

Summary:

For the June 25th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities. On July 21st, we will be hosting a webinar "Hybrid Battery-Ultra Capacitor Systems for Automotive Applications - Why Can't We Just Get Along?".

The NAATBatt Index was down 6.9%. The U.S. Battery Index was down 1.2%, while the Asia Battery Index increased 2.6%. The S&P 500 and Russell 2000 increased 2.2% and 1.2%, respectively.

Key Highlights:

- **Boston-Power** announced a \$60 million capital raise to support manufacturing expansion and ongoing development efforts in portable power, electric vehicles (EVs) and utility applications. The company currently has enough capacity to build about 400 EVs.
- **e-Traction®** has delivered two e-Busz(R) all-electric transit buses to the **Rotterdamse Elektrische Tram (RET)**, Rotterdam's public transportation authority. The EVs will be powered by li-ion batteries from **Valence Technology**.
- **Sony** announced the development of an energy storage module using li-ion batteries made with olivine-type lithium iron phosphate as the cathode material. The key features of this cell include high power output, long-life performance and thermal stability.
- **Hyundai Motor** yesterday began testing the nation's first electric bus developed with domestic technology. The Elec-City has an average speed of 100 kilometers per hour (62 mph) and can run 120 kilometers (75 miles) on a fully charged battery.
- **Altair Nanotechnologies** announced it has signed a long-term supply agreement with **Proterra** to supply li-ion battery modules for incorporation into electric buses. Altairnano's technology enables the buses to completely recharge in less than 10 minutes.
- **NRG Energy** is planning to offer the first all-you-can-eat EV plan. The power company will introduce an EV refueling service early next year. The service will include unlimited charges at home and at charging stations throughout Houston and will cost around \$60 to \$80 a month.
- **Toshiba Corp** will begin building motors for EVs at its plants in Texas. The company made the announcement after it was awarded a contract by **Ford Motor** to make drive motors for the hybrid and plug-in hybrid vehicles.
- **Trikke Tech** announced the completion of the soft launch phase of the Trikke Tribred line of light weight, 3-wheeled electric vehicles. Achievements include landing an order from **Best Buy** (Fall 2010), an 84 EV fleet sale to the Abu Dhabi Police, and formation of an assembly partnership with **Segway's** distributor in Brazil.
- **Dow Kokam** broke ground for an EV plant being built in Michigan. The plant is projected to have the capacity to manufacture 1.2 billion watt-hours (Whs) of large-format li-ion batteries.
- The **California Energy Commission** approved 3 awards will be used toward the build out of charging stations. The \$3.4 million grant will provide 1,667 EV charging stations to Sacramento, San Francisco and Los Angeles.

- Researchers at **MIT** have developed a nanotube battery technology that can deliver 10x more power than a conventional battery and store 5x more energy. The performance enhancement is due in large part to an assembly process that creates dense, interconnected and porous carbon-nanotube films – eliminating the need for any filler.
- The **Maryland Energy Administration** awarded \$1 million in grants to build at least 64 charging stations in Baltimore. The state energy agency awarded a pair of grants to install charging stations at parking garages in Baltimore and at other sites along Interstate 95.
- **Coulomb Technologies** announced that 6 charging stations have been installed at 6 Central Parking Systems parking garages in downtown Houston. The ChargePoint stations are accessible to EV owners by making a toll free call to the 24/7 number on each charging station.
- **China's** largest electric charging station for EVs in Linyi of Shandong province has been completed. The station can simultaneously charge 30 electric buses. With 15 AC charging poles, it is also able to charge 15 EVs.

A Few More Details:

Boston-Power announced a \$60 million capital raise to support manufacturing expansion and ongoing development efforts in portable power, electric vehicles (EVs) and utility applications. The company currently has enough capacity to build about 400 EVs. We highlight demo ZE Saab 9-3 (as shown in **Exhibit 1**) should be on the road in 4Q10.

Exhibit 1: The All-Electric Saab 9-3



Source: Innovatum Technology Park / SVT

e-Traction® has delivered two e-Busz(R) all-electric transit buses (as shown in **Exhibit 2**) to the Rotterdamse Elektrische Tram (RET), Rotterdam's public transportation authority. The EVs will be powered by li-ion batteries from Valence Technology. Upon successful completion of in-service testing by RET, the city of Rotterdam is expected to purchase additional e-Busz(R) buses to integrate into its fleet of 238 diesel transit buses.

Exhibit 2: The e-Traction e-Busz



Source: Valence Technology

Sony announced the development of an energy storage module using li-ion batteries made with olivine-type lithium iron phosphate as the cathode material. The key features of this cell include high power output, long-life performance and thermal stability. The energy storage module has 1.2kWh-class capacity and can be connected either in series or in parallel to easily expand to a higher voltage or capacity. They are compatible with stationary power supplies such as UPS (uninterruptible power supply) for data servers or as a backup power supply for mobile phone wireless base stations. Sample shipments of these modules are scheduled to begin this month.

Source: Associated Press

Hyundai Motor yesterday began testing the nation's first electric bus developed with domestic technology. The Elec-City as shown in **Exhibit 3** has an average speed of 100 kilometers per hour (62 mph) and can run 120 kilometers (75 miles) on a fully charged battery. The 50-seat bus uses three 100-kilowatt driving motors that power a 402-horsepower internal combustion engine. The company plans to operate the EV during the upcoming G-20 Summit in November as shuttle buses for the delegates.

Exhibit 3: The Hyundai Elec-City



Source: JoongAng Daily

Altair Nanotechnologies announced it has signed a long-term supply agreement with Proterra (as shown in **Exhibit 4**) to supply li-ion battery modules for incorporation into electric buses. Altairnano's technology enables the buses to completely recharge in less than 10 minutes. The initial purchase order of \$4.6 million is for delivery of modules through June 2011 with ongoing orders anticipated thereafter.

Source: Altair Nanotechnologies

Exhibit 4: The Proterra Electric Bus



Source: Proterra

NRG Energy is planning to offer the first all-you-can-eat EV plan. The power company will introduce an EV refueling service early next year. The service will include unlimited charges at home and at charging stations throughout Houston. It will cost around \$60 to \$80 a month. The monthly rate will include leasing and installing a home refueling station, charging at stations around town and emergency charging with service contracts about 3 years in duration.

Source: The Dallas Morning News

Toshiba Corp. will begin building motors for EVs at its plants in Texas. The company made the announcement after it was awarded a contract by Ford Motor to make drive motors for the hybrid and plug-in hybrid vehicles. Toshiba plans to expand its Houston plant in January 2011 to handle the new manufacturing, with the first production of motors expected in 2012.

Source: Associated Press

Trikke Tech announced the completion of the soft launch phase of the Trikke Tribred line of light weight, 3-wheeled electric vehicles as shown in **Exhibit 5**. The company is now ramping up operations and distribution. Soft launch achievements include landing an order from Best Buy (Fall 2010), an 84 EV fleet sale to the Abu Dhabi Police, and formation of an assembly partnership with Segway's distributor in Brazil. The battery pack ranges from 324 to 540 watt-hours (Wh) with a range of 12 to 28 miles.

Exhibit 5: The Electric Hybrid 3-Wheeler



Source: Trikke Tech

Dow Kokam broke ground for an EV plant being built in Michigan. The company is a joint venture between Dow Chemical and TK Advanced Battery LLC. The plant is projected to have the capacity to manufacture 1.2 billion watt-hours (Whs) of large-format li-ion batteries. It will employ at least 800 people.

Source: *Automotive Business Review*

The California Energy Commission approved 3 awards will be used toward the build out of charging stations. The \$3.4 million grant will provide 1,667 electric vehicle charging stations to Sacramento, San Francisco and Los Angeles. The three-city recharging station project is expected to displace 500,000 gallons of gasoline, and cut greenhouse gas emissions by 2,500 tons of carbon dioxide annually.

Source: *Sacramento Business Journal*

Researchers at MIT have developed a nanotube battery technology that can deliver 10x more power than a conventional battery and store 5x more energy. The li-ion battery has a positive electrode made of carbon nanotubes. The performance enhancement is due in large part to an assembly process that creates dense, interconnected and porous carbon-nanotube films – eliminating the need for fillers.

Source: *Technology Review*

The Maryland Energy Administration awarded \$1 million in grants to build at least 64 charging stations in Baltimore. The state energy agency awarded a pair of grants to install charging stations at parking garages in Baltimore and at other sites along Interstate 95. A third grant will go toward wiring truck stops in Baltimore, Elkton and Jessup, so truckers won't have to run diesel engines as much to provide electricity while parked.

Source: *The Baltimore Sun*

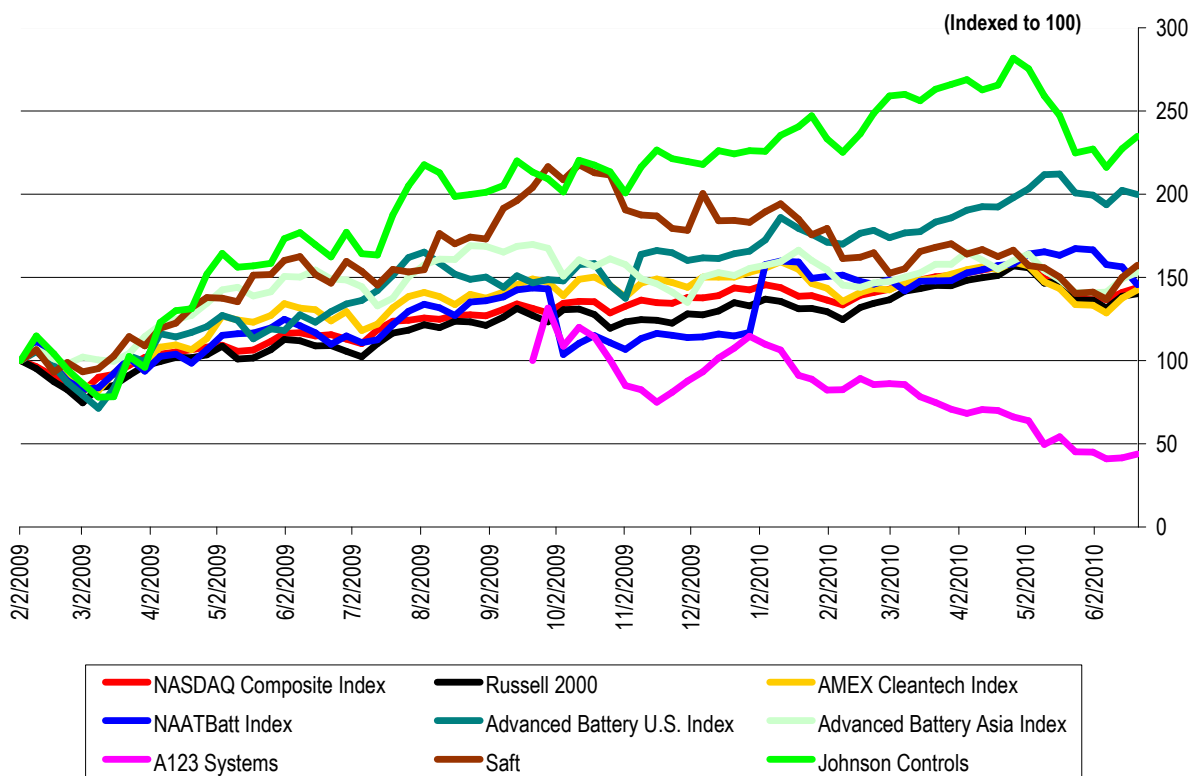
Coulomb Technologies announced that 6 ChargePoint(R) Networked Charging Stations have been installed at 6 Central Parking Systems parking garages in downtown Houston. The ChargePoint stations are accessible to EV owners by making a toll free call to the 24/7 number on each charging station or signing up for a ChargePoint Network monthly access plan and obtaining a ChargePass smart card.

Source: Coulomb Technologies

China's largest electric charging station for EVs in Linyi of Shandong province has been completed. The station has a power-distribution capacity totaling 3,200 kilovolt-amps and is equipped with two 1,600 kilovolt-amp transformers, 30 chargers and 30 DC charging poles and capable of simultaneously charging 30 electric buses. With 15 AC charging poles, it is also able to charge 15 EVs.

Source: People's Daily

Exhibit 6: Indices Performance
(From February 2, 2009)

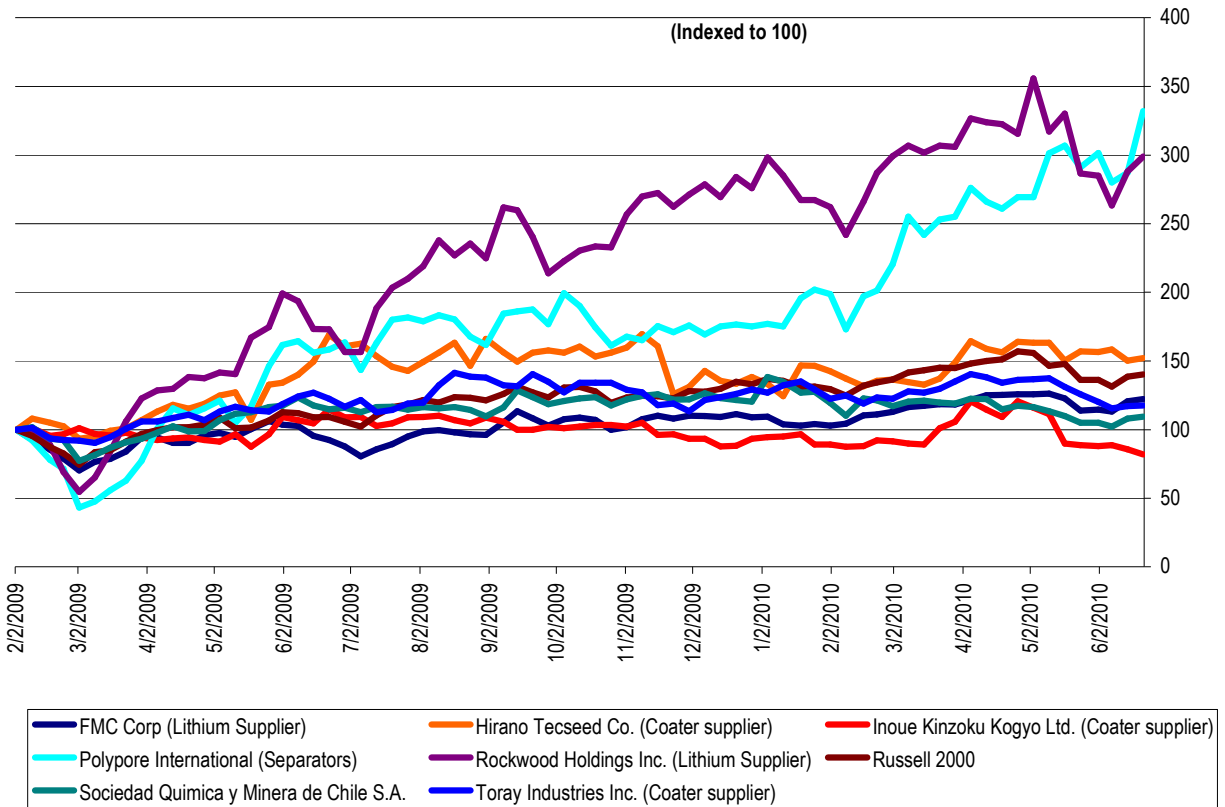


Index	Close on 6/21/2010	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	10,442.4	11,309.0	92.3%	22.3%	0.1%	2.5%
S&P 500	1,113.2	1,219.8	91.3%	21.2%	(0.3%)	2.2%
NASDAQ	2,289.1	2,535.3	90.3%	26.5%	(0.2%)	2.0%
Russell 2000	660.0	746.0	88.5%	29.3%	5.1%	1.2%
AMEX Cleantech Index	990.0	1,112.5	89.0%	10.4%	(7.2%)	3.8%

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 7: Supplier Performance
(From February 2, 2009)



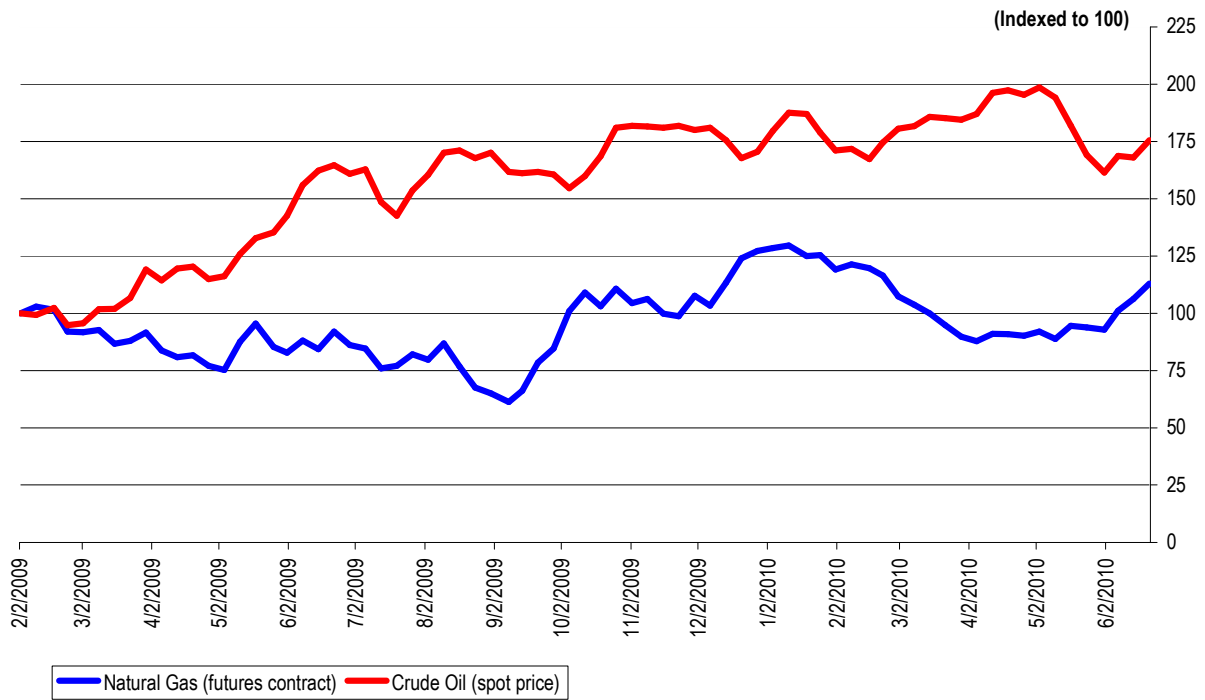
Source: Bloomberg

Exhibit 8: Commodity Prices

Commodity	Price on 6/21/2010	Price on 6/14/2010	Price on 5/21/2010	1 Week Change	1 Month Change
LME Nickel (Cash, \$ per tonne)	19,930	19,725	21,150	1.0%	(5.8%)
LME Lead (cash, \$ per tonne)	1,786	1,673	1,722	6.7%	3.7%

Source: LME

Exhibit 9: Natural Gas and Crude Oil
(From February 2, 2009)



Source: EIA

Executive Director's Notes



NEW POLL CONFIRMS POLITICAL POPULARITY OF ELECTRIFICATION INITIATIVES

A new poll released this week by The Electrification Coalition (see: <http://electrificationcoalition.org/pollresults.pdf>) confirms widespread support among voters across the political and economic spectrum for initiatives that support electric cars. According to the poll, voters see electric cars as a critical, transformative step forward; they believe electric cars will reduce pollution and dependence on foreign oil, while creating jobs; and they will overwhelmingly prefer candidates who support proposals to electrify transportation.

Although the results of the poll were expected, Robbie Diamond, President of The Electrification Coalition, expressed surprise at the degree of support that the poll revealed. Surprising or not, the poll shows the political power that electrification advocates have, at least for the time being, to pursue programs that promote electric vehicles and challenges those advocates to use that power productively.

A number of proposals are now pending before Congress seek to ride the political tailwinds of electrification. Many of those proposals request substantial new federal investment in electric vehicles and in their supporting infrastructure.

The proposed Electric Vehicle Deployment Act of 2010, S.B. 3442, allocates \$2 billion to between five and fifteen deployment communities, which will be selected by competitive bid. Residents of deployment communities will be entitled to a \$2,000 additional tax credit on their purchases of electric vehicles, which credit will be refundable and transferrable. The bill contains numerous other provisions creating new and expanding old tax credits, creating tax credit bonds to finance refueling infrastructure deployment, providing for the purchase of electric vehicles for federal vehicle fleets and creating a monetary award for developing a 500 mile automobile battery.

Another important proposal is the Federal Advanced Battery Insurance Program being advocated by the Battery Electric Vehicle (BEV) Alliance. That proposal would insure OEM's against excess battery warranty claims made on the first 200,000 electric vehicles sold by each OEM up to a maximum of 1,000,000 vehicles in total. The proposal also advocates special tax credits to utilities and other businesses that purchase pre-owned electric vehicle batteries for stationary storage use.

All these proposals are good ideas and are warranted by the overriding need of the United States to move away from petroleum dependence and reduce its consumption of fossil fuels. NAATBatt will lend its support to all such initiatives.

At the same time, the storage industry needs to exercise caution in chasing federal dollars. Subsidies are not the same as revenues. What is politically popular and fundable today may be the next cycle's political orphan. More government subsidies for advanced battery-related technologies are good and for the time being undoubtedly necessary. But the storage industry needs to pay serious attention to using its present political good fortune to create more fundamental business models and regulatory frameworks that are sustainable and will permit the operation of profitable businesses even after federal grants and subsidies wane.



James J. Greenberger
Executive Director

North American Industry Announcements and Calendar

- **Next Webinar Program: Hybrid Electric Systems for Automotive Applications:** The NAATBatt Webinar series continues on Wednesday, July 21, 2010, with a program entitled “Hybrid Battery-Ultra Capacitor Systems for Automotive Applications—Why Can’t We Just Get Along?”. The program will examine whether combining high energy lithium-ion batteries with high power ultra capacitors would provide a better power system for electric vehicles than a power system based solely by lithium-ion cells. The speakers at the program will be Dr. Ted Bohn of Argonne National Laboratory and Dr. John M. Miller of Maxwell Technologies, Inc. The program will begin at 2:00 p.m., EDT, and continue for approximately 60 minutes. Employees of NAATBatt member firms may register for the program on a complimentary basis by clicking the following link: <http://events.meetingbridge.com/Register/?06123179151&code2> Non-members are welcome to join the program for a \$30.00 charge. If your firm is not yet a member of NAATBatt, please click on the following link to register (or, better yet, join NAATBatt now!): <http://events.meetingbridge.com/Register/?06123179151>
- **The 15th International Meeting on Lithium Batteries:** The 15th International Meeting on Lithium Batteries will be held in Montreal, Canada on June 27-July 2, 2010. The meeting will honor Prof. John Goodenough of the University of Texas. Information about the meeting and registration information can be found at: <http://www.imlb.org/#>
- **Storage Week 2010:** Storage Week 2010, sponsored by Infocast, will be held on July 12-15, 2010 at the Rancho Bernardo Inn in San Diego, CA. The conference will focus on grid level storage with separate tracks on bulk storage and grid services. NAATBatt is a supporting organization of the conference. Information about the conference can be found at: <http://www.infocastinc.com/index.php/conference/storage10>.
- **Challenges and Opportunities: Building a U.S. Battery Industry for Electric Drive Vehicles: Progress Challenges and Opportunities:** The National Academy of Sciences’ Board on Science, Technology, and Economic Policy (STEP), in cooperation with the Michigan Economic Development Corporation and the Department of Energy, will hold a conference in Livonia, Michigan on July 26-27. The conference will bring together key stakeholders from industry, federal and state governments, and universities to review DOE and other initiatives to support the battery industry and highlight key issues to be addressed.
- **The 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>
- **Battery Power 2010 Conference:** Battery Power 2010 will be held in Dallas, Texas on October 19-20, 2010. NAATBatt is a supporting organization of the conference. Information about the conference and registration for it may be found at: http://www.batterypoweronline.com/bppt-conf10/bp10_supportingorg.php

- **U.S. National Electric Vehicles Safety Standards Summit.** The U.S. National Electric Vehicles Safety Standards Summit, a joint program of the National Fire Protection Association and SAE International, will be held on October 19-20, 2010, at the Cobo Convention Center in Detroit, Michigan. Information about the event can be found at: http://www.nfpa.org/newsReleaseDetails.asp?categoryId=488&itemId=46997&cookie_test=1
- **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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