

Summary:

For the August 27th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities. On September 2nd, we will be hosting a webinar "Developments in Advanced Lead Acid Batteries: Everything You Thought You Knew But Don't".

The NAATBatt, U.S. and Asia Battery Indices increased 5.2%, 1.5% and 1.3%, respectively. The S&P 500 and Russell 2000 declined 1.1% and 2.0%, respectively.

Key Highlights:

- Government-owned **Korea Resources Corporation** and **Comibol** (**Bolivia's** national mining company) signed a memorandum of understanding (MOU) that includes the formation of a joint committee to research and develop lithium resources. Along with Korea Resources, the joint committee will include **Posco**, **LG International**, **GS Caltex** and **Daewoo International**.
- **Ford** and **Portland General Electric** are teaming up to share information about electric vehicle (EV) charging needs. The companies will share information about charging needs with the goal of making sure the electrical grid can support the higher demand with EVs on the road.
- **China** is planning to issue new standards to regulate the charging infrastructure needed for EVs. The **State Electricity Regulatory Commission** expects the government to introduce 3 standards in October.
- **Toyota Motor** will begin sales of an onboard device designed to alert pedestrians and others audibly to the presence of a quiet vehicle. The sound rises and falls in pitch relative to the vehicle's speed indicating the vehicle's proximity and movement.
- The **City of Seattle** and **Ford Motor** are partnering as part of the company's 14-city "**Charging into the Future Tour**". The collaboration involves the preparation of the city for the rollout of EVs.
- **Rapid Electric Vehicles** has commenced production on 100% electric bi-directional charging **Ancillary Power Vehicles** as part of the **U.S. Army Tank Automotive Research Development Engineering Center (TARDEC)** Micro-Grid contract for a Micro-Grid at Wheeler Air Base, Hawaii. **Valence Technology** is providing a 200 kilowatt-hour (kWh) stationary storage system.
- The **Bay Area Air Quality Management District (BAAQMD)** has approved a \$5 million plan to install 5,000 electric car chargers in the next 5 years. There are currently about 120 public chargers in the Bay Area.
- **Ford** is using two proprietary wireless monitoring methods to improve lithium-ion (li-ion) battery performance by collecting real-time performance data and making software updates on its battery systems in the lab and on vehicles in the field. The remote monitoring capability has enabled the company to reduce test-fleet downtime.
- **Motive Industries (Canada-based)** is designing an EV made of hemp. The company is working on the Kestrel as part of **Project Eve** -- a collaboration within the automotive industry to boost the production of EVs and the associated components in **Canada**.

- **Bill AB2514** moved a step forward and was passed in the **California State Senate**. The bill would require the **Public Utilities Commission** to set targets for energy storage systems.
- The **City of Chicago** is taking measures to be selected for an EV rollout by the auto manufacturers. They include putting out a request for proposals to install \$2 million worth of charging stations.
- **Car Charging Group (CCG)** announced it has partnered with the **City of Dania Beach Community Redevelopment Agency (CRA)** to install and maintain charging stations at the city's garage in Dania Beach, Florida. The garage has 440 parking spaces.
- **Rhode Island** has opened its first charging station. According to **ProjectGetReady**, the state could eventually have as many as 10,000 stations installed.
- **Advanced Battery Technologies (ABT)** announced it has signed supply agreement with **Hengmin Opto-electrical Tech**. The contract amount is valued at approximately \$5.7 million.

A Few More Details:

Government-owned Korea Resources Corporation and Comibol (Bolivia's national mining company) signed a memorandum of understanding (MOU) that includes the formation of a joint committee to research and develop lithium resources. Along with the state-run Korea Resources Corporation, the Korean members of the joint committee will include private firms such as Posco, LG International Corporation, GS Caltex and Daewoo International. Uyuni is a salt flat in Bolivia that is known to have more than 5.4 million tons in lithium reserves, which is half of the world's total. Korea imported \$666.8 million worth of lithium last year primarily from Chile.

Source: JoongAng Daily

Ford and Portland General Electric are teaming up to share information about electric vehicle (EV) charging needs. The companies will share information about charging needs with the goal of making sure the electrical grid can support the higher demand resulting from more EVs on the road. Ford is planning to rollout 5 new EVs over the next 2 years including the all-electric Transit Connect commercial van whose batteries are manufactured by Johnson-Controls-Saft.

Source: Associated Press

China is planning to issue new standards to regulate the charging infrastructure needed for EVs. The State Electricity Regulatory Commission expects the government to introduce 3 standards in October including that would cover technical requirements for the charging facilities. The regulator is also negotiating with power grid operators and crude oil producers for five other standards that it aims to establish this year.

Source: Reuters

Toyota Motor will begin sales of an onboard device designed to alert pedestrians and others audibly to the presence of a quiet vehicle, such as a gasoline-electric hybrid. The device will be available nationwide through authorized dealers and distributors for retrofitting on the 3rd generation "Prius" gasoline-electric hybrid vehicle. The onboard device automatically emits a synthesized sound of an electric motor when the Prius is operating as an EV at speeds up to approximately 15 miles per-hour. The sound rises and falls in pitch relative to the vehicle's speed indicating the vehicle's proximity and movement.

Source: Toyota Motor Corporation

The City of Seattle and Ford Motor are partnering as part of the company's 14-city "Charging into the Future Tour". The collaboration involves the preparation of the city for the rollout of EVs. The partnership will include the joint development of consumer outreach and education programs on electric cars, as well as collaboration on information regarding charging requirements of electric vehicles to ensure the grid is prepared to support the added demand.

Source: Seattle Post Intelligencer

Rapid Electric Vehicles™ (REV™) has commenced production on 100% electric bi-directional charging Ancillary Power Vehicles (APVs) as part of the U.S. Army Tank Automotive Research Development Engineering Center (TARDEC) Micro-Grid contract at Wheeler Air Base, Hawaii. The APV is a specialized 100% electric light-duty fleet vehicles designed to increase the security, reliability and efficiency of the electric grid. REV is a subcontractor to Honeywell Aerospace Valence Technology is providing a 200 kilowatt-hour (kWh) stationary energy system.

Source: Rapid Electric Vehicles

The Bay Area Air Quality Management District (BAAQMD) has approved a \$5 million plan to install 5,000 electric car chargers around the 9-county Bay Area in the next 5 years. The BAAQMD will likely offer a voucher to cover 25% of up to 3,000 home units as part of its charger program. An additional 2,000 chargers (220/240 volts) will be located in public areas such as BART stations, shopping malls and parking garages. Motorists will likely swipe a credit card and pay \$5 to \$10 to fully recharge a car (depending on the time of day and cost of PG&E power). 50 public high-speed chargers (480 volts) also will be installed that can recharge a Nissan Leaf in 30 minutes. There are currently about 120 public chargers in the Bay Area. The Leaf will cost Californians \$20,380 after rebates and tax credits. The Volt will cost \$33,250 after federal tax.

Source: San Jose Mercury News

Ford is using two proprietary wireless monitoring methods to improve lithium-ion (li-ion) battery performance by collecting real-time performance data and making software updates on its battery systems in the lab and on vehicles in the field. The remote monitoring capability has enabled the company to reduce test-fleet downtime. The company is planning to launch 2 all-EVs (Transit Connect Electric in 4Q10 and in Europe next year followed by the Focus Electric passenger car in 2011 and Europe in 2012). Two next-generation EVs follow in North America in 2012 and Europe in 2013.

Source: Ford Motor Company

Motive Industries (Canada-based) is designing an electric vehicle (EV) made of hemp. The Kestrel EV will have a top speed of 90 kilometres (56 miles) an hour and a range of 40 to 160 kilometres (25 to 99 miles) before a recharge is needed. The battery has a capacity ranging from 4.5 to 17.3 kilowatt hours of power. The car's body will be made of an impact-resistant composite material produced from mats of hemp, a plant from the cannabis family. Motive Industries is working on the Kestrel as part of Project Eve -- a collaboration within the automotive industry to boost the production of EVs and the associated components in Canada.

Source: CBC

Bill AB2514 moved a step forward and was passed in the California State Senate. The bill would require the Public Utilities Commission to set targets for energy storage systems with public and private utilities in the state helping to meet the targets. The bill is still not law and goes back to the state assembly for concurrence in senate amendments, which will assess amendments made to the legislation during its senate hearing.

Source: Business Green

The City of Chicago is taking measures to be selected for an EV rollout. Auto manufacturers are assessing 3 factors in choosing cities for rollouts; (i) large numbers of hybrid owners, (ii) a sign the vehicles will be embraced; and (iii) friendly public policy & supportive utilities. The city has put out a request for proposals to install \$2 million worth of charging. Stakeholders participating in Chicago's Electric Vehicle Consortium range from Commonwealth Edison and government officials to alternative-fuel makers and i-Go and Zipcar. The metro area is the third-largest U.S. auto market, and Illinois ranks in the top 10 states for hybrid vehicle registrations, according to the Environmental Law & Policy Center.

Source: Chicago Tribune

Rhode Island has opened its first charging station. The ChargePoint station opened in the parking lot of Cardi's Furniture Superstore in West Warwick. According to ProjectGetReady, the state could eventually have as many as 10,000 stations installed.

Source: Associated Press

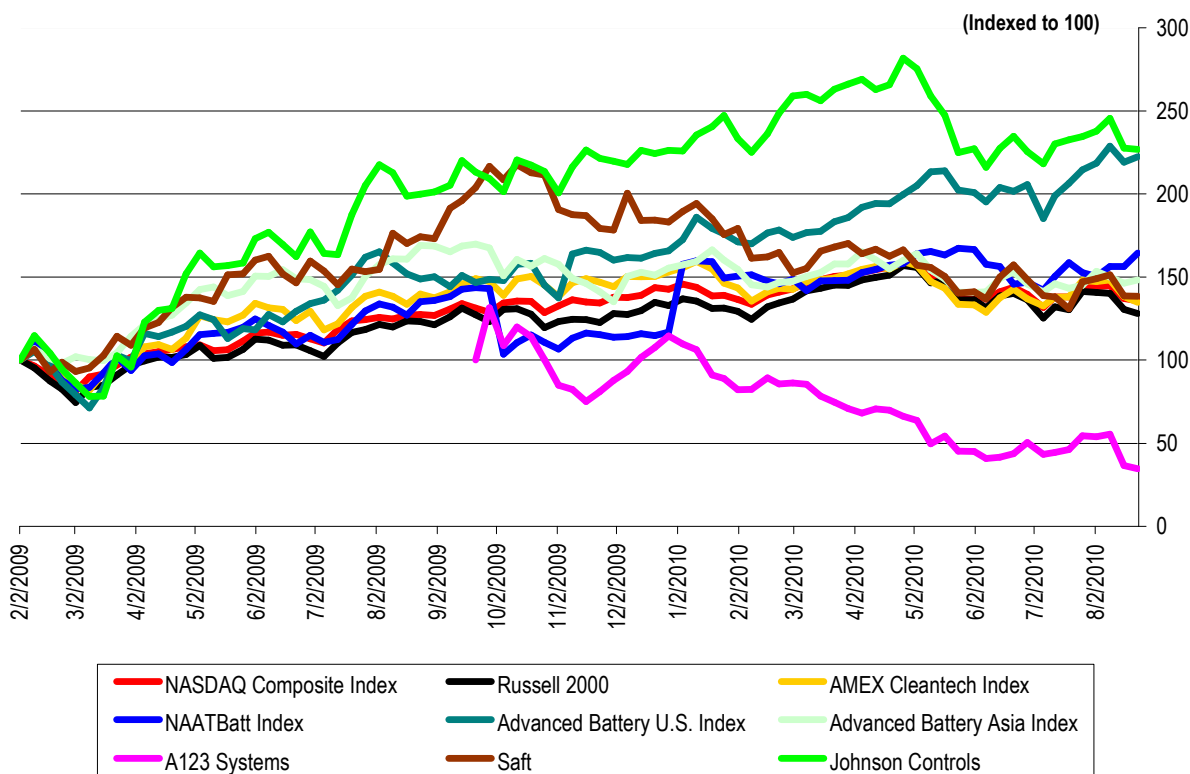
Car Charging Group announced it has partnered with the City of Dania Beach Community Redevelopment Agency (CRA) to install and maintain charging stations for electric vehicles at the city's garage, located near City Hall in Dania Beach, Florida. The garage has 440 parking spaces. The parking structure is open and ready for business, complete with four charging stations provided by CCG. As additional are needed, CCG will facilitate the installation of additional charging stations.

Source: Associated Press

Advanced Battery Technologies (ABT) announced it has signed supply agreement with Hengmin Opto-electrical Tech. The contract amount is valued at approximately \$5.7 million. Hengmin is primarily engaged in lithium-battery pack assembly and power management systems production and sales. ABT will deliver battery packs that will provide the power source for LED lights, walkie-talkies and street lamps.

Source: Advanced Battery Technologies

Exhibit 1: Indices Performance
(From February 2, 2009)

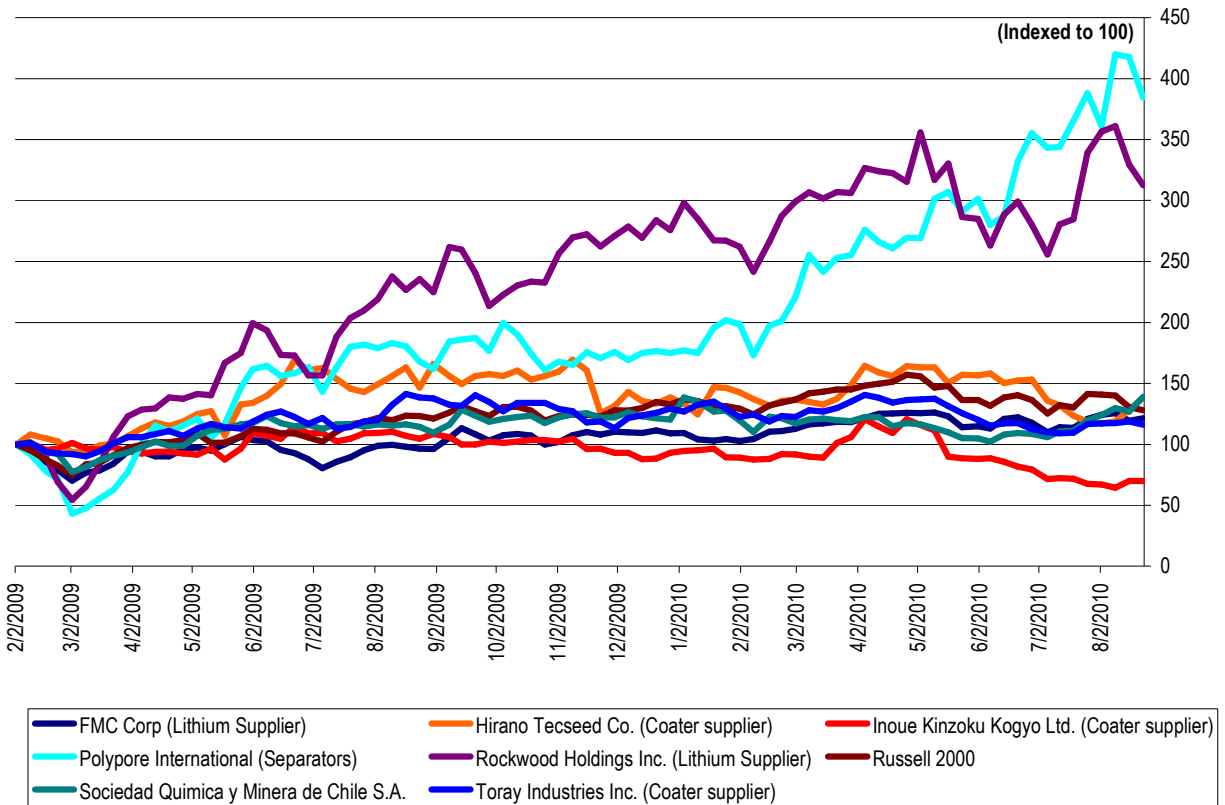


Index	Close on 8/23/2010	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	10,174.4	11,309.0	90.0%	7.0%	(2.5%)	(1.2%)
S&P 500	1,067.4	1,219.8	87.5%	4.0%	(4.4%)	(1.1%)
NASDAQ	2,159.6	2,535.3	85.2%	6.6%	(5.9%)	(1.0%)
Russell 2000	602.7	746.0	80.8%	3.4%	(4.1%)	(2.0%)
AMEX Cleantech Index	935.3	1,112.5	84.1%	(4.1%)	(12.3%)	(2.7%)

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 2: Supplier Performance
(From February 2, 2009)



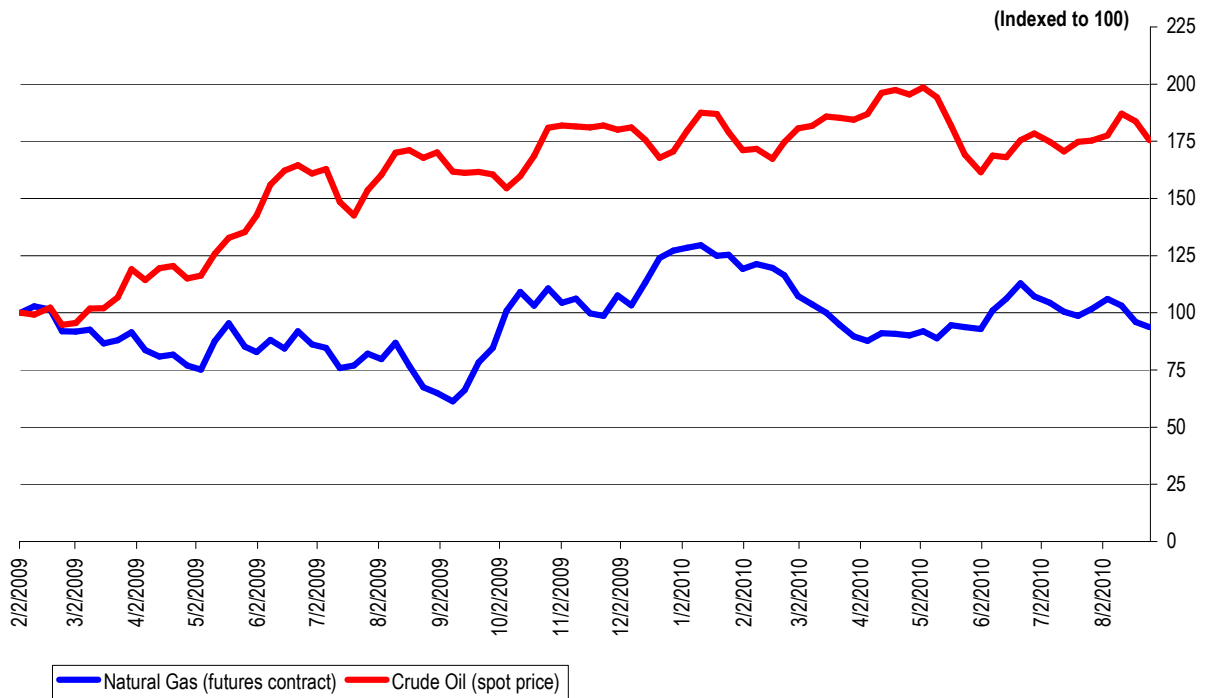
Source: Bloomberg

Exhibit 3: Commodity Prices

Commodity	Price on 8/23/2010	Price on 8/16/2010	Price on 7/23/2010	1 Week Change	1 Month Change
LME Nickel (Cash, \$ per tonne)	21,200	21,395	20,375	(0.9%)	4.0%
LME Lead (cash, \$ per tonne)	2,021	2,040	1,930	(0.9%)	4.7%

Source: LME

Exhibit 4: Natural Gas and Crude Oil
 (From February 2, 2009)



Source: EIA

Executive Director's Notes



A LETTER TO REP. SANDER LEVIN ABOUT COMMUNITY ENERGY STORAGE

Earlier this week I had the opportunity to meet with Ways and Means Committee Chairman Sander M. Levin (D-MI) in Chicago and speak with him about the future of the advanced battery industry in the United States. Chairman Levin is among the strongest supporters of the industry in Congress and understands as well as anyone the critical importance of our industry to the future economy and energy security of the United States.

I spoke specifically with Chairman Levin about NAATBatt's concerns, previously expressed in this column, about possible short term overcapacity in the industry and the negative impact such overcapacity might have on the future of electric drive. I outlined NAATBatt's thoughts on the role that stationary storage applications, and in particular community energy storage, might play in making the industry's short term prospects a little brighter and promoting consumer acceptance of electric drive.

Chairman Levin was very interested in NAATBatt's ideas and asked me to reduce them to writing. In lieu of my usual column this week, I reproduce below the letter I sent to Chairman Levin at his request:

Dear Mr. Levin:

The ARRA recently provided more than \$1.2 billion of government funding for advanced battery manufacturing plants, many of which are being constructed in Michigan. It was anticipated that those plants would produce the advanced lithium-ion batteries that will power the first generation of mass produced plug-in electric vehicles (PEV's). Those vehicles will enter the market later this year.

Several analysts predict that the capacity of the plants being constructed with ARRA funds will significantly exceed market demand for first generation PEV batteries. A recent study by Roland Berger Strategy Consultants puts installed capacity at more than 200% of actual market demand through 2017. Shut downs and layoffs at new ARRA-financed battery plants would be economically and politically disastrous. Finding ways to fill that capacity is of paramount importance.

A good short term solution would be encouraging the more rapid deployment of community energy storage (CES) technology. CES involves locating relatively small (25-75 kW) distributed stationary batteries in neighborhoods, each battery servicing a few houses or small commercial loads. Each CES battery provides back-up power to the connected loads and support to the local electricity distribution system. In addition, by using advanced control software, multiple CES units can be networked together to provide a multi-megawatt power

resource, which can be used to support wholesale electricity transmission, ensure power quality and balance variable renewable electricity generation on the grid.

CES will also play a critical role in supporting the market for PEV's. One of the greatest threats to the PEV market is the fragility of local electricity distribution networks. Many such networks will not be able to handle multiple homeowners served by the same substation coming home after work, plugging in their cars, and turning on their TV's and air conditioners, all at the same time. PEV-related blackouts and brownouts will significantly sour the market for PEV's, both among consumers and local regulators. Market surveys indicate that 98% of PEV owners expect to charge their PEV's at home. But recent experience indicates that time of day charging may not be well accepted. Consumers want their side of the grid to remain dumb. When a consumer plugs in her PEV, she wants it charged immediately, not at the convenience of the local utility.

CES solves all of these problems. By locating batteries in neighborhoods, immediately proximate to consumer load, utilities can wheel electricity into neighborhoods at times of low demand and let consumers use it at the consumers' convenience. CES will permit electricity distribution systems to handle widespread PEV recharging at peak times but permit grid operators the flexibility to manage the acquisition and transmission of electricity in the most efficient way possible. American Electric Power and DTE Energy both have pilot CES projects under study.

Most importantly, the types of batteries used in CES systems can be the same or very similar to the types of batteries used in PEV's. The same factories built with ARRA funds to produce PEV batteries can be used to produce batteries for CES. Demand for CES systems would keep those factories operating at full capacity and their work forces fully and productively employed.

Sections 3-5 of the Electric Drive Vehicle Deployment Act of 2010 (H.R. 5442) anticipate investing billions of federal dollars in public recharging infrastructure for PEV's. No doubt this investment would be helpful. But the lack of public recharging infrastructure is not the principal barrier to widespread adoption of PEV's – the principal barrier is the high cost of advanced PEV batteries. Those costs can only be reduced by increasing the volume of advanced batteries produced and the experience (and resulting innovation) of American battery manufacturers in working with lithium-ion technology. Investing heavily in CES systems will permit this to occur.

I would urge you in considering the next energy bill to prioritize the needs of electric drive carefully. Top priority should be given to investing in CES systems -- and to making sure those investments are made quickly.

Very truly yours,



James J. Greenberger
Executive Director

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North American Industry Announcements and Calendar

- **Next Webinar Program: Advanced Lead Acid Battery Technology:** The NAATBatt Webinar series continues on Thursday, **September 2, 2010**, with a program entitled "*Developments in Advanced Lead Acid Battery Technology: Everything You Thought You Knew But Don't*". The program will examine some new developments in lead acid batteries that may breathe new life into a hundred year old technology that many have already written off in favor of advanced lithium-ion. Our speakers, Steve Clarke of East Penn Manufacturing/Applied Intellectual Capital and John Gagge of EnerSys Americas, will explain why reports of the death of lead acid technology may be greatly exaggerated and how lead acid may yet compete with lithium-ion batteries in advanced automotive and grid-level stationary storage applications. The registration link (complimentary) for employees of NAATBatt member firms is <http://events.meetingbridge.com/Register/?06123183141&code2>. Non-NAATBatt members are welcome to attend for \$30 by clicking on the following link: <http://events.meetingbridge.com/Register/?06123183141>.
- **NiChE Workshop on Materials for Large-Scale Energy Storage:** The Council for Chemical Research will host a NiChE Workshop on Materials for Large-Scale Energy Storage on **September 16-17** at the National Institute for Standards and Technology (NIST) in Gaithersburg, MD. The workshop will delve into the end-use applications and market drivers for large-scale storage, the R&D efforts that are pushing the boundaries, as well as highlighting some near-deployment technologies. Additional information about the program may be found at: <http://www.ccrhq.org/articles/niche-workshop-materials-large-scale-energy-storage>
- **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. Additional details will follow.
- **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>.



- **NAATBatt Membership Information.** NAATBatt is taking applications for 2010 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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