

Summary:

For the November 19th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities.

The NAATBatt Index increased 4.4%, while the U.S. and Asia Indices decreased 4.7% and 2.8%, respectively. The S&P 500 and Russell 2000 decreased 2.1% and 2.3%, respectively.

Executive Director James Greenberger writes about the danger of formulating energy policy on a piecemeal basis. Mr. Greenberger's commentary, "**The Danger of Energy Policy Segmentation**", can be read in the Executive Director's Notes later in this newsletter.

NAATBatt 2010 Annual Meeting and Conference will be held at The Seelbach Hilton Hotel in Louisville, Kentucky on **December 8-10, 2010**. "**The Impact of PEV's on T&D Systems: Challenges and Solutions**" Conference will focus on the possible impacts of PEV recharging on local electric distribution and transmission systems and how distributed energy storage technology can help reduce the risk of disruptions. For additional information and to register, click on: <http://naatbatt.org/2010annualmeeting/>

Key Highlights:

- **NRG Energy** is launching the nation's first privately funded electric vehicle (EV) ecosystem in **Houston**. NRG under the brand name **eVgosm** will provide EV owners with "home-and-away" fueling packages. The companies working with NRG to deploy eVgo include **AeroVironment**, **Hertz** and **Best Buy**.
- **Compact Power (CPI)** expects the price of lithium-ion (li-ion) batteries to tumble over the next decade to levels that make the alternative powertrains as cheap as internal combustion engines. The internal target is to drive it down by a factor of 2 to 4 over the next 5 to 10 years.
- The **National Infrastructures Ministry of Israel** is opposed to the option of recharging EVs at home and with electricity points connected to the national grid. It only wants recharging via a managed grid by an external party. The plan is to have the **Israel Electric Corporation** build the recharging stations in public places.
- **Sanyo Electric** has supply agreements with 6 automakers to provide li-ion batteries for EVs. The company is targeting a 30%-40% share of the EV battery market by 2020 with the **Panasonic** group as a whole taking an even larger share of what Sanyo forecasts to be a 1.5 trillion yen (or \$18 billion) global market by that time.
- **EnerSys** has received a multi-year contract award, with an estimated value of \$38.5 million in the first year from the **United States Defense Logistics Agency (DLA)**. The award is for **Hawker Armasafe Plus** batteries for use by the **United States Army** and **Marine Corps** and for the **Hawker F-16** batteries for use by the **United States Navy** and **Air Force**.
- **China** will reduce the number of firms it allows to recycle lead-acid batteries for refined lead production. It is estimated China will only allow around **20 battery recyclers** to operate in the future, compared with the many hundreds of firms currently operating.

- **Renault** is expecting all-EVs to account for about 5% of the global car market by 2016. **Ford Motor** expects that by 2020, 10% to 20% of the auto market will be hybrid, plug-in -- with battery-electric vehicles accounting for about 5%.
- **Chicago** will be one of the first markets to see the **Ford Focus Electric** featuring a 23 kilowatt-hour (kWh) li-ion battery. The EV will start showing up in dealers' showrooms in late 2011.
- **International Battery** has received a grant from the **Pennsylvania Energy Development Authority (PEDA)** to design an 800 kWh bulk energy storage system (BESS). The preliminary work on the BESS has begun and is expected to be ready for initial testing by 2Q11.
- **Honda Motor** will introduce its first all-EV in the U.S. and Japan in 2012. The company unveiled the **Fit EV** concept car that will be capable of driving 100 miles on a charge and will have three driving modes to optimize either efficiency or acceleration.
- **LG Chem (Compact Power)** is expecting to secure more battery orders for **General Motors Volt EV** for 2011 because of higher-than-expected demand. The company began supplying li-ion batteries for the Volt in September under a 6-year exclusive contract.
- **Coulomb Technologies** has deployed ChargePoint networked EV chargers in **Washington, D.C.**, at the **Franklin D. Reeves Center** on 14th Street. Utility **PEPCO** and **NovaCharge LLC** installed the curbside station.
- **Coda Automotive** is delaying the launch of its EV sedan until 3Q11 (from its initial target of December 2010). The company plans to ramp up to an annual production rate of between 12,000 and 14,000 vehicles.
- **Fisker Automotive** is negotiating a deal to sell its **Karma** model in **China** in 2H11. The company has had discussions with larger automakers about a strategic partnership.
- **Elecscoot (U.K.-based)** has launched a compact all-electric delivery vehicle with a range of 112 to 300 miles, top speed of 46mph and 400kg (or 880 lbs) payload. The light cargo truck costs from £7,995 (or \$12,790) and costs around \$0.02 per mile to operate.

A Few More Details:

NRG Energy is launching the nation's first privately funded EV ecosystem in Houston, the start of a rollout across Texas in 2011. The company plans to invest over \$10 million in Houston's public charging station infrastructure and will be the first company to equip an entire major market with the privately funded infrastructure. NRG under the brand name eVgosm will provide EV owners with "home-and-away" fueling packages. There are three 3-year charging plans available with the following monthly rates:

1. Home (hardware + service): \$49 + home electricity cost
2. Mobile (Home + unlimited charging at eVgo stations): \$79 + home electricity cost
3. Complete (Mobile + unlimited charging at home): \$89 – includes home EV electricity

The following companies are working with NRG to deploy eVgo:

Charging Technologies, Network Services and Smart Energy

- AeroVironment
- GE

Auto Sales and Rental

- Nissan North America
- Aptera
- Gulf States Toyota
- Hertz
- smart USA

Charging Station Host

- Best Buy
- Walgreens
- H-E-B
- Spec's Wine, Spirits, & Finer Foods

Retail Electric Providers

- Direct Energy.
- Green Mountain Energy Company
- Reliant Energy
- TXU Energy

Source: NRG Energy

Compact Power (CPI) expects the price of li-ion batteries to tumble over the next decade to levels that make the alternative powertrains as cheap as internal combustion engines. The company referred to prices of li-ion batteries falling by a factor of 14 since the technology was first commercially introduced in the early 1990s. The internal target is to drive it down by a factor of 2 to 4 over the next 5 to 10 years, as EVs have leverage because of the size of the pack. By 2020, CPI projects EVs will account for at least 50% of li-ion usage.

Source: Reuters

The National Infrastructures Ministry (NIM) of Israel is opposed to the option of recharging EVs at home and with electricity points connected to the national grid. It only wants recharging via a managed grid by an external party would reduce the need to set up more electricity production facilities and expand the current national grid. The plan is to have the Israel Electric Corporation (IEC) build the recharging stations in public places, and a party certified in electricity work at the relevant tension will build the stations in private locations. IEC will own and maintain the recharging stations in public places, and vehicle owners will own and maintain the recharging stations in private locations. The NIM's plan contradicts the Better Place model that is to own and manage the home and public recharging stations and to handle all the clearing of transactions.

Source: *The Jerusalem Post*

Sanyo Electric has supply agreements with 6 automakers to provide li-ion batteries for EVs. The known customers include Volkswagen and Suzuki Motor. The company views EVs as a small market until an infrastructure is established. Sanyo is targeting a 30%-40% share of the EV battery market by 2020 with the Panasonic group as a whole taking an even larger share of what Sanyo forecasts to be a 1.5 trillion yen (or \$18 billion) global market by that time. Sanyo sees the total rechargeable battery market growing to 5 trillion yen (or \$60 billion) in 2020.

Source: *Reuters*

EnerSys has received a multi-year contract award, with an estimated value of \$38.5 million in the first year from the United States Defense Logistics Agency (DLA), to produce valve regulated lead acid (VRLA) batteries using thin plate pure lead technology. The award is for the Hawker Armasafe Plus batteries for use by the United States Army and Marine Corps and for the Hawker F-16 batteries for use by the United States Navy and Air Force. The contract provides for the DLA to exercise additional equal annual options through 2014.

Source: *EnerSys*

China will reduce the number of firms it allows to recycle lead-acid batteries for refined lead production. The country is the world's biggest producer and consumer of refined lead. It is estimated China will only allow around 20 battery recyclers to operate in the future, compared with the many hundreds of firms currently operating. The China Battery Industry Association is forecasting China's production of lead-acid batteries will hit 240 million kWh by 2015 (2x the 2009 levels). China used 2.35 million tonnes of refined lead for lead-acid battery production in 2009, accounting for about 70% of the country's total refined lead consumption.

Source: *Bloomberg*

Renault is expecting all-EVs to account for about 5% of the global car market by 2016. Ford Motor expects that by 2020, 10% to 20% of the auto market will be hybrid, plug-in -- with battery-electric vehicles accounting for about 5%. Toyota believes there is a market for EVs, but cost and convenience (such as 'range anxiety') remain an obstacle for mass adoption.

Source: *Reuters*

Chicago will be one of the first markets to see the Ford Focus Electric (as shown in **Exhibit 1**) featuring a 23 kWh li-ion battery. The Focus Electric will start showing up in dealers' showrooms in late 2011. The company is introducing the car to 14 cities initially, based on whether people in those cities buy hybrids, and the level of cooperation from utilities and local governments.

Exhibit 1: The Focus Electric



Source: Chicago Sun-Times

International Battery has received an \$800,000 grant from the Pennsylvania Energy Development Authority (PEDA) to design an 800 kWh bulk energy storage system (BESS). The grant is part of PEDA's mission to promote the development and use of Pennsylvania's clean energy resources. The preliminary work on the BESS has begun and is expected to be ready for initial testing by 2Q11.

Source: International Battery

Honda Motor will introduce its first all-electric vehicle in the U.S. and Japan in 2012. The company unveiled the Fit EV concept car (as shown in **Exhibit 2**). The Fit EV will be capable of driving 100 miles on a charge and will have three driving modes to optimize either efficiency or acceleration. It has a li-ion battery and a motor derived from Honda's FCX Clarity, which runs on hydrogen fuel cells.

Source: Bloomberg

Exhibit 2: Fit EV



Source: Motor Ward

LG Chem (Compact Power) is expecting to secure more battery orders for the Chevy Volt for 2011 because of higher-than-expected demand. The company began supplying li-ion batteries for the Volt in September under a 6-year exclusive contract. GM previously planned to build 10,000 of the Volt cars in 2011 and about 30,000 in 2012. LG Chem is planning to boost its annual production capacity at its Korean car battery plant by 7x to 60 million cells by 2013, with investment of 1 trillion won (\$887.1 million) by that year. The company will also spend additional \$300 million on its U.S. plant by 2013, which will have an annual output capacity of 20 million cells.

Source: Reuters

Coulomb Technologies has deployed ChargePoint networked EV chargers in Washington, D.C., at the Franklin D. Reeves Center on 14th Street. Utility PEPCO and Coulomb distributor NovaCharge LLC installed the public, curbside station. Coulomb says the network is smart-grid-ready, with built-in metering, time-of-use pricing and demand-response functionality.

Source: Coulomb Technologies

Coda Automotive is delaying the launch of its EV sedan until 3Q11 from its initial target of December 2010. The company will start production of the EV next summer to allow time for additional tweaks to the process. The company plans to ramp up to an annual production rate of between 12,000 and 14,000 vehicles. Coda's five-passenger, all-electric Coda Sedan will cost \$32,400 after federal and state incentives (inc. a \$7,500 federal tax credit and a \$5,000 cash rebate from California). The EV will have a range of 90 to 120 miles. The Coda Sedan will be assembled in China and then finished in Northern California at a temporary facility in Benicia.

Source: Bloomberg

Fisker Automotive is negotiating a deal to sell its Karma model in China in 2H11. The company has had discussions with larger automakers about a strategic partnership. Fisker is also considering the possibility of an initial public offering of stock after the launch of the Karma in March.

Source: Bloomberg

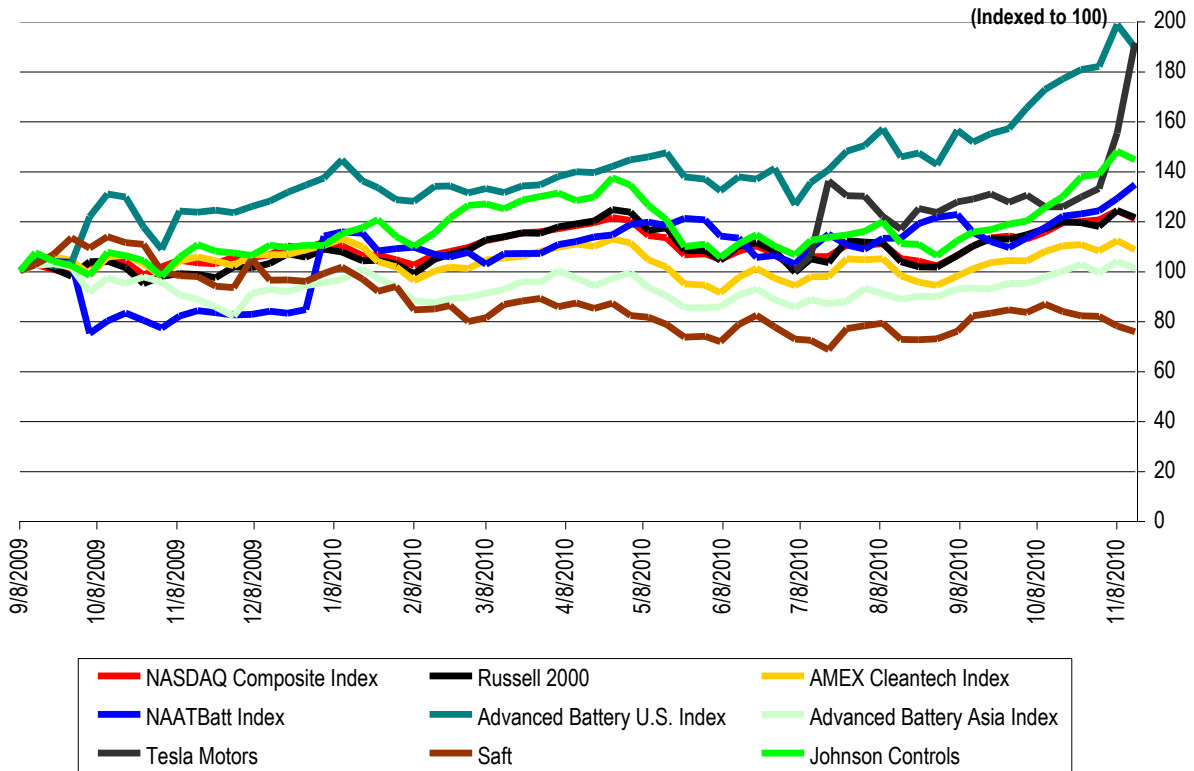
Elecscoot (U.K.-based) has launched a compact all-electric delivery vehicle (as shown in **Exhibit 3**) with a range of 112 to 300 miles, top speed of 46mph and 400kg (or 880 lbs) payload. The light cargo truck costs from £7,995 (or \$12,790) and is optionally available with left hand drive for safe curbside delivery and collection operations, and costs around \$0.02 per mile to operate. The company is opening a new 21,000sq ft assembly facility in Consett, County Durham, to produce the electric truck.

Exhibit 3: The Elecscoot All-electric Delivery Vehicle



Source: Transport Engineer

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

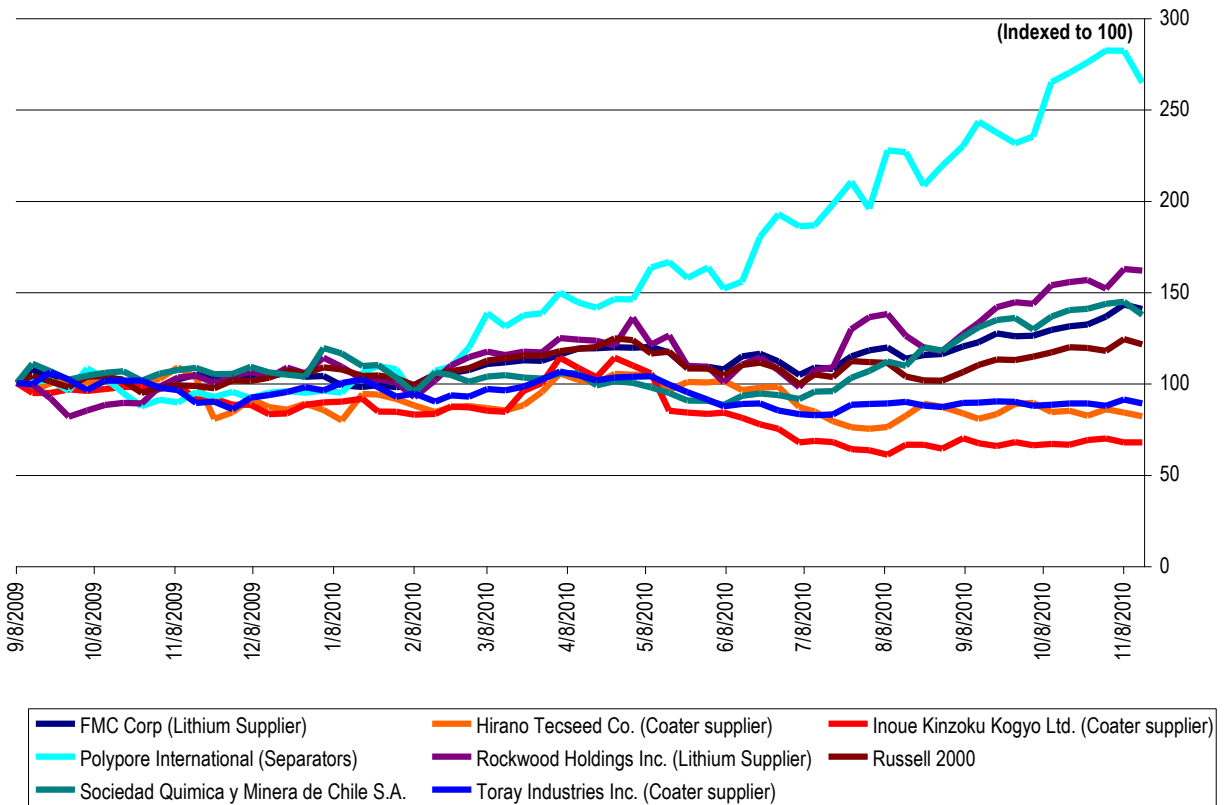


Index	Close on 11/15/2010	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	11,202.0	11,505.8	97.4%	9.1%	7.4%	(1.8%)
S&P 500	1,197.8	1,227.1	97.6%	9.5%	7.3%	(2.1%)
NASDAQ	2,513.8	2,592.9	96.9%	15.5%	9.6%	(2.6%)
Russell 2000	719.9	746.0	96.5%	22.3%	14.6%	(2.3%)
AMEX Cleantech Index	1,063.6	1,112.5	95.6%	4.6%	(0.3%)	(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 5: Supplier Performance
(From September 8, 2009)



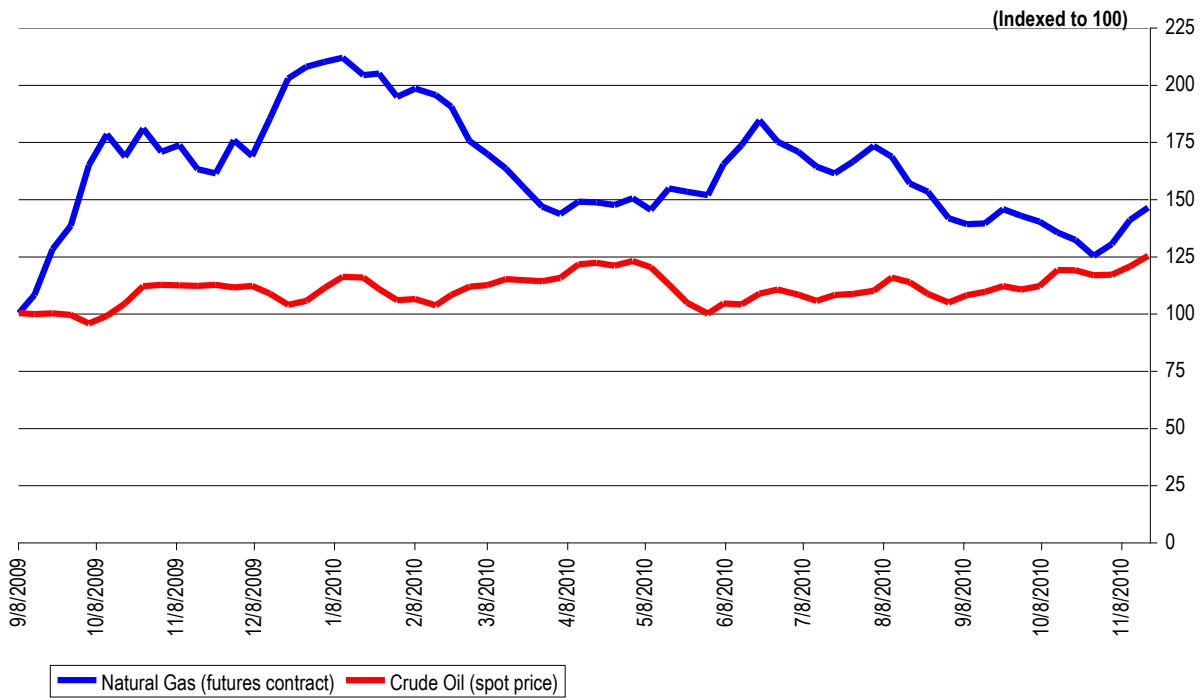
Source: Bloomberg

Exhibit 6: Commodity Prices

Commodity	Price on 11/16/2010	Price on 11/8/2010	Price on 10/15/2010	1 Week Change	1 Month Change
LME Nickel (Cash, \$ per tonne)	22,190	24,200	24,225	(8.3%)	(8.4%)
LME Lead (cash, \$ per tonne)	2,383	2,484	2,375	(4.0%)	0.3%

Source: LME

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



Source: EIA

Executive Director's Notes



THE DANGER OF ENERGY POLICY SEGMENTATION

Last week, the Wall Street Journal published an editorial entitled “The Great Transmission Heist”, which criticized FERC Chairman Jon Wellinghoff, among others, for attempting to “socialize” electricity transmission costs. A proposed new FERC rule would purportedly assess the costs of building transmission assets necessary to bring wind and solar energy generated in remote areas to load centers among rate payers around the country, whether or not those rate payers used the newly accessible power. The Journal claims those costs could run as high as \$160 billion and that the FERC proposal violates the “long-standing user-pays policy” of electric power.

The Journal's description of who pays for the cost of electric power in the United States is, of course, not entirely accurate. Consider how we pay for pollution controls on a power plant. Pollution controls do not necessarily benefit the rate payers who pay for the costs of the plant. Instead, the benefit runs to the “user” communities that happen to be down wind, which may not be rate payers. Chairman Wellinghoff would be quick to point out that with respect to greenhouse gas emissions, all of us live in communities that happen to be downwind.

Evaluating investments in electricity infrastructure on the basis of “user-pays” is an inefficient and ultimately dangerous practice. Electrical power does not exist in isolation from the rest of the national energy infrastructure. How we generate, transmit and use electricity (or elect not to use it) imposes costs and burdens on the environment, national security, the balance of trade and the state of the economy generally, which are wholly unrelated to who is using the electrons from a particular power source. Saving some consumers a penny on their electric bill should never justify investing or not investing in an asset if the cost of that savings is to raise the energy-related costs of other consumers by a dollar.

How the United States obtains and uses energy is a large and complicated subject that involves different forms of energy, different types of technology, and different types of consumers, most of which are in some way related. Setting energy policy in one segment of the economy without reference to what effect that policy may have on other energy-related concerns makes no sense and is a prescription for failure.

In fairness to the Journal, it may not be alone in trying to make energy policy by segment. Advocates of spending \$160 billion on transmission assets may be guilty of the same error. While it is unquestionably true that spending \$160 billion on new transmission infrastructure would help reduce national greenhouse gas emissions, there are other technologies on which \$160 billion could be spent that would also reduce emissions: energy conservation, nuclear power, and vehicle electrification immediately come to mind. No

major investment in transmission can be justified without weighing the benefits of that investment against the possible benefits of investing the same money in other emissions- reducing technologies.

In addition, reducing greenhouse gas emissions is not the only objective of a proper national energy policy. Securing the American economy's access to safe, reliable and uninterrupted energy resources is at least as important. It is not entirely clear how a major investment in transmission furthers this goal. The benefits of investing in new transmission must be weighed against the benefits of investing in other technologies that might also address the problem of energy security.

Energy policy must be made on a rational, system-wide basis, not by segment. No matter how important energy policy may be, there is only a limited amount of money that can be spent on pursuing it. Whether that money comes from taxes, utility rate base or other sources is immaterial. What matters is that every investment is rigorously analyzed based on its overall benefits to national energy policy relative to competing solutions and technologies. Segmentizing that analysis by region, by type of power, by source of payment or by policy objective will lead to disappointing results.



James J. Greenberger
Executive Director

November 19, 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

**REGISTER
NOW!**

NAATBatt Annual Meeting and Conference on PEV Impacts on T&D Systems: The 2010 NAATBatt Annual Meeting and Conference 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: “**The Impact of PEV’S on T&D Systems: Challenges and Solutions**”. 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 and regulatory consequences that may arise from system failures. The program will highlight the important role that distributed energy storage systems can play in stabilizing local distribution systems and accommodating large scale PEV deployment. In keeping with NAATBatt’s mission as a not-for-profit organization, we have intentionally set registration and exhibition prices below those of competing, for-profit conferences. Member companies are invited to exhibit their stationary storage technology and will be entitled to discounted registration and exhibit space. Information about and registration for the Annual Meeting and Conference can be found at: <http://naatbatt.org/2010annualmeeting/>. Please note that NAATBatt’s new membership drive, discussed in the preceding section of this newsletter, makes NAATBatt membership more affordable than ever. Click on <http://naatbatt.org/membership-inquiry/> to apply for membership.

- **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>.
- **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>.
- **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>.
- **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/>

- **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 , www.sdle.co.il, or contact: shmuel33@gmail.com.
- **Energy Overviews** a media company which publishes weekly newsletters covering several renewable energy industry verticals, including Clean Transportation, is offering NAATBatt members as a group the opportunity to subscribe to Energy Overviews' newsletters, databases and other services for the price of \$250 per year, a discount from the standard subscription rate of \$587 per year, *provided that* at least 20 NAATBatt member companies accept this offer. See <http://www.epoverviews.com/>. If your company is interested in a subscription, please contact Jim Greenberger at jgreenberger@naatbatt.org.
- **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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