

Summary:

For the February 11th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt, Advanced U.S. and Asia Indices declined 4.5%, 1.6% and 2.7%, respectively. The S&P 500 and Russell 2000 increased 2.6% and 3.5%, respectively.

NAATBatt announces a workshop on "**Problems in Utility Deployment of Distributed Energy Storage Systems**". The workshop will be held in Chicago on **April 21, 2011** and co-sponsored by the U.S. Department of Energy. Read a description of the workshop in the North American Industry Announcements and Calendar section of this newsletter below.

Executive Director James Greenberger writes about why government investment in advanced battery technology is an effective strategy for creating American manufacturing jobs. Read "**Advanced Batteries and Jobs**" in the Executive Director's Notes section of this newsletter below.

Key Highlights:

- **UQM Technologies** will be supplying electric propulsion systems as part of an **Audi** test-fleet build and vehicle development process for its **A1 e-tron** all-electric vehicle (EV). The company recently completed the validation of its volume production lines with annual capacity of 40,000 units.
- **A123 Systems** announced an order from **AES Gener** for a 20 megawatt (MW) of energy storage solutions for a spinning reserve project in Northern Chile. The order is AES' second in Chile to use A123's technology.
- **SK Innovation** (formerly **SK Energy**) announced that it will supply lithium-ion (li-ion) batteries to **Mercedes-Benz AMG**. The batteries will be used for the **SLS AMG E-Cell** vehicle. SK will also be supplying batteries for commercial vehicles made by **Mitsubishi Fuso** beginning in 2012.
- **3M** is deploying two fast charging stations from **Coulomb Technologies** on its **Maplewood** campus. The first charging station is located in the visitors' parking lot at the center of the campus with the second unit to be installed this spring at the company's customer innovation center.
- The **City of Chicago** has awarded a \$1.9 million contract to **350 Green LLC** to install 280 charging stations in **Chicago** and its surrounding suburbs by the end of 2011. Approximately 90% of Chicago-area commutes are less than 40 miles.
- The first 4-electric car charging points have gone live at a multi-storey car park in **Sunderland**. The charging points will be free to use for the first 3-years when **Sunderland City Council** reviews the situation.
- The **State of Washington** may charge EV owners a **\$100 annual state fee** in lieu of a gas tax. The **Washington Department of Transportation** estimates owners of traditional cars that drive 12,000 miles annually pays an average \$204 in state gas taxes. The state gas tax is \$0.375 per gallon.
- **Zero Motorcycles** rolled out announced four new 2011 models. The motorcycles have been modified to include a 12.5% increase in li-ion capacity that should provide improved range and acceleration.

- The **BMW ActiveE electric 1 Series** will go into production this year. The EV will consist of li-ion batteries manufactured by **BMW** and **SB LiMotive**, a joint venture between **Samsung** and **Bosch**. The data collected from the field trials will be used in the development of the **Megacity Vehicle**.

A Few More Details:

UQM Technologies will be supplying electric propulsion systems as part of an Audi test-fleet build and vehicle development process for its A1 e-tron EV (as shown in **Exhibit 1**). The UQM PowerPhase engine range is a lightweight electric drive motor and controller. The company recently completed the validation of its volume production lines with annual capacity of 40,000 units.

Source: UQM Technologies

Exhibit 1: The A1 e-tron



Source: Ubergizmo

A123 Systems announced an order from AES Gener for 20MW of energy storage solutions for a spinning reserve project in Northern Chile. The project expands the relationship between A123 and AES Energy Storage. The order is AES' second in Chile to use A123's technology. The first was a 12MW spinning reserve project at the Los Andes substation in Atacama Desert in Chile.

Source: A123 Systems

SK Innovation (formerly SK Energy) announced that it will supply li-ion batteries to Mercedes-Benz AMG. The batteries will be used for the SLS AMG E-Cell vehicle with gull-wing doors (as shown in **Exhibit 2**). The company will also be supplying li-ion batteries for hybrid commercial vehicles made by Mitsubishi Fuso beginning in 2012.

Source: The Chosunilbo

Exhibit 2: The Mercedes SLS AMG E-Cell



Source: *Mobile Magazine*

3M is deploying two fast charging stations from Coulomb Technologies on its Maplewood campus. The stations can charge an EV in about 4 hours. The first charging station is located in the visitors' parking lot at the center of the campus. The second unit will be installed this spring at the company's customer innovation center on the northwest side of the property.

Source: *3M*

The City of Chicago has awarded a \$1.9 million contract to 350 Green LLC to install 280 charging stations in Chicago and its surrounding suburbs by the end of 2011. The plan is for 350 Green to install, own, operate and maintain 73 plazas where drivers will be able to plug in to either a quick-charging station (expected to be able to provide a full charge in under 30 minutes or one of two 220V Level 2 charging stations). An additional 61 Level 2 chargers will be installed for I-Go and Zipcar drivers. Approximately 90% of Chicago-area commutes are less than 40 miles.

Source: *Chicago Tribune*

The first four electric car charging points have gone live at a multi-storey car park in Sunderland. Over the next 12 months, the number of charging points will be increased to 40 on Wearside. The objective is to install stations so that users are within a mile radius when all are in operation in 2012. The charging points will be free to use for the first three years when Sunderland City Council will then review the situation.

Source: *BBC*

The State of Washington may charge EV owners a \$100 annual state fee in lieu of a gas tax. Senate Bill 5251 was introduced and would require EV owners to pay the fee when the vehicle is first registered and during renewal. The Washington Department of Transportation estimates owners of traditional cars that drive 12,000 miles annually pays an average \$204 in state gas taxes. The state gas tax is \$0.375 per gallon.

Source: *The Seattle Times*

Zero Motorcycles rolled out announced four new 2011 models (as shown in **Exhibit 3**). A fifth model will be unveiled shortly. The motorcycles have been modified to include a 12.5% increase in li-ion capacity that should provide improved range and acceleration. The prices range from \$7,995 for an X trail bike to \$10,495 for a DS Dual Sport. A 10% federal tax credit is available to customers ordering street-legal bikes.

Exhibit 3: The Zero Lineup
(L to R : Zero S, Zero DS, Zero X and Zero MX)

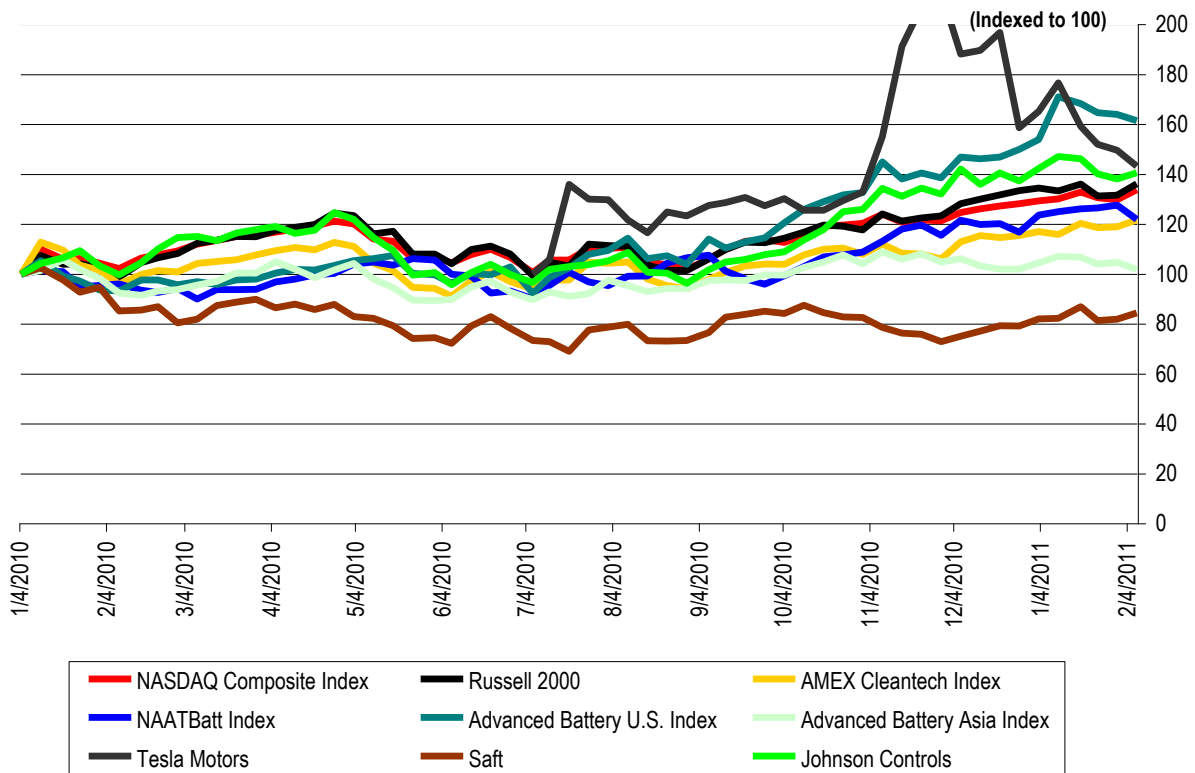


Source: NY Times

The BMW ActiveE electric 1 Series will go into production this year, with a test fleet of over 1000 vehicles to be trialed in the USA, Europe and China. The EV will consist of li-ion batteries manufactured by BMW and SB LiMotive, a joint venture between Samsung and Bosch. The data collected from the field trials will be used in the development of the Megacity Vehicle, due to go into production in 2013.

Source: Independent Online

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

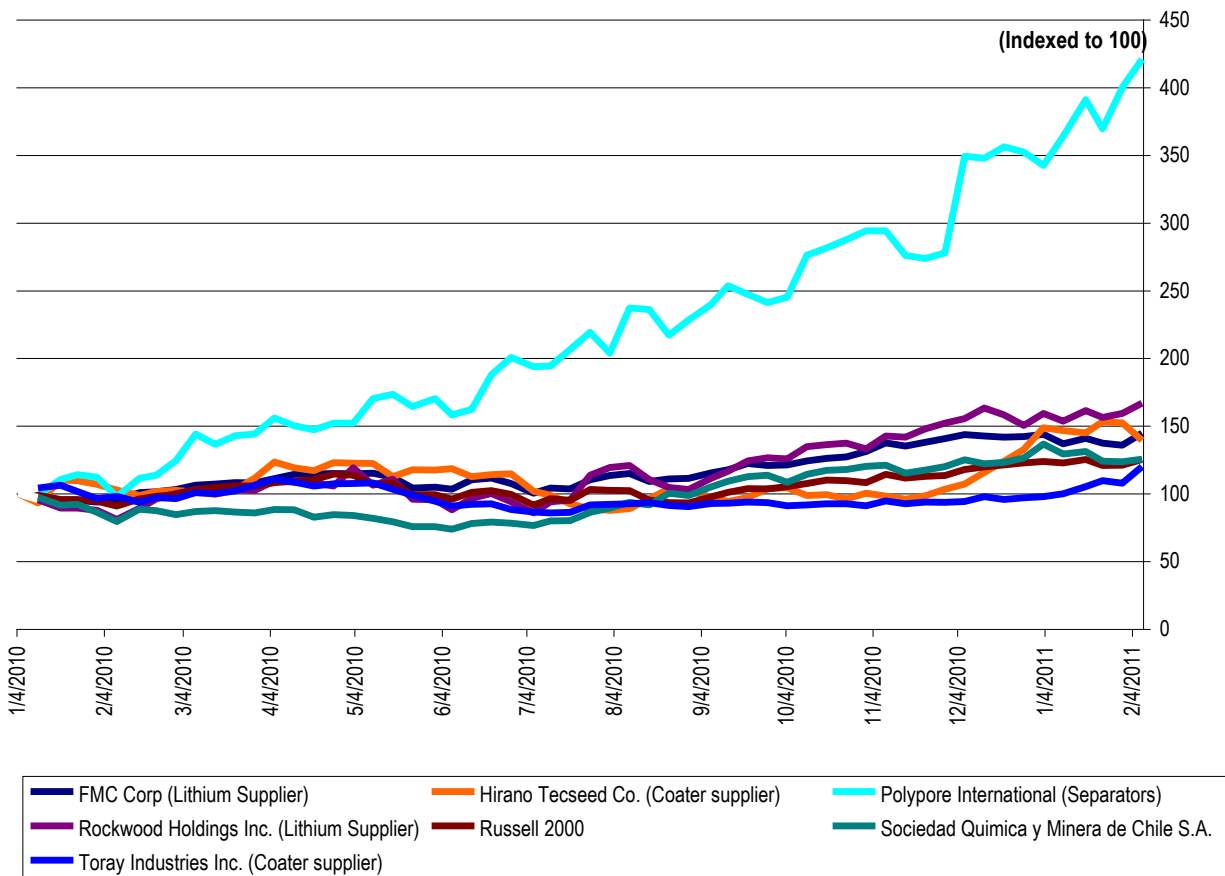


Index	Close on 2/7/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	12,161.6	12,188.8	99.8%	21.6%	4.2%	2.3%
S&P 500	1,319.1	1,322.9	99.7%	23.8%	3.7%	2.6%
NASDAQ	2,784.0	2,796.5	99.6%	30.1%	3.4%	3.1%
Russell 2000	808.3	812.7	99.5%	36.4%	1.2%	3.5%
AMEX Cleantech Index	1,194.4	1,195.8	99.9%	25.8%	4.0%	2.3%

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 5: Supplier Performance (From January 4, 2010)



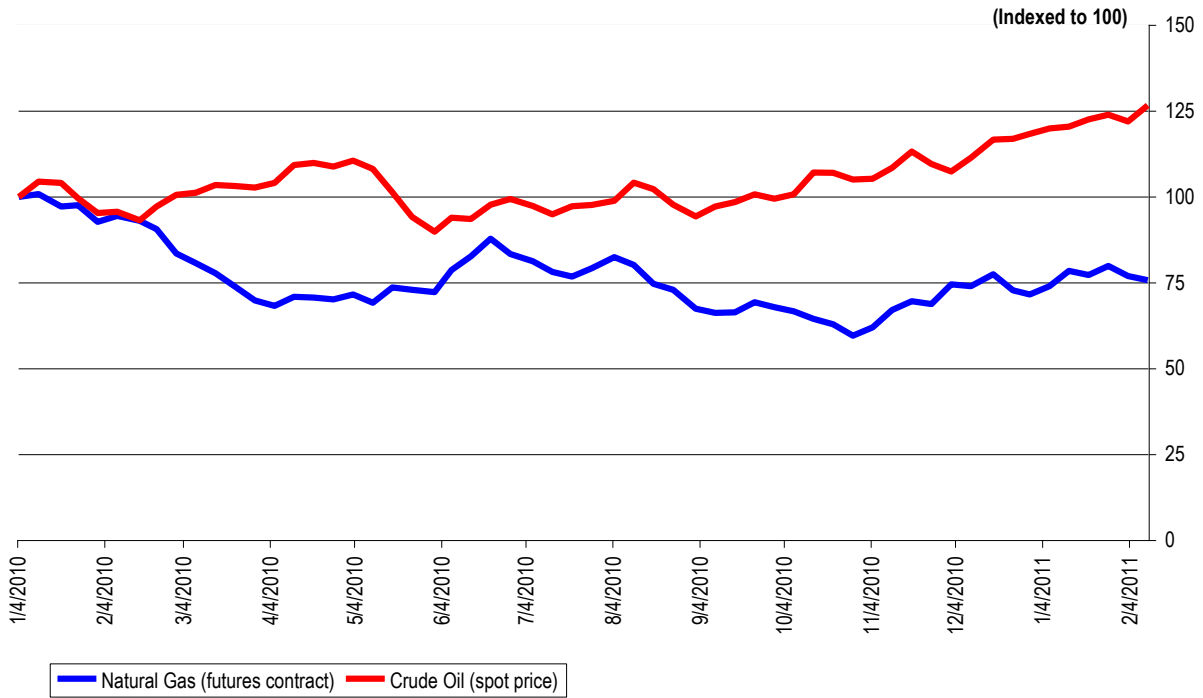
Source: Bloomberg

Exhibit 6: Commodity Prices

Commodity	Price on 2/7/2011	Price on 1/31/2011	Price on 1/7/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	10,145	9,715	9,399	4.4%	7.9%
LME Lead (cash, \$ per tonne)	2,643	2,575	2,660	2.6%	(0.6%)
LME Nickel (cash, \$ per tonne)	28,700	27,070	24,340	6.0%	17.9%

Source: LME

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



Source: EIA

Executive Director's Notes



ADVANCED BATTERIES AND JOBS

Earlier this week, I attended a meeting on Capitol Hill sponsored by the Illinois Science & Technology Coalition. The purpose of the meeting was to meet with Hill staffers and discuss the importance of research and development funding for advanced battery technology. Speakers from Argonne National Laboratory and the Illinois Institute of Technology outlined some of the federally-funded research being done at their institutions and the technology goals they hope to achieve.

The mood in the room, however, was somber. It was clear that presentations aimed at increasing federal support for battery R&D were falling flat. This was not surprising, since the staffers in the room had probably been spending most of the last several weeks looking for ways to cut the budget. Requests for more money seemed a little off key.

Finally, towards the end of the program, one of the staffers raised his hand. The top priority on the Hill, he said, was job creation. How could he explain to his member how spending money on battery R&D was going to create jobs for American workers? In the 1st Session of the 112th Congress, it was a very fair question.

Fortunately, there is a good answer. A policy aimed at creating jobs in the U.S. manufacturing sector must be carefully targeted. Talk about expanding manufacturing employment generally makes for good sound bites, but is little more than wishful thinking. Many of the manufacturing jobs that have left the U.S. have left for good. Asia will likely be the manufacturing colossus of the next decade, not the United States.

In planning to compete with Asia for manufacturing jobs, it is important to remember that not all jobs are created equal. An effective jobs creation policy needs to focus on the manufacturing of high value products. As important, it must focus on the types of products and industries that have, for unique reasons, an ability to give domestic manufacturers an advantage over foreign imports. Subsidizing the creation of jobs manufacturing high labor content commodity products would be fools' game. The United States simply cannot compete long term for low value manufacturing jobs with low cost labor markets.

Advanced batteries, however, particularly advanced automotive batteries, are exactly the types of products that can give domestic manufacturers an advantage. Advanced batteries are heavy, complex and difficult to transport. Manufacturers located physically close to end customers have a significant cost advantage over those that must ship product from overseas. This logistics cost advantage is further magnified by the just in time inventory requirements of most modern manufacturing operations. A foreign

manufacturer of advanced batteries shipping product to the United States has to deal with multiple, serious problems that a domestic manufacturer does not. These problems do not guaranty success for domestic manufactures. But they can more than offset the lower labor cost advantage of foreign manufacturers and put domestic manufacturing operations squarely into the game.

The missing component for domestic manufacturers of advanced batteries is technology. U.S. advanced battery manufacturers, for whatever their logistical advantage, must compete with foreign firms that have a nearly two decade head start in lithium-ion battery manufacturing and capital structures built on years of government subsidies. It is no accident that, despite the theoretical cost advantage of domestic advanced battery manufacture, substantially all of the first generation mass market plug-in electric vehicles will be powered by advanced batteries made abroad. If U.S. firms had the technology and the experience, the story would likely be different.

A few decades ago there was a popular joke about what Andrew Carnegie would say if he knew that it was possible in 1980 for Japanese steel makers to buy iron ore in Minnesota, have it shipped out through the Great Lakes, down the East Cost, through the Panama Canal to Japan, to have it processed there into steel coil, shipped backed across the Pacific, railroaded to the Midwest and then still undercut American steel producers on price. The punch line of the joke was that Carnegie would say "What a great time to be in the steel business!".

This is a great time for the United States to be in the advanced battery business. Advanced batteries are an ideal product around which to build a jobs creation policy. If the U.S. can develop advanced battery technologies that truly meet the needs of the automotive industry, the jobs will follow. And unlike many other industries, those jobs will be in the United States and not in Asia. This is a message we must send loud and clear to our leaders in Washington.



James J. Greenberger
Executive Director

February 11, 2011



NAATBatt Membership Applications for 2011

2011 Membership Applications and Dues Structure

NAATBatt is now 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 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. 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!

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 Workshop on Problems in Utility Deployment of Distributed Energy Storage Systems: On **April 21, 2010**, NAATBatt and the U.S. Department of Energy will co-host in Chicago an interactive workshop examining the issues, problems and challenges that electric utilities face in deploying distributed energy storage systems on the grid. Although DES systems have many of social benefits, profitably deploying DES systems and adding them to rate base continues to be a major challenge for utilities. The NAATBatt/DOE workshop will encourage utility and battery executives to sit together and have a frank discussion about those challenges and how they might be addressed. The workshop is by invitation only. For more information about the workshop, please click [here](#).

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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- **ARPA-E Energy Innovation Summit:** The ARPA-E Energy Innovation Summit will be held on **February 28-March 2, 2010**, at the Gaylord National Resort & Convention Center in National Harbor, MD. The Summit will showcase the next generation of clean energy technologies and discuss the activities of the DOE's ARPA-E program. The Web site for the Summit may be viewed at: <http://www.ct-si.org/events/EnergyInnovation/about/>
 - **Midwest Energy Forum:** The Midwest Energy Forum will be held at the University of Chicago Booth School of Business' Gleacher Center in downtown Chicago on **March 3, 2011**. The conference will highlight new energy technologies being developed in the Midwest region,

including transportation-related technologies. The conference Web site can be found at: <http://www.chicagobooth.edu/mef/2011/>.

- **Cleantech Forum San Francisco:** Cleantech Forum San Francisco will be held on **March 14-16, 2011** at the Hyatt Regency San Francisco. The latest in the Cleantech Network's ongoing series of cleantech conferences, the Forum will focus on the growing role of information technology in the cleantech sector. The Forum's web site can be found at: <http://events.cleantech.com/sanfrancisco/event-overview>.
- **Advanced The 28th International Battery Seminar & Exhibit:** Power Source's annual International Battery Seminar & Exhibit will be held on **March 14-17, 2010**, at the Broward County Convention Center in Fort Lauderdale, Florida. A link to the conference Web site can be found at: <https://powersources.net/florida/28th.html>.
- **TREM11: Strategic Metals for National Security and Clean Energy:** The TREM11 conference on rare earth and strategic metals will be held on **March 22-23, 2010** at the Ritz-Carlton Pentagon City, in Arlington, Virginia. NAATBatt is a supporting organization of the conference. Information about the conference can be found at: <http://www.tremcenter.org/>.
- **4th Annual Energy Storage Summit:** The 4th Annual Energy Storage Summit will be on **March 28-30, 2011** in San Francisco, California. The Summit will focus on grid-connected energy storage technologies. The Summit's Web site can be found at: <http://www.energystoragesummit.com/Event.aspx?id=434682>.
- **Plug-In Electric Vehicle Infrastructure USA 2011:** The Plug-In Electric Vehicle Infrastructure USA 2011 conference will examine five key areas of interest to those working with PEV's and their supporting infrastructure. The conference will be held **March 31-April 1, 2011**, at the Hilton Mission Bay in San Diego California. The conference Web site is: <http://www.evupdate.com/electricvehicleusa/index.shtml>.
- **2011 Battery Conference:** The 2011 Battery Congress will be held at the University of Michigan – Michigan League in Ann Arbor, Michigan on **April 11-12, 2011**. Information about the Congress can be found at: <http://batterycongress.org/about-2/>
- **Electric Drive Vehicle Association 2011 Meeting and Annual Conference:** The EDVA 2011 Meeting and Annual Conference will be held on **April 19-21, 2011** in Washington, D.C. The Web site for the meeting can be viewed at: <http://www.edtaconference.org/ht/d/sp/i/18736/pid/18736>.
- **Workshop on Problems in Utility Deployment of Distributed Energy Storage Systems:** NAATBatt will sponsor a special workshop and roundtable discussion among utility and battery executives in Chicago on **April 21, 2011**. The purpose of the workshop is to identify the specific challenges that utilities face in evaluating, procuring, deploying and adding to their rate base advanced battery systems for storing electrical energy in the distribution portion of the grid. Attendance at the workshop is by invitation only. Please direct inquiries to: jgreenberger@naatbatt.org
- **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/.
- **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 9-11, 2011** in Louisville, Kentucky (see note above).
- **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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