

## Summary:

For the June 17th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt Index declined 3.1%, while the U.S. and Asia Indices were flat. The S&P 500 and Russell 2000 declined 1.1% and 2.3%, respectively.

Executive Director James Greenberger writes about the recently concluded NAATBatt members' meeting at Cabot Corporation in Albuquerque and about the need for greater collaboration in the U.S. advanced battery industry. Read "*First NAATBatt Members Site Meeting Shows the Value of Collaboration*" in the Executive Director's Notes section of this newsletter below.

## Key Highlights:

- **San Joaquin Valley** clean air officials approved a \$1.4 million grant that should bring 50 electric delivery vans (e-vans) to the streets of **Stockton, Fresno** and **Bakersfield**. **Electric Vehicles International** is building the e-vans and also has a similar project with urban **Southern California** for 100 e-vans for use by **UPS**. The lithium-ion (li-ion) batteries are being supplied by **Valence Technology**.
- The **Renault-Nissan Alliance** is going all in with an investment of 4 billion Euros (\$5.6 billion) in electric vehicles (EVs). This will give Renault-Nissan the capacity to build 500,000 units and batteries at 11 factories in eight countries by 2013.
- **Toshiba** has announced that its **SCiB™ (Super Charge Ion Battery)** technology has been selected by **Mitsubishi Motors** to power two new EV models; the **i-MiEV** and the **MINICAB-MiEV**. The SCiB can support up to 2.5x more charge/discharge cycles than a typical lithium-ion (li-ion) battery.
- The **Federal Energy Regulatory Commission** has launched an inquiry into how to bring greater competition to markets for supply services that help keep the grid operating smoothly, and how to remove potential barriers to the expanded use of electric storage technologies. These technologies can operate in ways that resemble electricity production, transmission and distribution.
- **Volvo AB** has received its largest hybrid bus order to date from the city of **Curitiba** in **Brazil**. The Volvo 7700 Hybrid uses a li-ion battery from **A123 Systems**.
- **Mitsubishi Motors Corporation (MMC)** announced the signing of a Memorandum of Understanding with **China Motors Corp (CMC)**, business partner **Mitsubishi Corporation (MC)** and the **Hsinchu County** government in northwestern **Taiwan** regarding the promotion of EVs. The **i-MiEV** will be introduced to CMC through MC, and will be utilized in the taxi project the Hsinchu County government will implement.
- **BMW** is spending \$100 million to enter the commodities business. The company is building its own carbon fiber (CF) factory in order to secure a supply of the lightweight material and lower expenses by refining the production process.
- **Rockwood's** lithium division is announcing price increases of up to 20% for its lithium salts, including lithium carbonate, lithium hydroxide, lithium chloride, and increases on lithium metal

battery grade, effective July 1<sup>st</sup>. The company is taking this action to recover the increased costs for energy, raw materials, solvents and transport.

- Ten publicly accessible charging stations will be installed around **Hillsborough County** in the coming months. The effort is part of the national initiative “**Project Get Ready**” that ultimately could result in up to 100 charging stations in the area.
- The **Brecon Beacons** could soon be swarming with 30mph electric buggies rented out to tourists. The vehicles have been built locally by electric car specialist **Dragon Electric Vehicles** in the village of **Cwmdu** near **Crickhowell**.
- **Maxx Mobile** has plans to invest approximately Rs 320 crore (or \$69.4 million) to set up a handset and li-ion battery manufacturing plant in **India**. The li-ion plant will have a production capacity of 30 million units annually.
- **Boulder, Colorado** will begin to develop the infrastructure to support a future fleet of EVs by installing dozens of public charging stations around the city. By June 2012, 40 charging stations are projected to be installed throughout Boulder.
- **Hydro-Québec** has teamed up with **RONA, les Rotisseries St-Hubert, METRO** and the **Agence métropolitaine de transport (AMT)** to launch a project to install the country's first network of public charging stations. The network of charging stations will be rolled out gradually in 2012 about the same time when EVs hit the Quebec market.

## A Few More Details:

San Joaquin Valley clean air officials approved a \$1.4 million grant that should bring 50 electric delivery vans (e-vans) to the streets of Stockton, Fresno and Bakersfield. The Electric Vehicles International is building the e-vans and also has a similar project with urban Southern California for 100 e-vans for use by UPS. The li-ion batteries are being supplied by Valence Technology. UPS has a delivery fleet of over 70,000 vehicles worldwide.

Source: *Stockton Record*

The Renault-Nissan Alliance is going all in with an investment of 4 billion Euros (\$5.6 billion) in EVs. This will give Renault-Nissan the capacity to build 500,000 units and batteries at 11 factories in eight countries by 2013. Nissan has sold 2,400 Leafs in the United States and 7,200 worldwide since its introduction in December. The company is planning to deliver 1,500 this month and about 10,000 to the United States this year.

Source: *Wired News*

Toshiba has announced that its SCiB™ (Super Charge Ion Battery) technology has been selected by Mitsubishi Motors to power two new EV models; the i-MiEV and the MINICAB-MiEV (as shown in **Exhibit 1**). The SCiB can support up to 2.5x more charge/discharge cycles than a typical li-ion battery. Charged with the highest current available with CHAdeMO (viewed as emerging standard for fast charging), an SCiB reaches 80% capacity in about 15 minutes.

Source: *Toshiba*

## Exhibit 1: MINICAB-MiEV



Source: *Greenautoblog*

The Federal Energy Regulatory Commission has launched an inquiry into how to bring greater competition to markets for supply services that help keep the grid operating smoothly, and how to remove potential barriers to the expanded use of electric storage technologies. There is growing interest in removing barriers to the use of energy storage resources, which may benefit consumers by offering multiple services to the grid. Storage technologies can operate in ways that resemble electricity production, transmission and distribution, and can provide a range of services from the discharge of power to supply load to ancillary services such as reactive power or frequency regulation.

Source: *Transmission and Distribution World*

Volvo AB has received its largest hybrid bus order to date from the city of Curitiba in Brazil, which has ordered 60 buses for delivery in 2012. The buses are equipped with a small diesel engine and an electric motor that is driven by energy from a li-ion battery that is charged through a regenerative braking process. The Volvo 7700 Hybrid uses a li-ion battery from A123 Systems.

Source: *Dow Jones*

Mitsubishi Motors Corporation (MMC) announced the signing of a Memorandum of Understanding with China Motors Corp (CMC), business partner Mitsubishi Corporation (MC) and the Hsinchu County government in northwestern Taiwan regarding the promotion of EVs. The Hsinchu County government will introduce the i-MiEVs at the Taiwan High Speed Rail line's Hsinchu Station as a taxi. The i-MiEV will be introduced to CMC through MC, and will be utilized in the taxi project the Hsinchu County government will implement.

Source: *Mitsubishi Motors*

BMW is spending \$100 million to enter the commodities business. The company is building its own carbon fiber (CF) factory in order to secure a supply of the lightweight material and lower expenses by refining the production process. Although carbon fiber is 50% lighter than steel, it costs 20x more. BMW is embracing the material to reduce the weight of its EVs and to counteract the added li-ion battery weight.

Source: *Bloomberg*

Rockwood's lithium division is announcing price increases of up to 20% for its lithium salts, including lithium carbonate, lithium hydroxide, lithium chloride, and increases on lithium metal battery grade, effective July 1. The company is also implementing and adjusting specific surcharges due to the

requirements of its different global markets. The company is taking this action to recover the increased costs for energy, raw materials, solvents and transport.

*Source: Rockwood Holdings*

Ten publicly accessible charging stations will be installed around Hillsborough County in the coming months. Seven stations will be located on county properties such as regional libraries and the Pierce Street garage. The St. Pete Times Forum will have two more and Hillsborough Community College will have another. The effort is part of a national initiative, Project Get Ready, which ultimately could result in up to 100 charging stations in the area.

*Source: St. Petersburg Times*

The Brecon Beacons could soon be swarming with 30mph electric buggies (as shown in **Exhibit 2**) rented out to tourists. As part of an initial trial, visitors to the national park are being offered the use of two free electric buggies to explore country lanes and tour the area. In addition, tourism businesses are collaborating to install charging points for the vehicles, which have a range of just 20 miles without a charge. The vehicles have been built locally by electric car specialist Dragon Electric Vehicles in the village of Cwmdru near Crickhowell.

### Exhibit 2: The Electric Buggy



*Source: WalesOnline*

Maxx Mobile has plans to invest approximately Rs 320 crore (or \$69.4 million) to set up a handset and li-ion battery manufacturing plant in India. The company will set up a mobile phone production facility in the next six months and the battery plant will be built in the next 12 to 18 months. The li-ion plant will have a production capacity of 30 million units annually.

*Source: The Economic Times*

Boulder, Colorado will begin to develop the infrastructure to support a future fleet of EVs by installing dozens of public charging stations around the city. By June 2012, 40 charging stations are projected to be installed throughout Boulder. Planned locations include the Boulder Public Library, the Pearl Street Mall, the Boulder County Courthouse, the Boulder Municipal Building and city-owned parking garages downtown.

*Source: Denver Post*

Hydro-Québec has teamed up with RONA, les Rotisseries St-Hubert, METRO and the Agence métropolitaine de transport (AMT) to launch a project to install the country's first network of public charging stations. The network of charging stations will be rolled out gradually in 2012 about the same time when EVs hit the Quebec market. In the first phase of the project, approximately 100 of the "regular" 240-volt charging stations will be installed at the offices of Hydro-Québec and its partners. Several AMT park-and-ride facilities will also be equipped with the chargers which take one hour to provide a car battery with enough energy to travel about 25 kilometers (or 15.5 miles).

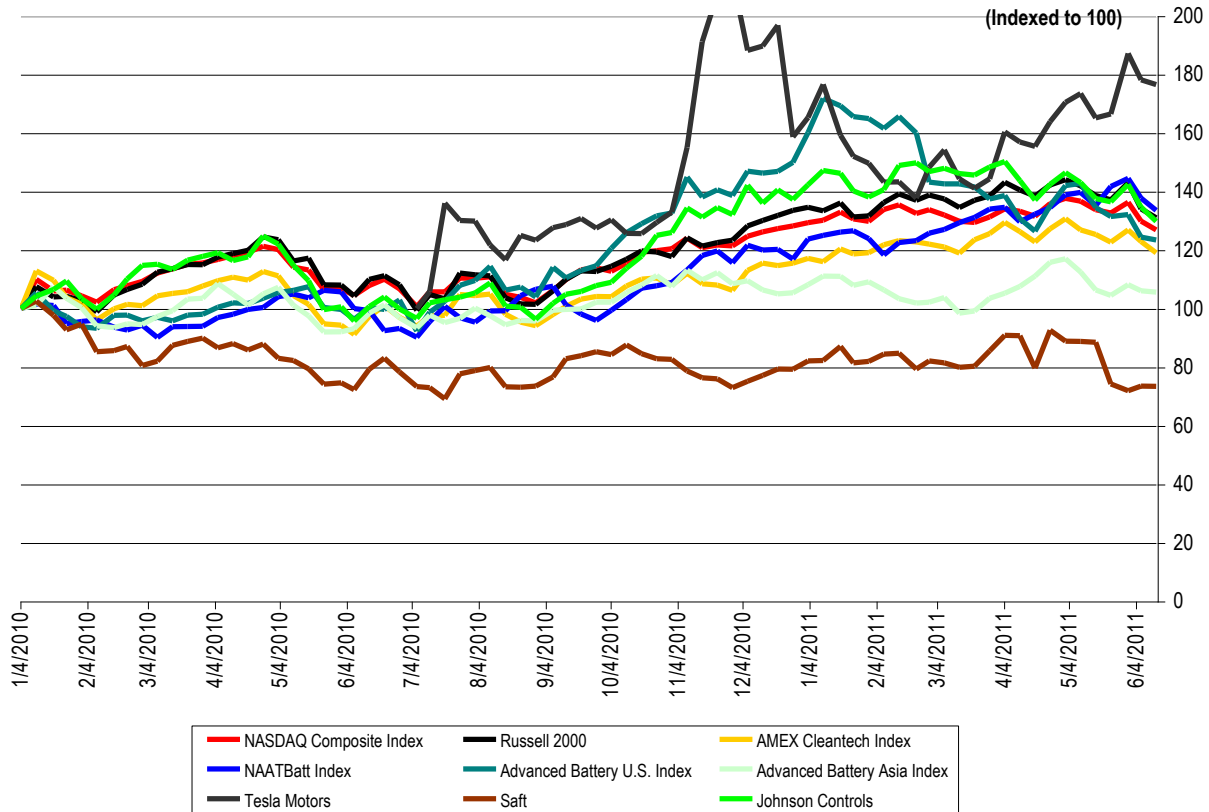
*Source: Montreal Gazette*

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## **Member News:**

- Ener1, Inc. and Russia's JSC Mobile GTES (MGTES), a whole-owned subsidiary of the Federal Grid Company (FGC) of Unified Energy System, today announced that they have signed a strategic framework agreement to contemplate the manufacture of lithium-ion-based uninterruptible power supply (UPS) systems as part of a five-year engineering and framework agreement. The proposed UPS systems -- which the companies anticipate will have an initial total capacity of 27.8 MW -- will provide back-up power for internal substation needs for one hour, including switchgear, lighting, communications and other needs. FGC believes this lithium-ion solution will have expanded capabilities beyond the company's current lead acid solution, which is only able to back-up the switchgear for a short duration and does not provide back-up power for any other internal substation needs. For full release, visit <http://www.ener1.com/?q=content/ener1-press-releases>

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

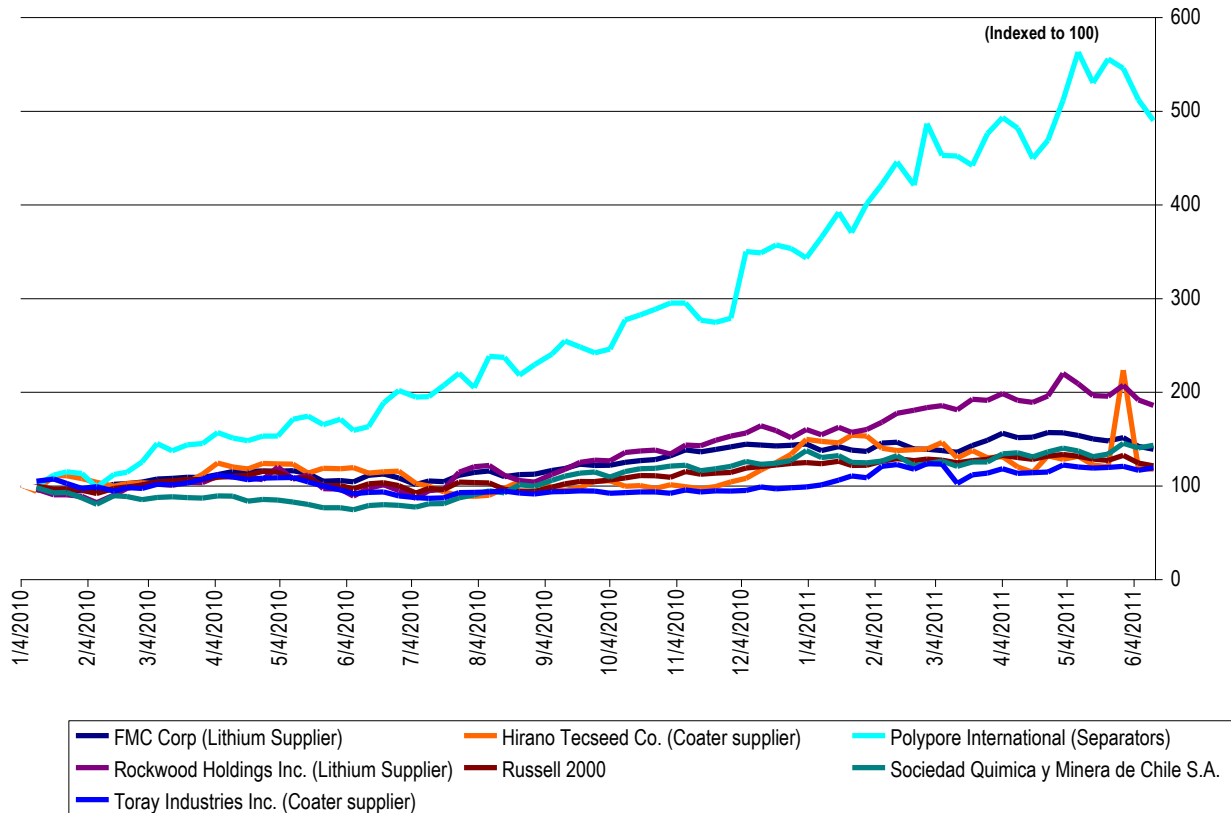


Index	Close on 6/13/2011	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	11,953.0	12,928.5	92.5%	17.1%	2.4%	(1.1%)
S&P 500	1,271.8	1,370.6	92.8%	16.1%	(0.0%)	(1.1%)
NASDAQ	2,639.7	2,887.8	91.4%	16.6%	(1.9%)	(2.3%)
Russell 2000	777.2	868.6	89.5%	18.9%	(2.7%)	(2.3%)
AMEX Cleantech Index	1,167.3	1,292.4	90.3%	22.7%	1.6%	(3.2%)

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)



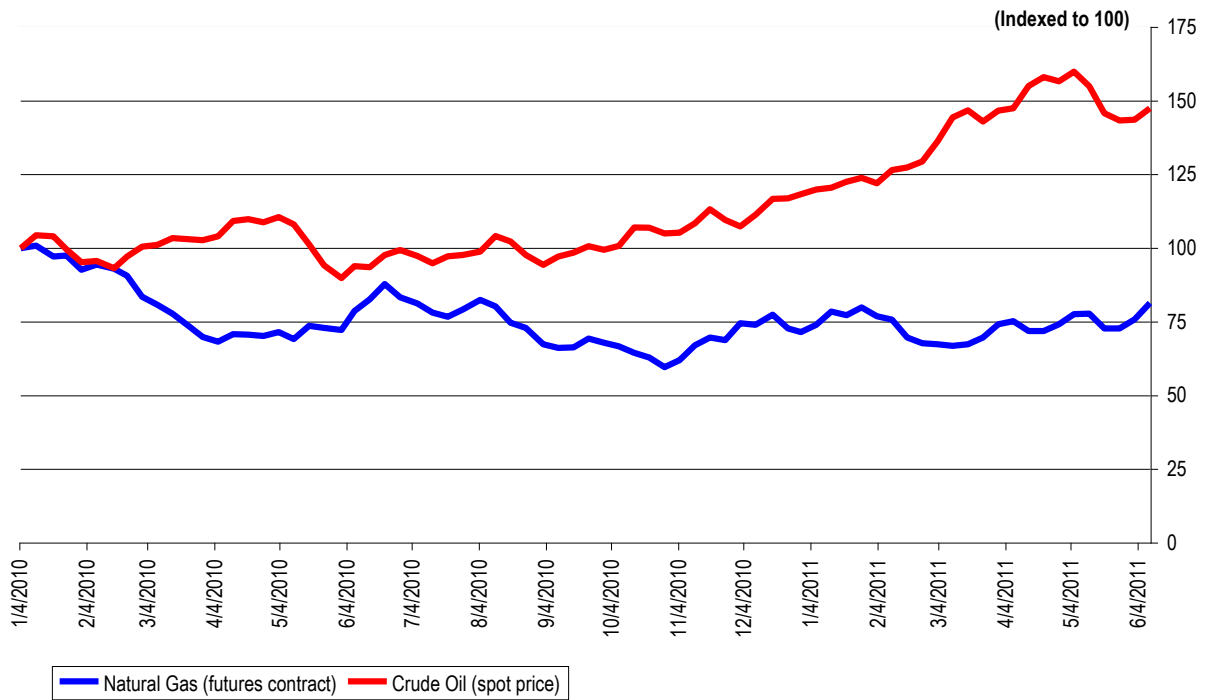
Source: Bloomberg

**Exhibit 5: Commodity Prices**

Commodity	Price on 6/13/2011	Price on 6/6/2011	Price on 5/13/2011	1 Week Change	1 Month Change
LME Copper (Cash, \$ per tonne)	8,895	9,097	8,856	(2.2%)	0.4%
LME Lead (cash, \$ per tonne)	2,512	2,470	2,364	1.7%	6.3%
LME Nickel (cash, \$ per tonne)	22,245	22,605	24,725	(1.6%)	(10.0%)

Source: LME

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



Source: EIA

## Executive Director's Notes



### **FIRST NAATBATT MEMBERS SITE MEETING SHOWS THE VALUE OF COLLABORATION**

On Thursday, Cabot Corporation hosted the first in a series of NAATBatt members' meetings, which will be held at our members' facilities around the country. The meeting was interesting and valuable for those who attended (and saw, perhaps, the beginning of some new business relationships). The Cabot facility was impressive and the opportunity to meet and get to know a large number of the outstanding Cabot technical staff was an opportunity that no industry conference ever has or ever will be able to duplicate.

At the end of the day, the attendees sat around a conference table and discussed the value of the program that had just occurred. This was the first NAATBatt member's site visit meeting and I had worried about how productive and valuable it would be to our members. The unanimous view of those attending, however, was that the meeting was more than worthwhile. But the more interesting insight was that the meeting was unique, at least by U.S. standards.

It is no secret that in the advanced battery industry, U.S. companies are playing catch up with Asian and, to some extent, with European companies. There are many reasons for this. But one of the reasons may be because there is a better exchange of information and a better network of relationships among foreign battery companies than among those that are based in the U.S.

Several attendees observed that it is not uncommon in Japan or Korea for employees of one battery company to visit the facilities of another and to know the personnel of competing companies more intimately than what is common in the United States. These visits and relationships and the cross-fertilization of ideas they spawn, it was felt, do much to help Asian companies maintain and defend their leadership in the advanced battery market.

It is unclear why the U.S. battery industry is less collegial and less interrelated than the same industry in Asia. Greater geographic distances and a certain residual hubris at some companies certainly play a part. So too does the influence of the venture capital community, which has an unfortunate tendency to confuse reasonable protection of intellectual property with an industry-stifling paranoia about secrecy.

If the U.S. advanced battery industry is to grow and prosper, it cannot be premised on a bunch of competitors searching independently for a one-off breakthrough. The battle for the advanced battery market will be a long term struggle. New ideas and new solutions will be developed, will come into the market and will eventually be replaced by newer ideas and better solutions. The key to a healthy, successful industry is to keep those new ideas and better solutions coming. That will not happen by

locking our people into laboratories and having them work on top secret projects. It will happen by getting people together, getting them talking, and getting them thinking about the daunting common problems that our industry must address to survive.

The U.S.-based advanced battery companies that did not participate in Thursday's meeting should strongly consider attending the next member's site meeting or, better yet, offering to host one of the next meetings at their own facility. The industry, and each participating company, has far more to gain from such interaction than they have to lose.

The last two years have been frustrating for NAATBatt, as many leading U.S. companies have refused to join the organization citing competitive concerns. It is instructive that no such concerns seem to impede Asian or European companies from forming similar regional and national alliances. The value of a more collaborative approach was evident to all who attended the meeting at Cabot on Thursday. One can only hope that others in the U.S. advanced battery industry will see that value as well before it is too late.



James J. Greenberger  
Executive Director

June 17, 2011



## NAATBatt Membership Applications for 2011

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### **2011 Membership Applications and Dues Structure**

NAATBatt is accepting applications for membership for the 2011 calendar year. Membership dues for 2011 are \$10,000 for Corporate Members, \$10,000 for OEM Members, \$10,000 for Utility Members, \$5,000 for Associate Members, \$1,000 for Individual Members, and \$500 for Non-Profit/Government Members. Please click on <http://naatbatt.org/membership-inquiry/> and indicate that you are interested in a 2011 membership.

### **Why Join NAATBatt?**

NAATBatt's mission is to grow the market for advanced electrochemical energy storage technology in North America. NAATBatt provides regular educational programming on topics of interest to the advanced battery community, a weekly newsletter chronicling developments in the North American advanced battery market, networking opportunities for industry participants and their customers, including our recently concluded conference on PEV's and the grid, and public policy initiatives, such as the recent NAATBatt-sponsored meeting with Chairman Jon Wellinghoff of FERC and production of written comments to FERC in support of distributed energy storage technology.

NAATBatt recently concluded the highly successful meeting and conference entitled "The Impact of PEV's on T&D Systems: Challenges and Solutions", in Louisville, Kentucky. The conference was the largest cross-industry event to date focused on the impact of plug-in electric vehicles on the grid. The conference outlined the improvements and upgrades that utilities must make to the grid in order for it to accommodate mass-market electric vehicles. The conference emphasized the critical role that grid-connected energy storage can play in promoting vehicle electrification in the United States. Emphasizing the necessary relationship between grid-connected storage and electric vehicles is one of NAATBatt's primary missions.

NAATBatt is a not-for-profit trade association qualified under Section 501(c)(6) of the Internal Revenue Code that is working for the benefit of the entire industry. **Every dollar spent on NAATBatt memberships and programs goes to recouping program costs and to supporting activities intended to benefit the entire advanced battery industry.** At a time when it seems that the only people making money on advanced lithium-ion technology are professional conference organizers, the advanced battery industry should take control of its own market and its own future. NAATBatt exists to market for the industry, not to the industry. But NAATBatt needs your support to do it. Please join us.

North American Industry  
Announcements and Calendar

SAVE  
THE  
DATE

**NAATBatt 2011 Annual Meeting and Conference:** NAATBatt has announced that its 2011 Annual Meeting and Conference will be held on **September 7-8, 2011** in Louisville, Kentucky. The title of the program is “**New Markets, New Innovations: The Next 5 Years in Advanced Batteries.**” The program will take a hard look at near-term market opportunities for U.S. advanced battery manufacturers and let them hear from potential customers what those customers want now. The annual meeting will also feature a Battery Industry-Academic Summit with presentations by the top university battery programs in the United States. Attendees will learn who is working on what in the academic world. There is more going on than you think. Information about the 2011 conference is posted on the NAATBatt Web site at: [www.naatbatt.org](http://www.naatbatt.org). Please save the date!

**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](http://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](mailto: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](mailto: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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- **Automotive News Green Car Conference:** The Automotive News Green Car Conference will be held in Novi, Michigan on **June 13-14, 2011**. The conference has been expanded to two days and will include a ride and drive event. More information about the conference can be found at: <http://www.autonews.com/Assets/html/green-car-conference/>.

- **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 7-8, 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](http://www.batterypoweronline.com/bppt-conf11/bp11_index.php).
- **4th International EV Battery Tech USA: Global Cost Reduction Initiative:** EV Battery Tech USA will be held on **September 21-22, 2011**, in Detroit, Michigan. The leading automotive OEM's will attend the conference and discuss how to reduce the cost of EV batteries by specifically evaluating near-term advances in energy density, battery life extension, preventative methods for cell degradation and failure, battery safety improvement and testing. NAATBatt is a supporting organization of the conference and NAATBatt members are entitled to a 15% discount on registration. The conference Web site may be viewed at: <http://www.ev-battery-tech.com/>.
- **2<sup>nd</sup> Battery Safety Conference:** Knowledge Foundation will host the 2<sup>nd</sup> 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](http://www.knowledgefoundation.com/viewevents.php?event_id=253&act=evt)
- **7<sup>th</sup> Lithium Mobile Power Conference:** Knowledge Foundation will host the 7<sup>th</sup> 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](http://www.knowledgefoundation.com/viewevents.php?event_id=254&act=evt).
- **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.ieseet-d.org/>.



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