

Summary:

For the October 14th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

Executive Director James Greenberger writes about the lessons that the advanced battery industry might learn from the life and success of Steve Jobs. Read "**Steve Jobs and the Energy Storage Industry**" in the Executive Director's Notes portion of this newsletter below.

The NAATBatt Index was down 2.9%, while the U.S. Index jumped 18.5% and Asia Index increased a modest 1.1%. The S&P500 and Russell 2000 grew 8.7% and 12.4%, respectively.

Key Highlights:

- **Voith Turbo** announced it will begin production of its patented **DIWA** hybrid drive system for transit buses this month. The company will use **Maxwell Technologies'** Ultra capacitors in the production of the drive system.
- **Chevrolet** announced it will produce an all-electric version of the Spark mini-car – the **Spark EV**. **A123 Systems** will supply the lithium-ion (li-ion) battery packs that will power the Spark EV.
- **Panasonic** will supply the li-ion cells for the first sedan made by **Tesla Motors**. The company will supply enough cells for 80,000 **Model S** electric vehicles (EVs) over the next four years.
- **Audi, BMW, Daimler, Ford, General Motors, Porsche** and **Volkswagen** have agreed to support a harmonized single-port fast charging approach for use on EVs in **Europe** and the **United States**. The system is a combined charging approach that integrates all charging scenarios into one vehicle inlet/charging connector and uses identical ways for the vehicle to communicate with the charging station.
- **IBM Research** announced it has teamed with **EKZ** (electricity utility provider of the **Canton of Zurich in Switzerland**) on a pilot project that will allow consumers to conveniently charge EVs and monitor their energy costs, using mobile devices. The project could potentially contribute to Switzerland's energy policy goal of increasing the proportion of electricity produced from renewable energy by 5,400 gigawatt hours (GWh), or 10% of the country's electricity consumption.
- **Car Charging Group** has filed two separate patents for inductive wireless EV charging. The patents are for an inductive charging station in the form of a parking bumper and the other is to be used underneath the road to charge EVs while being driven.
- The first electric car charging stations will be installed in the **Bulgarian** capital city of **Sofia** within a month. The **Bulgarian Economy and Energy Minister** views the country as a potential center for the design of EVs.
- **Australian** bus manufacturer, **BCI**, has withdrawn from a government trial for hybrid vehicles. The company claims the hybrid part diesel-part electric is already outdated in many countries and 100% EVs are better suited to meet carbon reduction targets.
- The **Lenox Hotel** announced it would install and operate **Boston's** first commercial charging station for EVs at a curb on **Exeter Street**. The hotel worked with electric energy company **Voltrek** to engineer and construct the stations and secure city permits.

- **Caleb Technology** has developed a li-ion polymer dry starter battery suitable for any gasoline and diesel engine car. The company test-drove a **Ford Taurus 4 Door Sedan** car with the dry starter battery and claims to have achieved a 30% gas savings.

A Few More Details:

Voith Turbo announced it will begin production of its patented DIWAhybrid drive system for transit buses this month. The company will use Maxwell Technologies' Ultra capacitors in the production of DIWAhybrid. Over the last 18 months, Voith Turbo has fine-tuned and tested DIWAhybrid to better understand how the innovative drive system can best be utilized in municipal transit routes in North America. In recent multi-day real test runs, the DIWAhybrid drive system gained an average of 16% efficiency.

Source: Voith Turbo

Chevrolet announced it will produce an all-electric version of the Chevrolet Spark mini-car – the Spark EV (as shown in **Exhibit 1**). A123 Systems will supply the advanced nanophosphate lithium-ion battery packs that will power the Spark EV. The vehicle will be sold in limited quantities in select U.S. and global markets starting in 2013, including California.

Source: General Motors

Exhibit 1: The Electric Spark



Source: USA Today

Panasonic will supply the li-ion cells for the first sedan made by Tesla Motors. The company will supply enough cells for 80,000 Tesla Model S EVs over the next four years, including meeting Tesla's need for 6,000 preorders in 2012. Tesla supplies powertrains and batteries to Toyota Motor Corp and to Daimler AG.

Source: Reuters

Audi, BMW, Daimler, Ford, General Motors, Porsche and Volkswagen have agreed to support a harmonized single-port fast charging approach for use on EVs in Europe and the United States. The system is a combined charging approach that integrates all charging scenarios into one vehicle inlet/charging connector and uses identical ways for the vehicle to communicate with the charging station. The automakers have agreed to use HomePlug GreenPHY as the communication protocol. This approach will facilitate integration of the EV into future smart grid applications.

Source: Ford Motor

IBM Research announced it has teamed with EKZ, the electricity utility provider of the Canton of Zurich in Switzerland, on a new pilot project that will allow consumers to conveniently charge EVs and monitor their energy costs, using mobile devices. The near real-time information will also help utility providers better manage power grid loads during peak charging times. The project has the potential to contribute to Switzerland's energy policy goal of increasing the proportion of electricity produced from renewable

energy by 5,400 gigawatt hours (GWh), or 10% of the country's present-day electricity consumption, by 2030. According to the latest statistics available, approximately 55.6% of Switzerland's overall electricity production comes from renewable sources led by hydropower (at over 96%).

Source: IBM

Car Charging Group has filed two separate patents for inductive wireless EV charging. The first patent is for an inductive charging station in the form of a parking bumper, which will charge EVs in parking lots and garages. The second is to be used underneath the road, to charge EVs while they are being driven. Both patents provide for a process that allows EV drivers to power and pay for their charging services wirelessly in an automatic seamless transaction.

Source: The Car Charging Group

The first electric car charging stations will be installed in the Bulgarian capital city of Sofia within a month. Initially, there will be seven charging stations. This news emerged at an event to show off vehicles of the future designed by Bulgarian students. The Bulgarian Economy and Energy Minister views the country as a potential center for the design of EVs.

Source: The Sofia Echo

Australian bus manufacturer, BCI, has withdrawn from a government trial for hybrid vehicles. The company views fully electric buses (ebuses) as the future. The Perth-based company has established a new bus depot at Milperra in Sydney's south-west, and a new \$200 million joint venture in east China to manufacture ebuses. The company claims the hybrid part diesel-part electric is already outdated in many countries and 100% EVs are better suited to meet carbon reduction targets.

Source: The Daily Telegraph

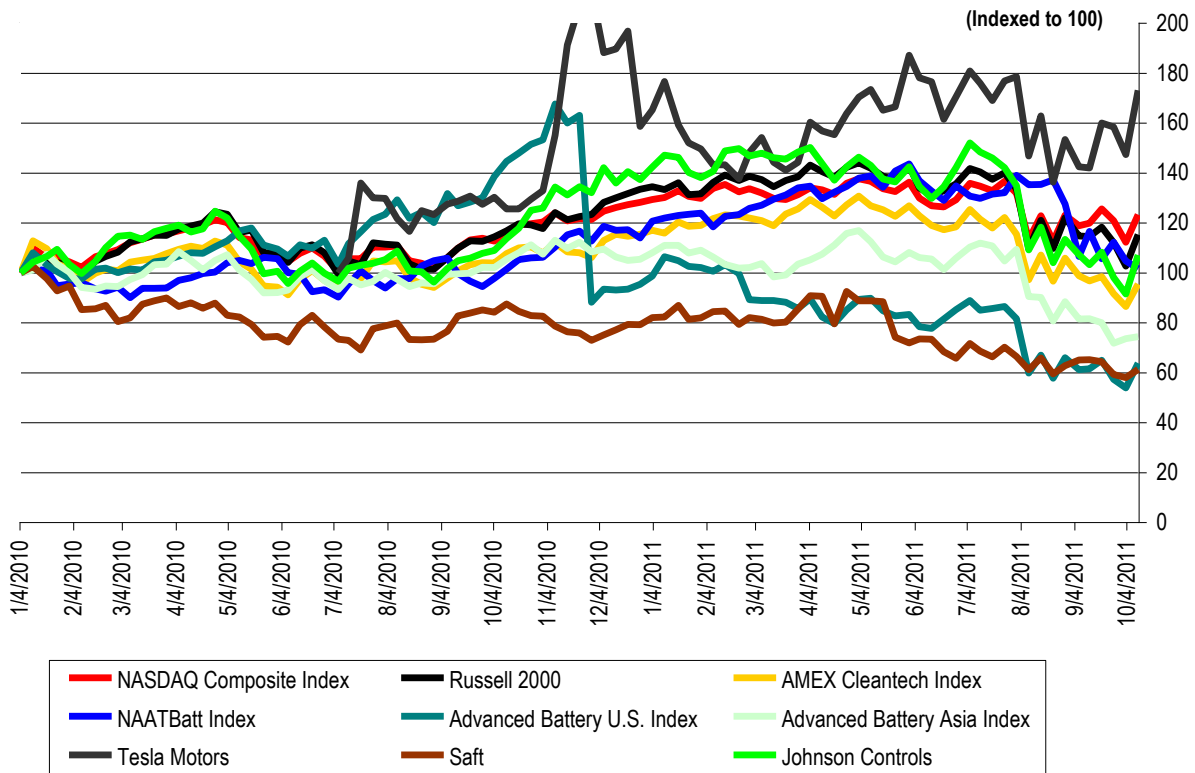
The Lenox Hotel announced it would install and operate Boston's first commercial charging station for EVs at a curb on Exeter Street. Hotel guests with EVs would receive a free electric charge along with their complimentary valet parking, and restaurant patrons and others who valet their cars with the hotel can also receive a free charge. The hotel worked with electric energy company Voltrek to engineer and construct the stations and secure city permits.

Source: The Boston Globe

Caleb Technology has developed a li-ion polymer dry starter battery suitable for any gasoline and diesel engine car. The company test-drove a Ford Taurus 4 Door Sedan car with the dry starter battery more than 20 times between Los Angeles and San Francisco for last 6 months this year and claims to have gotten better gas mileage (or about a 30% gas savings) than regular vehicles with a lead acid battery. Caleb is planning to build a manufacturing facility in Los Angeles in the near future.

Source: Caleb Technology

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

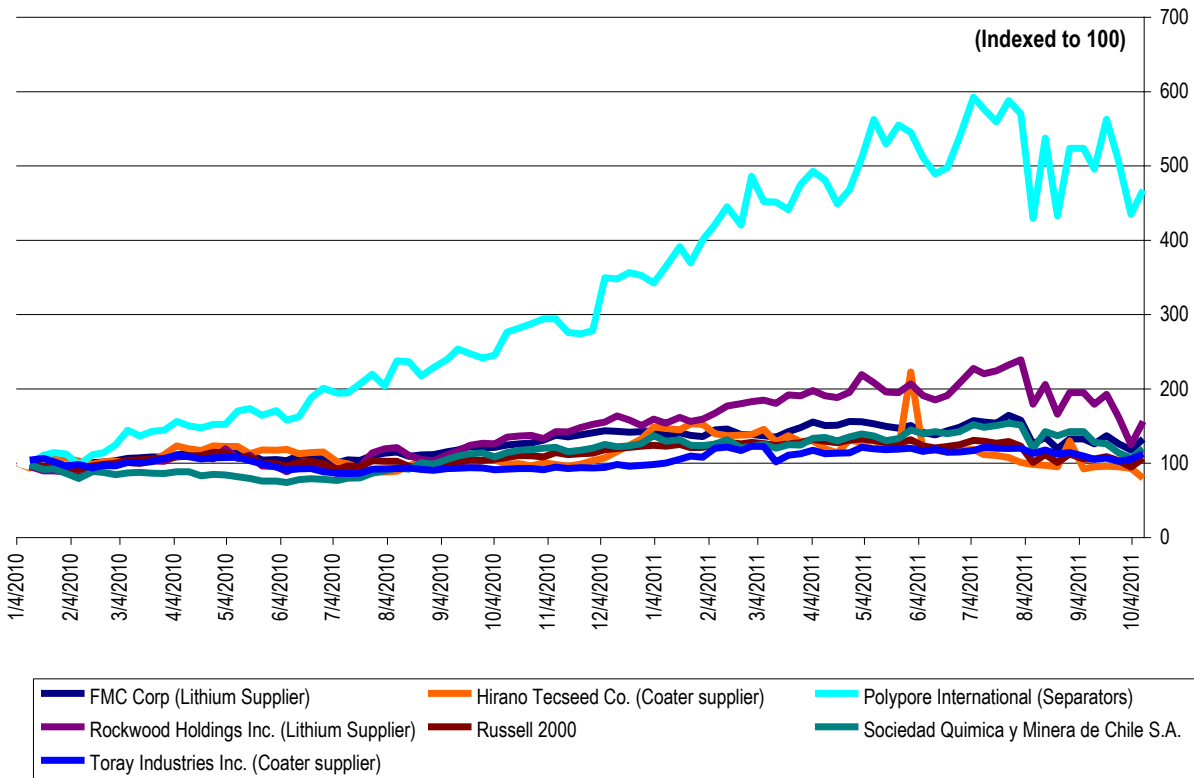


Index	Close on 10/10/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	11,433.2	12,928.5	88.4%	3.9%	(2.0%)	7.3%
S&P 500	1,194.9	1,370.6	87.2%	2.5%	(6.1%)	8.7%
NASDAQ	2,566.1	2,887.8	88.9%	6.8%	(4.7%)	9.9%
Russell 2000	684.9	868.6	78.9%	(1.3%)	(14.2%)	12.4%
AMEX Cleantech Index	936.5	1,298.6	72.1%	(11.1%)	(18.5%)	10.3%

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



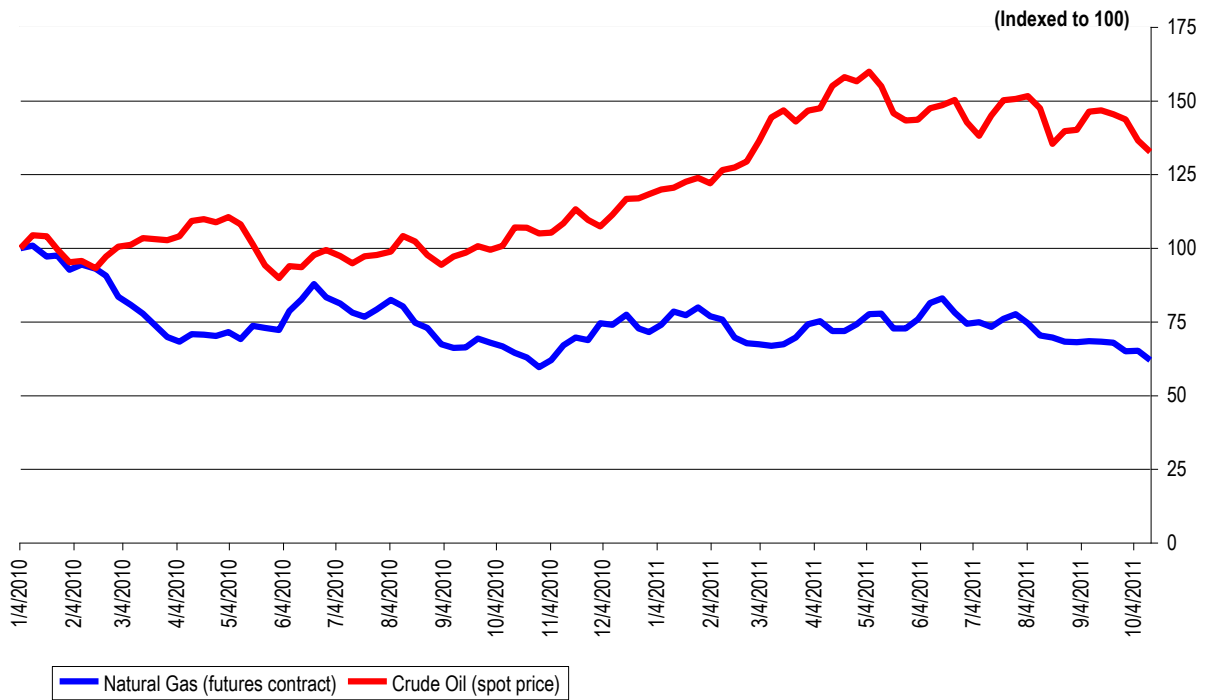
Source: Bloomberg

Exhibit 4: Commodity Prices

Commodity	Price on 10/10/2011	Price on 10/3/2011	Price on 9/9/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	7,313	6,795	8,904	7.6%	(17.9%)
LME Lead (cash, \$ per tonne)	1,976	1,999	2,453	(1.2%)	(19.5%)
LME Nickel (cash, \$ per tonne)	18,830	18,100	21,475	4.0%	(12.3%)

Source: LME

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



Source: EIA

Executive Director's Notes



STEVE JOBS AND THE ENERGY STORAGE INDUSTRY

It is difficult to add much to what has already been written about Steve Jobs, the founder of Apple, who passed away on October 5. There is no question but that history will remember him as one of the great titans of American industry, on par with Edison, Rockefeller and Ford.

For those engaged in the emerging advanced energy storage industry, however, it is important to remember not just who Steve Jobs was but what made him what he was. Steve Jobs was not a brilliant scientist or a great engineer. His genius lay in designing products that people wanted to buy and, more importantly, in explaining to people why they wanted to buy them. It is important to remember that in the late 1970's when Apple got its start, most consumers were as unaware of the potential benefits of computers to their lives as most consumers are today unaware of the potential benefits of energy storage.

By some estimates, the advanced energy storage industry in the United States today is in crisis. Stock prices are down, order books are thin and pessimistic analyst reports seem to be published weekly. The crisis in energy storage, however, is not one of technology or manufacturing or investment. The crisis in advanced energy storage is one of demand.

Until mass market consumers decide that they want advanced energy storage technology in their lives--in the form of electric vehicles and grid-connected storage systems--the advanced energy storage industry will struggle. Energy storage is ultimately a consumer-driven market, either on account of direct consumer purchases (in the case of electric vehicles) or on account of the purchase of storage systems by regulated utilities (which must be approved by regulators that ultimately answer to consumers).

The industry must focus on making the case for its technology. Technology geeks and policy wonks will never make a market for our products. We need to take the case for energy storage to the consumer. That is what Steve Jobs would do.



James J. Greenberger
Executive Director

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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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- ***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/>.

- ***The 29th International Battery Seminar & Exhibit:*** Powersources.net will present the 29th International Battery Seminar & Exhibit at the Broward County Convention Center in Fort Lauderdale, Florida on **March 12-15, 2012**. The Seminar will discuss the state of the art of worldwide energy storage technology developments for portable products, power and vehicular applications. The Web site for the conference can be found at: <https://powersources.net/florida/frameset.html>.
- ***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/>.



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