltage as li-ion batteries.

Source: *Nikkei and ASEAN Automotive News*

Nissan and General Electric are partnering to research ways for EVs to connect with homes and electric grids. The research could lead to a way to use the Leaf's li-ion battery as a backup for a home power outage. The organizations are also exploring ways to incorporate the Leaf into GE's Smart Home concept, which uses its Brillion technology to allow appliances to "talk" with a system that monitors home energy use. Smart appliances can use energy when it's least expensive and least taxing on the local electrical grid.

Source: *Detroit Free Press*

FDK and Asahi Kasei have established a JV company for their combined business operations related to the lithium ion capacitor (LIC), a next-generation energy storage device. The JV will focus on accelerating the development of the LIC market by combining the technologies. The new entity will partake in a LIC market that is projected to grow to over ¥100 billion (\$1.3 billion) from 2015 onward.

Source: *Asahi Kasei*

Nissan South Africa could bring the Leaf to the domestic market in 2013 if an EV policy were in place in South Africa. The policy would need to include details on charging infrastructure and incentives, such as possible duty rebates on electric vehicles. The draft policy document was currently the subject of scrutiny within the Department of Trade and Industry, before being scheduled for presentation to Cabinet.

Source: *Creamer Media*

Tallahassee transit authority StarMetro has ordered three ebuses and a charging station from Proterra. The project is being funded by a \$5 million grant for transport in the Florida city from the Federal Transit Administration. StarMetro is planning to have the EcoRide ebuses in operation in the spring of 2012. Proterra has developed an ebus that can charge to full power in under ten minutes.

Source: *BrighterEnergy.org*

SemaConnect announced it will be supplying charging stations to 350Green, which has installed over 100 stations and has contracts to place about 1,100 and expects to have a total of 1,900 locations by year's end. SemaConnect has produced 80 to 100 stations to date for use in Maryland and other Mid-Atlantic states. The largest contract until now was with the state of Maryland, which has ordered 55 for placement in public locations around the Baltimore-Washington area, including eight at Baltimore-Washington International Thurgood Marshall Airport.

Source: *The Baltimore Sun*

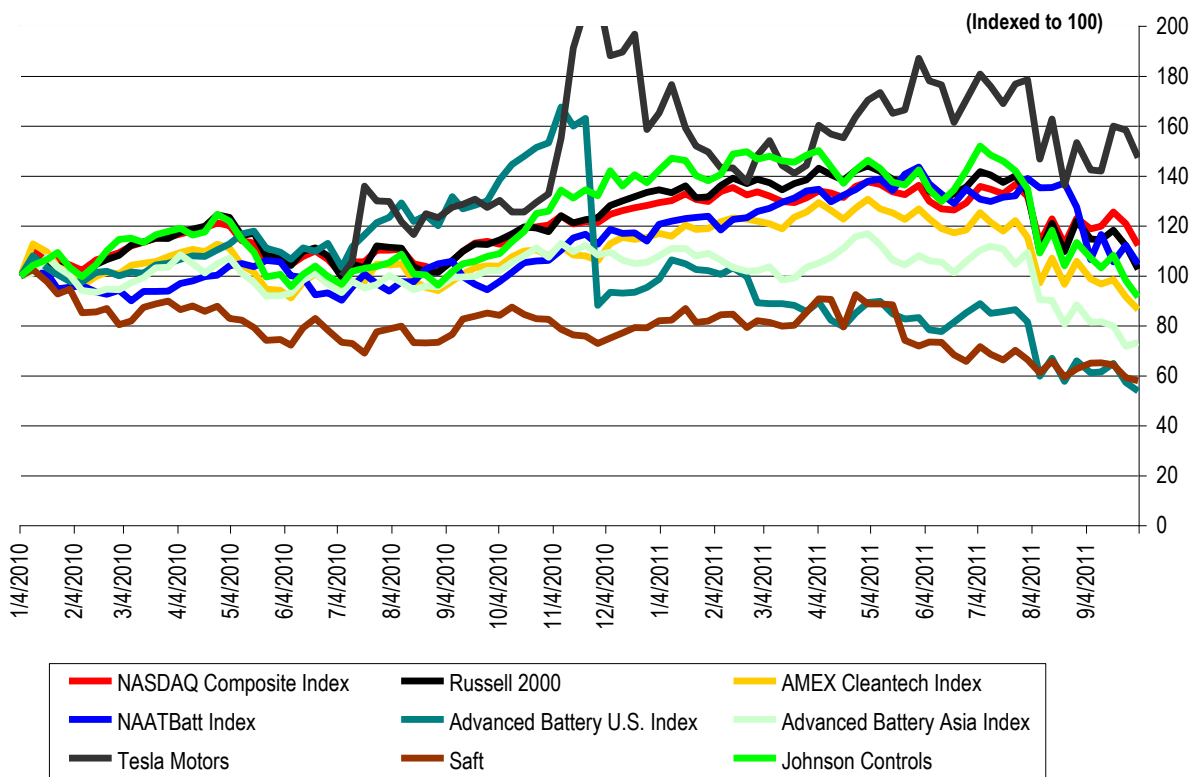
General Electric may lease batteries in an effort to drive EV adoption. A leasing program is a venture that could enable GE to leverage its Capital finance business. In addition, concerns about durability and performance would be addressed if buyers were asked to lease the battery that came with the EV.

Source: *Reuters*

Sheetz (convenience stores) is planning to install charging stations in five of its central Pennsylvania stores. 350Green will be installing the stations, which will be located at stores in Mechanicsburg, State College, Lancaster, York and Mifflintown. The installation of the Sheetz chargers will be completed by the end of this year.

Source: *Chambersburg Public Opinion*

Exhibit 2: Indices Performance
(From January 4, 2010)

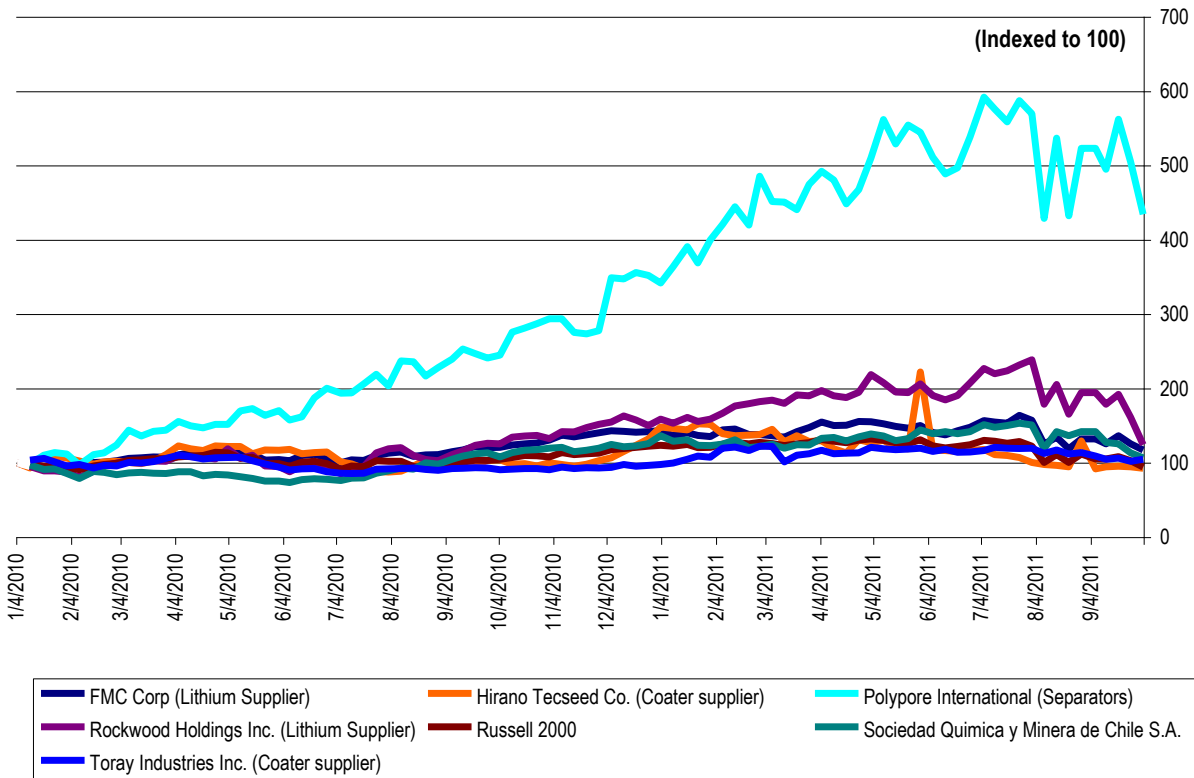


Index	Close on 10/3/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	10,655.3	12,928.5	82.4%	(1.6%)	(8.7%)	(3.5%)
S&P 500	1,099.2	1,370.6	80.2%	(4.0%)	(13.6%)	(5.5%)
NASDAQ	2,335.8	2,887.8	80.9%	(4.5%)	(13.2%)	(7.2%)
Russell 2000	609.5	868.6	70.2%	(10.3%)	(23.7%)	(8.4%)
AMEX Cleantech Index	848.9	1,298.6	65.4%	(91.5%)	(26.1%)	(5.6%)

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 3: Supplier Performance
(From January 4, 2010)**



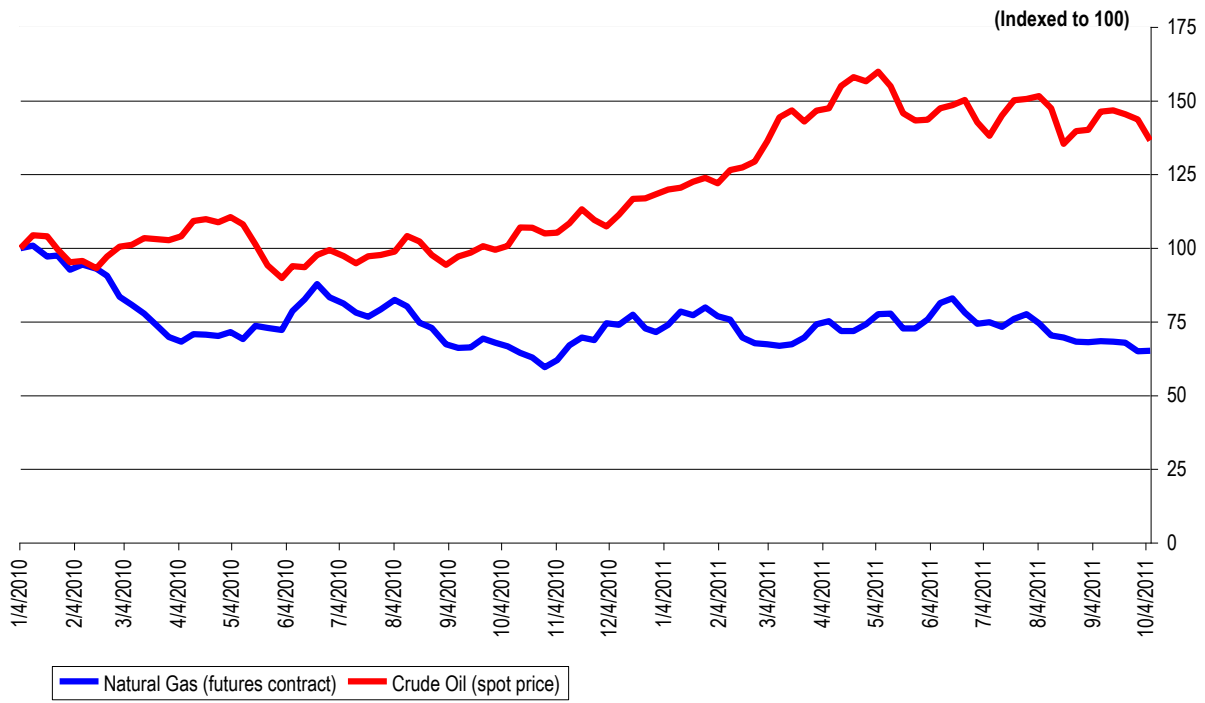
Source: Bloomberg

Exhibit 4: Commodity Prices

Commodity	Price on 10/3/2011	Price on 9/26/2011	Price on 9/2/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	6,795	7,225	9,050	(6.0%)	(24.9%)
LME Lead (cash, \$ per tonne)	1,999	1,992	2,525	0.4%	(20.8%)
LME Nickel (cash, \$ per tonne)	18,100	18,375	21,565	(1.5%)	(16.1%)

Source: LME

Exhibit 5: Natural Gas and Crude Oil
(From January 4, 2010)



Source: EIA

Executive Director's Notes



INNOVATE OR DIE

Earlier this week I caught up with two old friends with whom I had not spoken in a while. To my surprise, both told me remarkably similar stories about what they had been doing for the past year.

The two individuals, who are experts in their respective fields (neither in energy storage), had each been invited to China by different quasi-public entities. Their hosts told them that the host wanted to build an ambitious project (a large cellulosic ethanol plant in the case of one; a factory to manufacture specialty machinery in the case of the other) and that they had each been identified as an expert in their respective industry. Both were invited to submit a business plan for developing the identified project to profitability and told that if their host liked their plan, it would hire the individual to execute it and give him equity in the project. Each was instructed to identify and acquire in the West all the technology and intellectual property the project required. The Chinese entity would pay for everything.

Hearing both stories independently, and on the same day, caused me to wonder whether something larger is going on. If these stories reflect a coordinated program in China to acquire talent and technology in targeted industries, it is an interesting twist on the standard U.S. venture capital model (though it would be a model more familiar in the buy-out and BDC worlds). Moreover, it is likely to be a very effective way for Chinese companies to identify and acquire the best U.S. technology in several sectors. Assumptions that the Chinese are simply trying to steal American technology opportunistically may be outdated. If Chinese companies are paying cash and buying talent as well as technology, the transfer of U.S. developed technology may be occurring faster and more legitimately than what has been assumed.

There is good cause to be concerned by the rapid transfer of U.S. technology to China, particularly when much of that technology has been developed, directly or indirectly, with U.S. taxpayer dollars. Technology creates jobs and supports economic growth. Technology that moves East will likely support more jobs and growth there than here.

As I have previously written, however, the United States is in the technology transfer business and has been in that business for some time. As long as U.S. companies and the U.S. taxpayer are paid a fair price for technology, its transfer should be encouraged. That is, in effect, the business that many U.S. companies are in.

The business model only works, however, if new innovation and new technologies are developed quickly in the United States and replace the technology that is transferred. If the transfers are taking place more

rapidly and in a more organized fashion than assumed, that places pressure on the model. The faster the transfer, the faster U.S. companies must innovate new technologies to replace it.

All of this underscores the critical role that innovation, new technology and both public and private investment in research and development will play in the future of the American economy and in the ultimate viability of a domestic advanced battery industry. The question of whether U.S. advanced battery companies and the U.S. government need to invest heavily in new energy storage technologies is not a close one. As the pace of technology transfer increases, so must the pace of innovation. For American industry, it is truly a case of innovate or die.



James J. Greenberger
Executive Director

October 7, 2011

NAATBatt Membership Applications for 2011

2012 Membership Applications and Dues Structure

NAATBatt is now accepting applications for membership for the 2012 calendar year. Membership dues for 2012 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. Companies purchasing 2012 memberships will be entitled to the benefits of membership during the balance of the 2011 calendar year. Please click on <http://naatbatt.org/membership-inquiry/> and indicate that you are interested in a 2012 membership.

Why Join NAATBatt?

NAATBatt's mission is to grow the market for advanced electrochemical energy storage technology in North America. We concentrate primarily on two markets: electric drive for motor vehicles and distributed, grid-connected electricity storage.

NAATBatt members enjoy a variety of exclusive benefits including: discounted admission to NAATBatt conferences; admission to by invitation-only NAATBatt workshops, such as the Workshop on Distributed Energy Storage that NAATBatt co-sponsored last April in Chicago with the U.S. Department of Energy; admission to Members-Only Site Visits, at which one NAATBatt firm will host all other NAATBatt members for a tour of the host's facility; the opportunity to announce news and new product developments in the Member's News section of the widely read NAATBatt Advanced Battery Weekly; free access to speaker presentations made at NAATBatt programs and workshops; and invitations to attend private meetings with government leaders, such as the NAATBatt-sponsored trip to Washington last year to meet with Chairman Jon Wellinghoff of FERC.

NAATBatt membership also helps support the development of an important industry that could just change the world. NAATBatt provides 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, and thought leadership on issues relating to energy storage markets and technology through the NAATBatt blog.

NAATBatt recently held its 2nd Annual Meeting and Conference in Louisville, Kentucky, which included the 1st Industry-Academic Advanced Battery Summit. The Summit is a new program that NAATBatt has started to encourage the more efficient transfer of advanced battery technology from leading U.S. research universities to industry. NAATBatt identified and brought to Louisville representatives from 15 of the top university advanced battery programs around the country to make flash presentations to industry about what those programs are working on and what technology they have available to license. In all there were 48 high quality presentations made at the Conference and the Summit, copies of which are available to conference attendees and NAATBatt members only.

NAATBatt will soon announce two other initiatives for the benefit of its members that will increase their access to capital and play an important role in growing the market for advanced electrochemical energy storage. Please stand by for some very interesting developments.



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

Presentations from the NAATBatt 2011 Annual Meeting and Conference Now Available:

Speaker presentations, speaker bios and attendee lists from the just concluded NAATBatt's 2011 Annual Meeting and Conference are now available on the NAATBatt Web site. Go to www.naatbatt.org and navigate to the 2011 Annual Meeting and Conference link to view them. The links are password protected, and the password is available to NAATBatt members and conference attendees for no charge. Others may purchase access to the presentations for \$250. Please contact Jim Greenberger at jgreenberger@naatbatt.org for your password. Photos from the conference will be posted shortly.

Presentations from the Workshop on Distributed Energy Storage Posted: Presentation materials, handbooks, attendee lists and working group discussion summaries from the April 21, 2011 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. Please contact Jim Greenberger at jgreenberger@naatbatt.org for your password.

Presentations from the NAATBatt 2010 Annual Meeting and Conference are 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.

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- ***The Business of Plugging In:*** The Center for Automotive Research will host The Business of Plugging In conference at the Hyatt Regency in Dearborn, Michigan on **October 11-13, 2011**. The conference will examine the challenges of moving EV's from early adoption to mass market acceptance and will feature a ride-and-drive event highlighting the newest EV's. More information can be found at: www.bpiconference.com.
 - ***EESAT 2011:*** The biannual international Electrical Energy Storage Applications and Technologies conference (EESAT) will be held at the San Diego Marriott Hotel and Marina in San Diego, California on **October 16-19, 2011**. The conference will highlight specific electrical energy

storage applications and technologies, especially as they relate to the electricity grid. More information about EESAT 2011 can be found at: <http://www.sandia.gov/eesat/index.html>.

- **EV-HEV-PHEV Business Opportunities Seminar:** Menahem Anderman and Advanced Automotive Batteries will host a one-day seminar on business opportunities in electric vehicles on **October 24, 2011** at The Roosevelt Hotel in New York City. Information and registration for the seminar may be found at: <http://www.advancedautobat.com/seminar/index.html>.
- **The Battery Show:** The Battery Show conference and exposition will be held in Novi, Michigan on **October 25-27, 2011**. The Battery Show is North America's largest free to attend exhibition for advanced batteries. The exhibition showcases the latest battery technologies and solutions, ranging from electric vehicle applications to raw material suppliers. Its two-track business and technology conference examines battery market development and opportunities, including how technical advances are likely to impact performance, safety and cost. For more information on The Battery Show or to register, visit www.thebatteryshow.com.
- **Lithium Battery Power Conference:** Knowledge Foundation will host the Lithium Battery Power Conference on **November 7-8, 2011** in Las Vegas, Nevada. 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.
- **Battery Safety Conference and Global Battery Tutorial:** Knowledge Foundation will host the Battery Safety Conference followed by Shmuel De-Leon Energy's Global Battery Tutorial on **November 9-10, 2011** in Las Vegas, Nevada. 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=254&act=evt.
- **1st NY-BEST Regional Technology Conference:** The 1st NY-Best Regional Technology Conference, highlighting developments in energy storage technology at leading New York universities, will be held on **November 15-16, 2011** at Woodcliff Hotel & Spa in Rochester, New York. Information about the conference can be found at: <http://www.ny-best.org/civicrm/event/info?id=7&reset=1>
- **1st North American & Asian Lithium-Ion Technology Conference:** The North American & Asian Lithium-Ion Technology Conference will be held on **January 12, 2012** at the University of Nevada Las Vegas in Las Vegas, Nevada. The conference is co-sponsored by UNLV and an affiliate of the Lion Battery Industry Association of South China. More information about the conference can be found at: <http://lbiana.org/industry-events/>
- **International Battery Association – Pacific Power Source Symposium Joint Meeting 2012:** The 2012 meeting of the International Battery Association and Pacific Power Source Symposium will be held on **January 9-13, 2012** at the Hilton Waikoloa Village in Hawaii. Information about the program may be viewed at: <http://www.soest.hawaii.edu/PPSS/index.htm>.
- **IEEE PES Conference on Innovative Smart Grid Technologies:** The IEEE PES Conference on Innovative Smart Grid Technologies will be held on **January 16-20, 2012** at the Washington Marriott Wardman Park hotel in Washington, D.C. The conference will examine a wide range of smart grid technologies, including energy storage. Information about the conference can be found at: <http://www.ieee-isgt.org/>

- **2nd Annual 10X Advanced Battery R&D:** The 10x Advanced Battery R&D conference: Breaking Barriers in Advanced Battery Performance and Value will be held on **January 23-24, 2012** in Santa Clara, California. The conference will examine next generation technologies that may dramatically reduce battery costs and/or increase battery energy density. NAATBatt is a supporting organization of the conference.
- **12 International Advanced Automotive Battery Conference:** The 2012 International Advanced Automotive Battery Conference (AABC) will be held on **February 6-10, 2012** in Orlando, Florida. The program will feature five days of intensive meetings, symposia and tutorials. Information about the program can be found at: <http://www.advancedautobat.com/>.
- **International Electric Vehicle Symposium:** The Electric Drive Transportation Association will produce the 26th international Electric Vehicle Symposium and exposition (EVS26) on **May 6-9, 2012** in Los Angeles, California. Information about EVS26 can be found at www.EVS26.org.
- **IEEE PES Transmission and Distribution Conference and Exposition:** The IEEE PES Transmission and Distribution Conference will be held in Orlando, Florida on **May 7-10, 2012**. The conference will focus on innovation in power delivery systems, including storage systems. Information about the conference can be viewed at: <http://www.ieeet-d.org/>.
- **5th Symposium on Energy Storage: Beyond Lithium Ion:** The 5th Symposium on Energy Storage: Beyond Lithium Ion will be held in Berkeley, California on June 5-7, 2012. The Symposium will focus on next generation battery technologies, such as silicon anode technology, lithium sulfur batteries and lithium air. More information can be found at: <http://bestar.lbl.gov/bli5/program/>.



Contact Information:

National Alliance for Advanced Technology Batteries

122 South Michigan Avenue, Suite 1700
Chicago, Illinois 60603
(312) 588-0477

www.naatbatt.org

Officers

Randy Moore
Chairman

rmoore@naatbatt.org

Jim Greenberger
Executive Director

jgreenberger@naatbatt.org

Michael Lew
Head of Business Development
mlew@naatbatt.org

Ralph Brodd
Chief Technology Officer
rbrodd@naatbatt.org

Sandy Kane
Chief Financial Officer
skane@naatbatt.org