

Summary:

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

NAATBatt announced its 2010 Annual Meeting and Conference, which will be held at the Seelbach Hilton Hotel in Louisville, Kentucky on **December 8-10, 2010**. The title of the Conference is "**Impact of PEV Recharging on T&D Systems: Challenges and Solutions**." The conference will examine the likely impact of first generation PEV's on local electric distribution systems and how distributed energy storage technology can help reduce the risk of system disruptions. More information about the Annual Meeting and Conference will follow in coming weeks. Please save the date!

The NAATBatt and U.S Battery Indices declined 5.9% and 3.1%, respectively. The Asia Battery Index was flat. The S&P 500 and Russell 2000 increased 2.8% and 3.6%, respectively.

Key Highlights:

- **AES Energy Storage** and **Samsung SDI** announced a Joint Development and Supply Agreement to develop and deploy multi-megawatt (MW) energy storage systems. Samsung SDI plans to supply an initial 20MW of Battery Energy Storage Systems to AES Energy Storage to be deployed to one of the sites in its 500 MW energy storage development pipeline.
- **Nation-E** has developed the first mobile charging system to assist electric vehicles (EVs) while on the road. The company's "**Angel Car**" could be a solution to the 'range anxiety' issue.
- **GS Yuasa** is teaming up with **Magna International** and **Mitsubishi** to form a joint venture (JV) that will produce lithium ion (li-ion) batteries for EVs in Europe. The JV could commence operations in 2012 with eventual capacity for 50,000 EVs.
- **China's Ministry of Industry and Information Technology** is preparing a 10-year plan that could enable China to become "the world's leader" in developing and producing EVs. The government could compel foreign automakers that want to produce EVs in China to share critical technologies by requiring the companies to enter JVs in which they are limited to a minority stake.
- **H.C. Starck GmbH** and **Chisso Corporation** announced the establishment of a JV. The plan is for the **CS Energy Materials** JV to build a plant with 1,000 tons of annually capacity.
- **Nissan Motor** and **Sumitomo** have formed a JV aimed at commercializing used li-ion batteries for EVs. The **4R Energy Corp** JV is capitalized at 450 million yen (\$5.42 million).
- **Tennant Company** is providing an electric street sweeper to the city of Cologne. The **Green Machines 500ze** operates on li-ion batteries.
- **A123 Systems** opened the largest li-ion automotive battery production facility in North America, based on available data. The company is planning to expand global final cell assembly capacity to more than 760 MWh annually by the end of 2011.
- **Fujitsu Laboratories Limited** has unveiled a wireless recharging technology that would take 1/150th the time currently needed to charge devices anywhere within the power-transmitter's range. Developments are under way for a broad range of potential applications that includes EVs.

- **Toyota Motor** will rollout 6 new hybrid vehicles by 2012. All will be conventional gasoline/electric hybrids. In addition, the company is working on two PHEVs both due to hit the market in 2012.
- The **Daimler, Renault** and **Nissan** partnership is being expanded to include the development of EV technology. The companies had signed a cooperation deal in April initially focusing on small cars, light commercial vehicles and engines.
- **Kia Motors** will unveil its first EV in November 2011. The vehicle hasn't been named yet, and is a crossover utility vehicle (CUV) similar to Kia's popular small-size CUV.
- **China BAK Battery** was awarded a new contract by **Chery Automobile** to supply high-power batteries used in manufacturing EVs. This is a repeat order and there is a potential that could lead to a large-scale supply contract.
- **Amprion** has developed batteries with nanostructured silicon electrodes that could be capable of storing twice as much energy as anything currently on the market. The company is working with several major automakers that are evaluating the electrode materials for use in EVs.
- **Sakti3** has received \$4.2 million in investment (from **General Motors** venture-capital arm and **Itochu Technology Ventures**). The company is working on battery cells that double energy densities of current li-ion batteries.

A Few More Details:

AES Energy Storage and Samsung SDI announced a Joint Development and Supply Agreement to develop and deploy multi-megawatt energy storage systems. Samsung SDI plans to supply an initial 20MW of Battery Energy Storage Systems to AES Energy Storage to be deployed to one of the sites in its 500 MW energy storage development pipeline. The agreement provides the option for AES Energy Storage to source additional products from Samsung SDI.

Source: AES

Nation-E has developed the first mobile charging system to assist EVs while on the road. The company's "Angel Car" (as shown in **Exhibit 1**) could be a solution to the 'range anxiety' issue. The concept is based on a large carrier with an over-sized battery that can recharge a stranded vehicle via a tube that would provide the EV with enough power to reach a charging station. The Angel Car Mobile Service Unit is equipped with an On-board 230V charger that is capable to charge a stranded vehicle in less than 15 minutes with 2-3 kWh of power, enabling up to 30km (or 19 miles) of additional driving.

Exhibit 1: The Angel Car



Source: Nation-E

GS Yuasa is teaming up with Magna International and Mitsubishi to form a JV that will produce li-ion batteries for EVs in Europe. GS Yuasa is likely to take a majority stake with Magna holding 20%-40% and Mitsubishi the remainder. The JV will begin construction on a 40 billion yen (\$466 million) factory that could commence operations in 2012 with eventual capacity for 50,000 EVs.

Source: Reuters and Nikkei

China's Ministry of Industry and Information Technology is preparing a 10-year plan that could enable China to become "the world's leader" in developing and producing EVs. The government could compel foreign automakers that want to produce EVs in China to share critical technologies by requiring the companies to enter JVs in which they are limited to a minority stake. The plan is aimed at building 3 to 5 Chinese companies into globally competitive makers of EVs by 2020. It also would promote the growth of 2 to 3 global suppliers of key components, such as advanced battery and electric-motor technologies.

Source: WSJ

H.C. Starck GmbH and Chisso Corporation announced the establishment of a JV, "CS Energy Materials". The JV will develop and produce lithium mixed oxides for high-performance batteries used to power EVs. Chisso will have a 51% stake and Chisso 49%. The plan is for CS Energy Materials to build a plant (to be in operation in 2012) in Minamata, Japan with 1,000 tons of annually capacity.

Source: H.C. Starck GmbH

Nissan Motor and Sumitomo Corp have formed a JV aimed at commercializing used li-ion batteries for EVs. The JV called 4R Energy Corp is capitalized at 450 million yen (\$5.42 million). Nissan will own 51% and Sumitomo 49%.

Source: Reuters.

Tennant Company is providing an electric street sweeper to the city of Cologne. The Green Machines 500ze (as shown in **Exhibit 2**) runs on li-ion batteries. The machine can operate for a full shift of work.

Source: Associated Press

Exhibit 2: Electric Green Machines 500ze



Source: Tennant

A123 Systems opened the largest li-ion automotive battery production facility in North America, based on available data. The plant in Livonia, Michigan is expected to expand the company's manufacturing capabilities by up to 600 megawatt-hours (MWh) per year it becomes operational A123 is planning to expand global final cell assembly capacity to more than 760MW hours annually by the end of 2011.

Source: A123 Systems

Fujitsu Laboratories Limited has unveiled a wireless recharging technology that enables the design of magnetic resonance-based wireless charging systems (as shown in **Exhibit 3**) that can simultaneously recharge various types of portable electronic devices. It would take 1/150th the time currently needed to charge devices anywhere within the power-transmitter's range. The commercial version of this prototype is expected in 2012. Developments are under way for a broad range of potential applications, charging everything from portable electronics to EVs.

Exhibit 3: Recently Unveiled Wireless Charging System



Source: Fujitsu

Toyota Motor will rollout six new hybrid vehicles by 2012. All six will be conventional gasoline/electric hybrids. In addition, the company is working on two plug-in EVs both due to hit the market in 2012. One will be a tiny commuter car with about 50 mile range. The other is an electric version of the Toyota Rav4 SUV – an EV being developed with Tesla Motors.

Source: CNN Money

The Daimler, Renault and Nissan partnership is being expanded to include the development of EV technology. The companies had signed a cooperation deal in April initially focusing on small cars, light commercial vehicles and engines. The cooperation included the next-generation Smart fortwo and Renault Twingo models, including electric versions, as well as expanding the Smart and Twingo families. Daimler highlighted the difficulty in meeting a European standards target of 95 grams CO₂ in 2020 without electric vehicles with batteries and fuel cells.

Source: Reuters

Kia Motors will unveil its first EV in November 2011. The vehicle hasn't been named yet, and is a crossover utility vehicle (CUV) similar to Kia's popular small-size CUV. The CUV will be first released in a gasoline model in September next year and in an electric model two months later. The Hyundai-Kia Automotive Group plans to supply a total of 2,500 electric vehicles by the end of 2012. Only five hundred of them will be BlueOns, and the rest the CUVs.

Source: The Korea Times

China BAK Battery was awarded a new contract by Chery Automobile to supply high-power batteries used in manufacturing EVs. China BAK will supply 110 units of li-ion power batteries, which will be used by Chery to manufacture EVs. This is a repeat order and there is a potential that it could lead to a large-scale supply contract.

Source: China BAK Battery

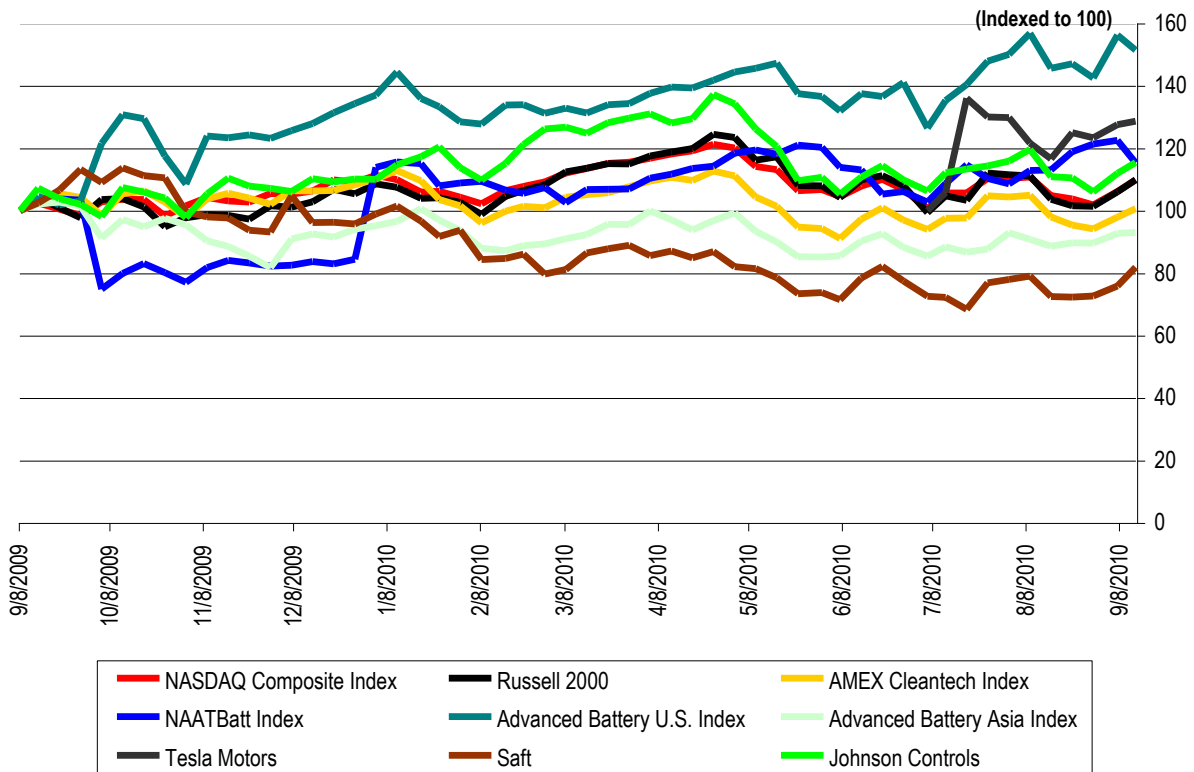
Ampricus has developed batteries with nanostructured silicon electrodes that could be capable of storing twice as much energy as anything on the market today. The company is partnering with unnamed consumer electronics manufacturers to bring the batteries to market by early 2012. The batteries will allow portable electronics to run 40 percent longer without a recharge. Ampricus is also it is working with several major automakers who are evaluating the electrode materials for use in EVs.

Source: MIT Technology Review

Sakti3 has received \$4.2 million in investment -- \$3.2 million from General Motors venture-capital arm and \$1 million from Itochu Technology Ventures, a division of a Tokyo information-technology group. The company is working on battery cells using technology that offers energy densities that could double those of today's li-ion batteries.

Source: Detroit Free Press

Exhibit 4: Indices Performance (From September 8, 2009)

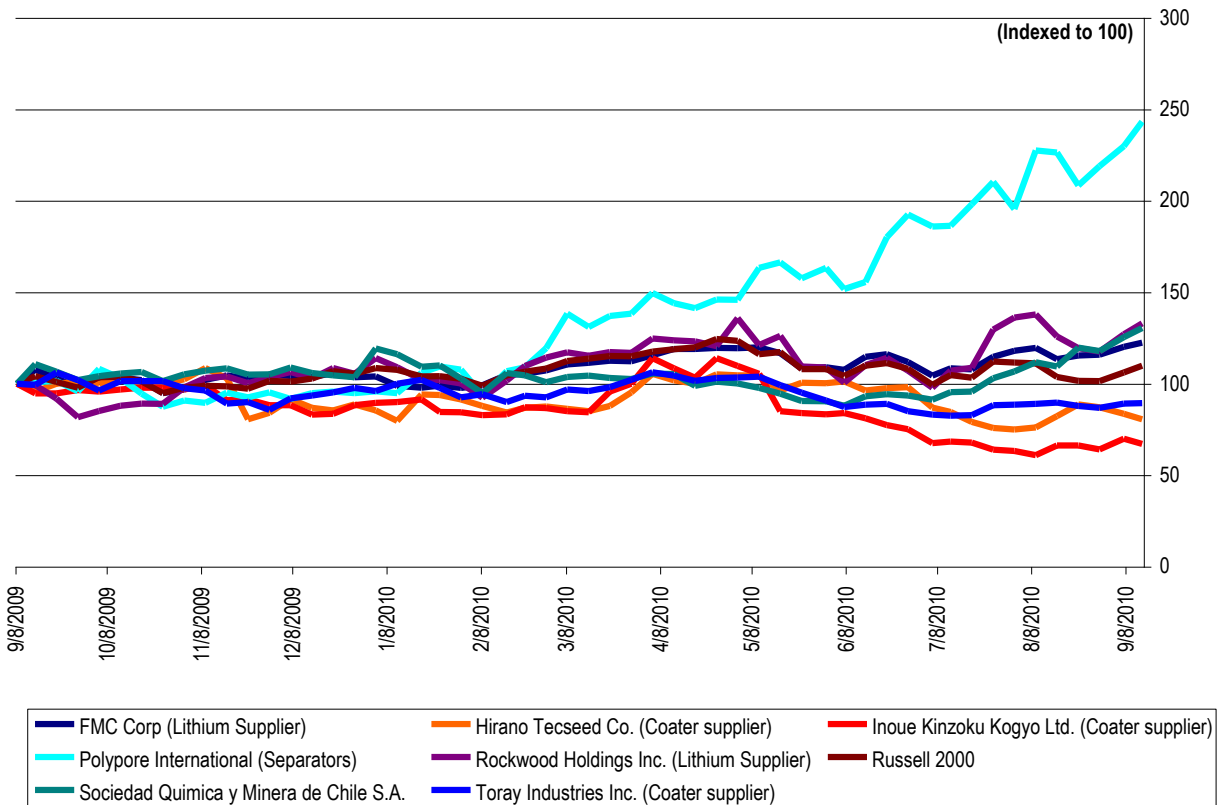


Index	Close on 9/13/2010	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	10,544.1	11,309.0	93.2%	9.9%	1.1%	2.0%
S&P 500	1,121.9	1,219.8	92.0%	7.9%	0.5%	2.8%
NASDAQ	2,285.7	2,535.3	90.2%	10.6%	(0.4%)	3.5%
Russell 2000	652.3	746.0	87.4%	10.3%	3.8%	3.6%
AMEX Cleantech Index	987.7	1,112.5	88.8%	(2.7%)	(7.4%)	2.8%

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 September 8, 2009)



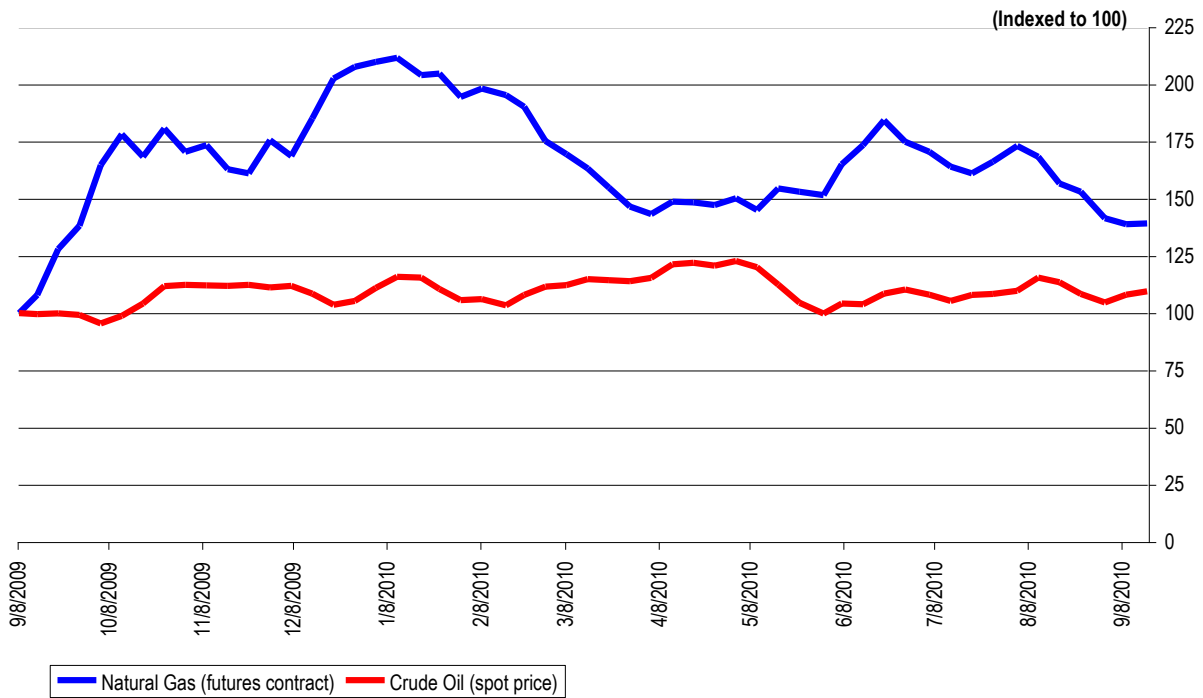
Source: Bloomberg

Exhibit 6: Commodity Prices

Commodity	Price on 9/13/2010	Price on 9/7/2010	Price on 8/13/2010	1 Week Change	1 Month Change
LME Nickel (Cash, \$ per tonne)	23,070	21,630	21,470	6.7%	7.5%
LME Lead (cash, \$ per tonne)	2,186	2,126	2,065	2.8%	5.8%

Source: LME

Exhibit 7: Natural Gas and Crude Oil
(From September 8, 2009)



Source: EIA

Executive Director's Notes



NAATBATT ANNUAL CONFERENCE WILL FOCUS ON AN IMPORTANT POLICY QUESTION

As we announced last week, NAATBatt will hold its Annual Meeting and Conference in Louisville, Kentucky on **December 8-10, 2010**. The title of the Conference will be "**Impact of PEV Recharging on T&D Systems: Challenges and Solutions**". The conference is already shaping up to be a great program. Our Advisory Committee is busy vetting a preliminary agenda, which will be posted on the NAATBatt Web site soon. A conference Web site should be up in about 10 days.

It is important to emphasize, however, that the NAATBatt Annual Meeting and Conference will not be just another industry conference. Many of our members report "conference fatigue" and the joke about how the only people making money in the lithium-ion business are the professional conference organizers is well worn.

The NAATBatt Annual Meeting and Conference will be different. While it will be a superb educational program and networking opportunity, it will also be a chance to discuss and draw attention to an important policy question concerning PEV's and the grid. That question, in a nutshell, is whether consumer demand for PEV's should be tailored to suit the grid, or whether the grid should be tailored to support consumer demand for PEV's.

That issue tends to get lost in most discussions about how utilities should prepare for PEV's. Recent discussions about the PEV-grid interface have centered on schemes for smart metering, time of day charging, load management plans and business models for demand aggregation. When you cut right through it, however, all of those mechanisms simply involve different ways of curtailing PEV recharging demand or, more accurately, moving it from times when consumers might want to charge their PEV's to times when it is most convenient for utilities to recharge them.

Demand curtailment schemes, however designed or designated, are not good news for PEV's. And they are also not good news for the country, if our goal is to reduce petroleum dependence. Telling consumers that their PEV's may not be charged when they need them makes buying PEV's much less attractive. Forcing PEV owners who want a reliably-charged vehicle to purchase electricity at peak prices could significantly erode the fuel price advantage that PEV's would otherwise enjoy over petroleum-powered vehicles.

The alternative, of course, is that utilities could invest in more power reserves and in upgrading their T&D systems. Or, better yet, utilities could invest in distributed energy storage technology, which would let

utilities wheel power to consumers at off peak times and let consumers charge their PEV's when they wish.

The answer as to which approach utilities should take is not an easy one. Making the grid accommodate PEV's, rather than making PEV owners accommodate the grid, will impose an indirect and apparently disproportionate cost on non-PEV owner ratepayers. Yet, while in some sense, investments in distributed energy storage to accommodate electric vehicles may seem unfair to non-PEV owners, it is also true that asking PEV owners to shoulder the financial burden of weaning the country off of oil is at least as unfair. The benefits national petroleum independence would be great and widespread. We need to keep our eye on that ball.

Please join us in Louisville this December to hear a discussion of the issue, which will be both frank and practical. This will not be just another conference.



James J. Greenberger
Executive Director

September 17, 2010



NAATBatt Board Approves New Member Incentives 2011 Membership Drive Underway

2011 Membership Applications and Dues Structure

The NAATBatt Board of Directors has authorized NAATBatt to begin accepting applications for membership for the 2011 calendar year. Membership dues for 2011 will remain at \$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. Payment of 2011 dues in 2010 will entitle new members to all benefits of membership for the balance of 2010 as well as 2011, including free admission to NAATBatt Webinar programs, discounted admission to the NAATBatt Annual Meeting and Conference in Louisville, Kentucky on December 8-10, 2010, preferred locations and discounts on display space at the Annual Meeting and Conference, discounts at other industry conferences for which NAATBatt is a supporting organization, and recognition in the industry as a member of NAATBatt. Please click on <http://naatbatt.org/membership-inquiry/> and indicate that you are interested in a 2011 membership.

Discount Offered on 2010 Membership

The NAATBatt Board of Directors has authorized the institution of a 70% discount on Corporate, OEM, Utility and Associate 2010 Memberships for new members for the balance of the 2010 calendar year. Purchasing a discounted 2010 membership in NAATBatt is a great way for companies interested in NAATBatt to try out a membership and determine whether it brings value to their organizations. A membership for 2010 will entitle companies to all benefits of membership for the balance of this calendar year, including free admission to NAATBatt Webinar programs, discounted admission to the NAATBatt Annual Meeting and Conference in Louisville, Kentucky on December 8-10, 2010, preferred locations and discounts on display space at the 2010 Annual Meeting and Conference, discounts at other industry conferences for which NAATBatt is a supporting organization during 2010, and recognition in the industry as a member of NAATBatt. Please click on <http://naatbatt.org/membership-inquiry/> and indicate that you are interested in a discounted 2010 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, 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.

Most importantly, 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 we need your support to do it. Please join soon.

North American Industry Announcements and Calendar

**SAVE
THE
DATE!**

NAATBatt Annual Meeting and Conference on PEV Impacts on T&D Systems: The 2010 Annual Meeting of the NAATBatt membership will be held on **December 8-10, 2010** at the Seelbach Hilton Hotel in Louisville, Kentucky. The annual meeting will kick off a two-day conference entitled: **“Impact of PEV Recharging on T&D Systems”**. The program will discuss the possible adverse consequences that large scale recharging of mass market electric vehicles may have on portions of the power grid as well as the possible legal consequences for utilities and OEM’s that may arise from system failures. The program will highlight the important role that distributed energy storage systems could play in stabilizing local distribution systems and accommodating large scale PEV deployment. Member companies will be invited to display their stationary storage products and solutions and will be entitled to discounted admission to the conference. More information about the Annual Meeting and Conference will be available soon in this newsletter and on the NAATBatt Web site. Please note the terms of NAATBatt’s new membership drive, discussed in the preceding section of this newsletter, and click on <http://naatbatt.org/membership-inquiry/> to receive additional information about membership.

- **Battery Show 2010:** The Battery Show, a conference and exposition focused on multiple battery chemistries and applications will be held in San Jose, California on **October 5-7, 2010**. Information about the show can be found at: <http://www.thebatteryshow.com/index.php>
- **218th Meeting of the Electrochemical Society:** The next biannual ECS meeting will take place on **October 10-15**, in Las Vegas, Nevada. The meeting will feature a wide range of experts throughout the fields of solid-state and electrochemical science and technology, getting together to communicate with both colleagues and a vital market. More information can be found at <http://www.electrochem.org/meetings/biannual/218/218.htm>
- **Advanced Energy Storage 2010:** FullPower, Inc. will be leading a series of exhibits on **October 12-14**, in San Diego, California to showcase the technological capabilities of leading suppliers of advanced batteries, energy storage systems, and ultracapacitors. Seminars will discuss the insights and impacts on these various technologies. Additional information may be found at <http://www.fullpowerinc.com/AES2010/AESHome.html>
- **Battery Power 2010 Conference:** Battery Power 2010, an international conference highlighting the latest developments and technologies in the battery industry, will be held **October 19-20** in Dallas, Texas. The conference, which is in its eighth year, will feature more than 35 presentations on portable, stationary and automotive battery technology, as well as battery manufacturing, materials and research & development. NAATBatt is a supporting organization of the conference and NAATBatt members in good standing are entitled to register for the conference at the discounted rate of \$495.00. Please contact jgreenberger@naatbatt.org for information about how to receive this discount. Information about the conference and registration for it may be found at: http://www.batterypoweronline.com/bppt-conf10/bp10_index.php.

- **U.S. National Electric Vehicles Safety Standards Summit:** On **October 21-22**, in Detroit, Michigan, the National Fire Protection Association (NFPA) will be holding a safety summit along with co-sponsor SAE International in order to ensure standards on electric cars. The summit will focus on how to implement such standards on a rapidly growing industry, in which technology is swiftly improving. To find out more about the summit visit http://www.nfpa.org/newsReleaseDetails.asp?categoryId=488&itemId=46997&cookie_test=1
- **Rare Earth Metals Summit III:** Infocast's Rare Earth Metals Summit III will be held in Washington, D.C. on **October 25-27**, 2010. The conference will examine the supply and value chains for rare and strategic metals, including lithium. NAATBatt is a supporting organization of the conference and NAATBatt members will be entitled to a 10% discount on registration. The conference Web site can be found at: <http://www.infocastinc.com/index.php/conference/metals10>.
- **Annual DOE Program Update Conference – Energy Storage R&D Programs:** Sandia National Laboratory's U.S. DOE Energy Storage Systems Research Program (ESS) will be held on **November 2-4**, in Washington D.C. The program will review the latest DOE sponsored research in advanced battery technology, power conditioning and others topics relating to advanced energy storage. Registration for the conference can be found here: <http://www.sandia.gov/ess/About/newsevents.html#conf>
- **Battery Safety 2010:** Knowledge Foundation will hold a conference focusing on advancements in systems design, integration and testing for lithium-ion battery safety and reliability in Boston, MA on **November 3**, 2010. Additional information about the conference can be found at: <http://www.knowledgefoundation.com>
- **Battery Lithium Mobile Power 2010:** Knowledge Foundation will hold a conference focusing on new lithium-ion battery chemistries, novel electrode and electrolyte materials, and system integration for a vast array of mobile and portable applications in Boston, MA on **November 4-5**, 2010 in conjunction with the Battery Safety 2010 Conference referenced above. Additional information about the conference can be found at: <http://www.knowledgefoundation.com>
- **Future of Electric Vehicles Conference:** The Future of Electric Vehicles Conference will be held in San Jose, California on **December 7-8**, 2010. The conference will have representatives for all electric vehicle types, components, and uses. The conference will permit attendees to learn more about electric vehicles in each and every form. Information and registration for the conference can be found on the website at: <http://www.idtechex.com/electric-vehicles-usa-10/>
- **Advanced Automotive Batteries Conference & Symposium 2011:** The Advanced Automotive Batteries 2011 Conference (AABC) will be held on **January 24-28 2011**, in Pasadena, California. This is the next domestic program in the series of conferences on automotive batteries sponsored by Dr. Menahem Anderman and Total Battery Consulting. The conference Web site can be found at: <http://www.advancedautobat.com/automotive-battery-conference-2011/index.html>.
- **Shmuel DE-Leon Energy, Ltd** an industry knowledge base company has developed a new power sources DataBase including 28,000 records of industry vendors, cells datasheets with a full parametric searching capabilities. The product provides industry users and companies with a

knowledge tool to find the power sources resources and vendors for their EV needs. See: www.batteriesdatabase.com, or contact: shmueld33@gmail.com.

- **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, committees and the upcoming roadmap project 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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