

Summary:

For the April 30th issue of NAATBatt's Advanced Battery Weekly, we highlight the ongoing sector activities. On May 4th, we will be hosting a webinar on "*Developments in Anode Technology - Positive Progress Today and Tomorrow*".

The NAATBatt Index increased modestly, while the U.S. Battery and Asia Battery Indices increased 2.9% and 3.2%, respectively. The S&P500 and Russell 2000 were up 1.2% and 3.9%, respectively.

Key Highlights:

- **Saft** is providing the lithium-ion (li-ion) technology for the **ABB SVC Light** concept. Energy storage is a key component in the creation of the Smart Grid that will be needed to handle increased levels of renewable generation.
- The **European Commission (EC)** has outlined a plan to get electric vehicles (EVs) off the drawing board and out on the street. The EC expects to have electrical safety standards outlined by the end of 2010 with standards being developed and risks analyzed in subsequent years.
- **Better Place** has partnered with Tokyo-based **Nihon Kotsu** to launch the world's first switchable-battery electric taxi service. The demonstration project (commissioned by the **Economy, Trade and Industry Ministry**) consists of 3 vehicles with switchable batteries.
- **Eaton Corporation** is collaborating with **Takaoka Electric Manufacturing Company** to develop DC quick chargers for EV battery packs. Takaoka is a leader in the installation and operation of EV chargers.
- **LG Chem** has been chosen by **Volvo** to supply li-ion battery packs for hybrid electric vehicles. LG Chem has stated expectations to add 10 international clients to its portfolio of customers this year.
- **Chery Automobile** has inked an agreement with **Better Place** to collaborate on new technologies for the China auto market. The two companies will jointly develop switchable battery EV prototypes and collaborate on research on building a network of charging stations.
- Some takeaways from the **Beijing Auto Show 2010** include EVs being projected to account for over 15% of the Chinese auto market and **Zotye Holding Group** celebrating the Lerio receiving the "Beijing NN5E08" license plate to commemorate the first all-EV in Beijing.
- **Valectricar** has commenced operation in Fresno, CA. The company provides Neighborhood Electric Vehicles (NEVs) that qualify for a 10% federal tax credit.
- **Toray Industries** and **Daimler AG** announced an agreement to jointly develop carbon fiber (CF) for the Mercedes-Benz cars starting in 2012. The companies will work to mass-produce car parts using CF produced at Toray's subsidiary in France and establish technology to install the parts on cars.

A Few More Details:

Saft is providing the lithium-ion (li-ion) technology for the ABB SVC Light concept. Energy storage is a key component in the creation of the Smart Grid that will be needed to handle increased levels of renewable generation. SVC Light combined with Energy Storage is designed to alleviate concerns related to the addition of wind power and solar energy generation to existing grids by helping to level out intermittent production and support demand response. SVC Light is a compact switching device that allows high frequency switching and in combination with dynamic energy storage will enable simultaneous voltage control and control of active power flow in the grid.

Source: Saft

The European Commission (EC) has outlined a plan to get electric vehicles (Evs) off the drawing board and out on the street. A key focus is on developing European standards that will be adhered to. The EC expects to have electrical safety standards outlined by the end of 2010 with standards being developed and risks analyzed in subsequent years. The EC believes hydrogen fuel-cell cars are one of the most promising options. EVs are viewed as being cleaner if electricity is provided from a renewable source.

Source: Bloomberg

Better Place has partnered with Tokyo-based Nihon Kotsu to launch the world's first switchable-battery electric taxi service. The demonstration project (commissioned by the Economy, Trade and Industry Ministry) consists of 3 vehicles with switchable batteries. The electric vehicle (EV) is capable of traveling 300 kilometers (or 186 miles) per day due to the battery swapping capability at specialized stations. Taxis represent 2% of passenger vehicles in Tokyo, but account for 20% of carbon dioxide emissions.

Source: Daily Yomiuri

Eaton Corporation is collaborating with Takaoka Electric Manufacturing Company (Tokyo-based) to develop DC quick chargers for EV battery packs. The collaborative effort will enable Eaton to offer a complete line of charging stations across the North American residential, commercial and industrial markets. Takoaka is a leader in the installation and operation of EV chargers.

Source: Eaton Corporation

LG Chem has been chosen by Volvo to supply li-ion battery packs for hybrid electric vehicles. Industry officials have indicated the deal will last for at least 3 years (commencing in 2011). LG Chem has stated expectations to add 10 international clients to its portfolio of customers this year. The company is planning to invest 50 billion won (or ~\$45 million) in R&D for car batteries and increasing the staff by about 400 people to support their efforts.

Source: Korea Times

Chery Automobile has inked an agreement with Better Place to collaborate on new technologies for the China auto market. The two companies will jointly develop switchable battery electric vehicle (EV) prototypes and collaborate on research on building a network of charging stations China is currently the world's largest auto market. Chery sold about 500,000 cars last year.

Source: China Daily

Some takeaways from the Beijing Auto Show 2010:

- Electric vehicles (EVs) including hybrid- and all-electric are projected to account for over 15% of the Chinese auto market and 7 to 12% of the global market by 2020.
- Zotye Holding Group celebrated the Lerio receiving the "Beijing NN5E08" license plate to commemorate the first all-EV in Beijing (see **Exhibit 1**). Zotye plans to bring 100 all-EVs into the Beijing market.

Exhibit 1: The Zoyte Lerio



Source: China Daily

Valectricar has commenced operation in Fresno, CA. The company provides Neighborhood Electric Vehicles (NEVs) as shown in **Exhibit 2** that qualify for a 10% federal tax credit. The NEV is street-legal with a maximum speed of 25 MPH – where the speed limit is 35 MPH.

Source: Business Journal

Exhibit 2: The E-Merge E2

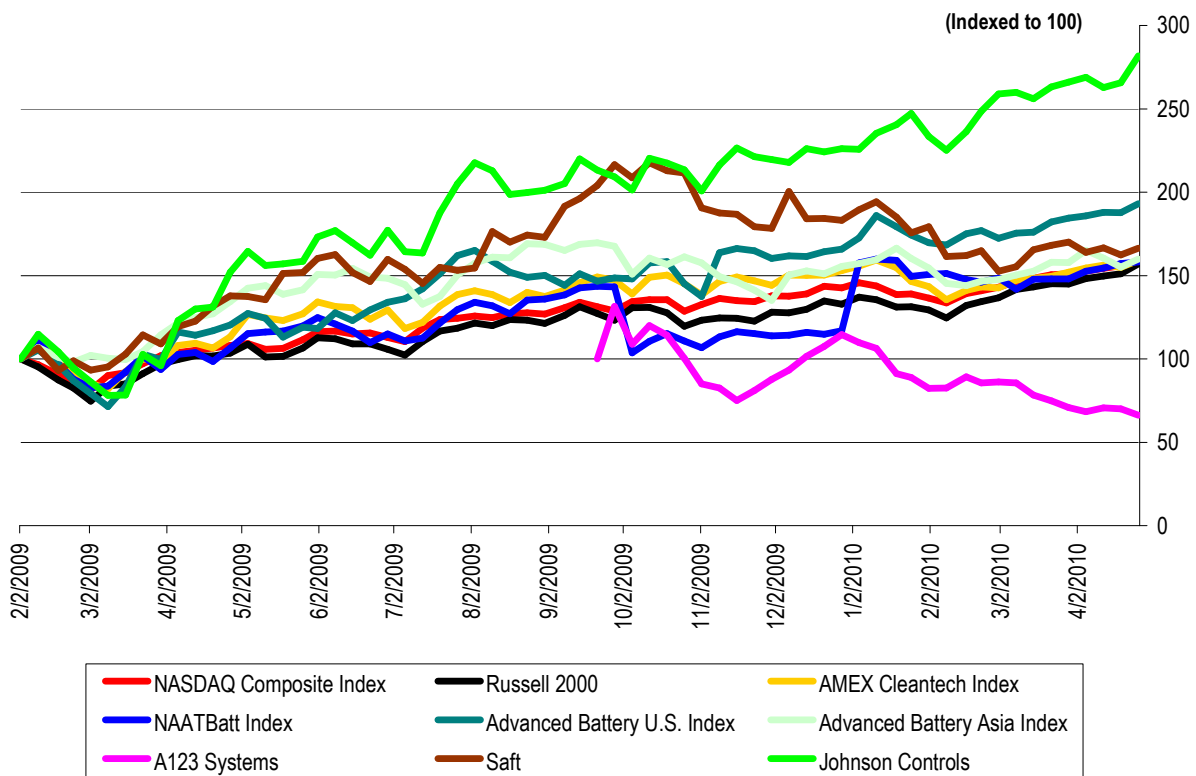


Source: Valectricar

Toray Industries and Daimler AG announced an agreement to jointly develop carbon fiber (CF) for the Mercedes-Benz cars starting in 2012. Using CF in the body of the vehicles should decrease its weight and improve fuel-efficiency. The material is about 10x stronger than steel but much lighter. The companies will work to mass-produce car parts using CF produced at Toray's subsidiary in France and establish technology to install the parts on cars.

Source: Japan Times

Exhibit 3: Indices Performance
(From February 2, 2009)

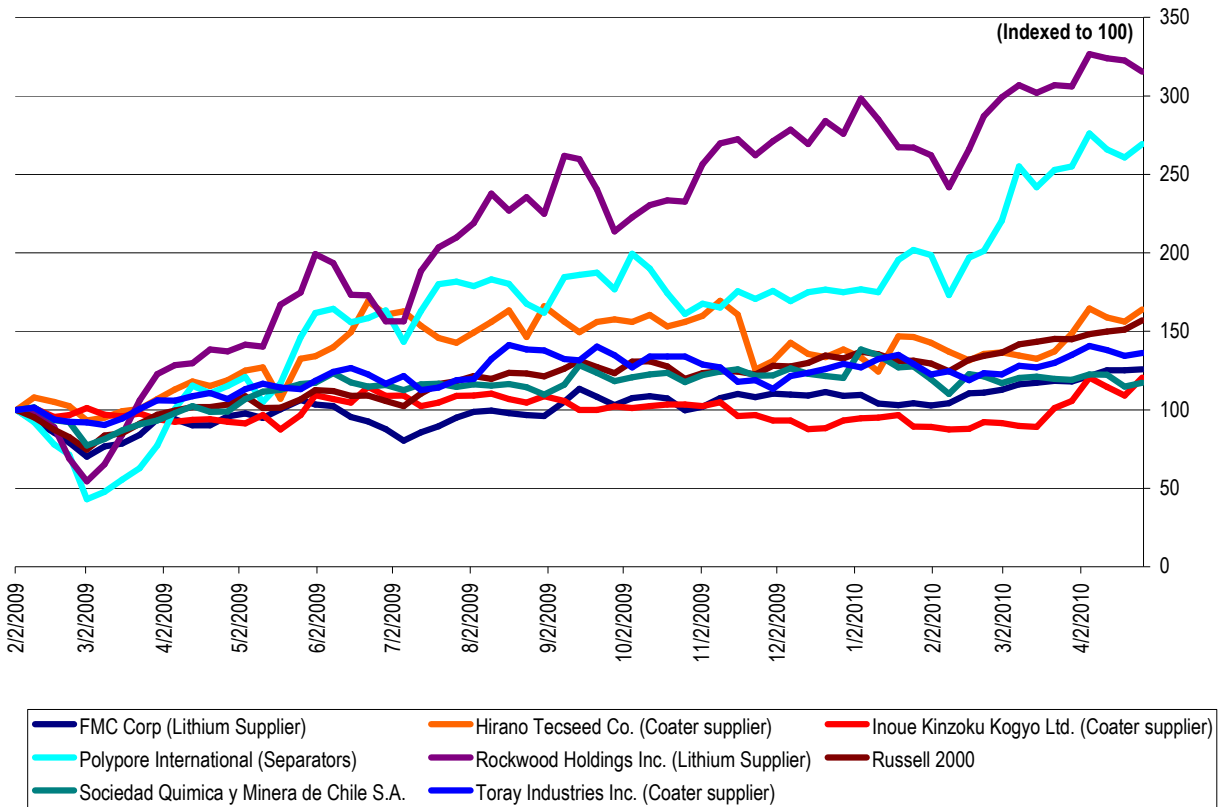


Index	Close on 4/26/2010	52-Wk High	% of 52-Wk High	Performance		
				LTM	YTD	Week
Dow	11,205.0	11,309.0	99.1%	38.8%	7.4%	1.0%
S&P 500	1,212.1	1,219.8	99.4%	40.5%	8.6%	1.2%
NASDAQ	2,523.0	2,535.3	99.5%	50.8%	10.0%	1.7%
Russell 2000	738.9	746.0	99.0%	55.8%	17.6%	3.9%
AMEX Cleantech Index	1,105.1	1,112.5	99.3%	39.9%	3.6%	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 4: Supplier Performance
(From February 2, 2009)



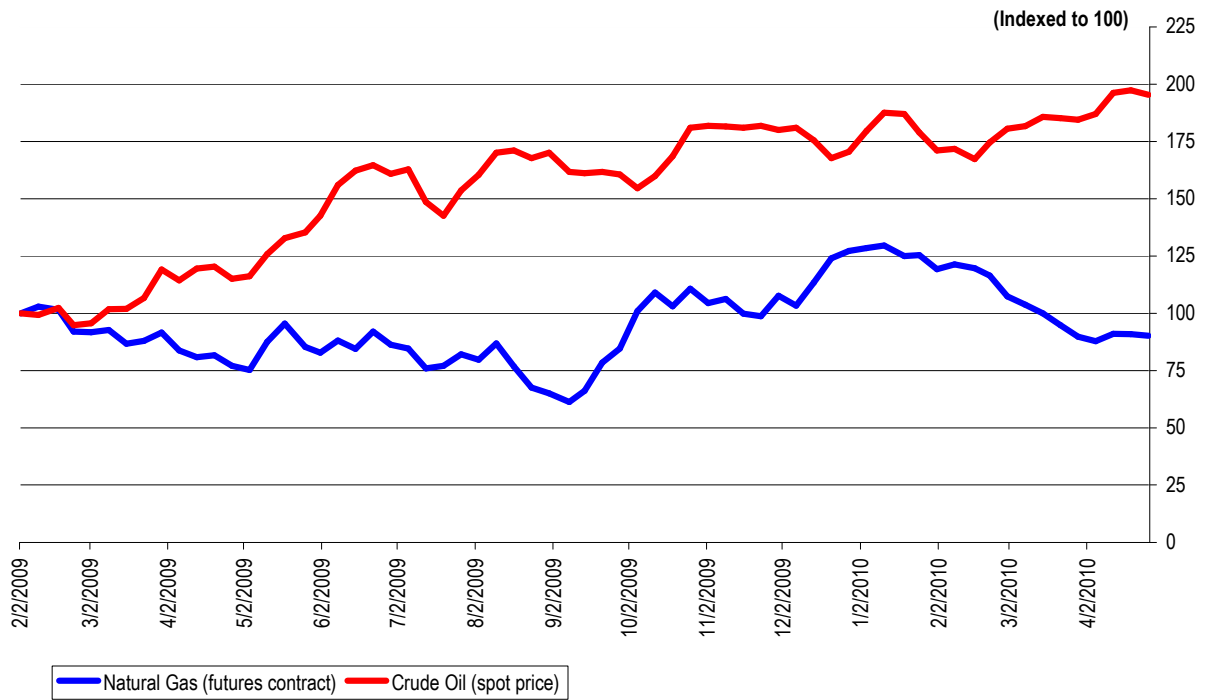
Source: Bloomberg

Exhibit 5: Commodity Prices

Commodity	Price on 4/26/2010	Price on 4/19/2010	Price on 3/26/2010	1 Week Change	1 Month Change
LME Nickel (Cash, \$ per tonne)	27,305	26,400	23,645	3.4%	15.5%
LME Lead (cash, \$ per tonne)	2,310	2,187	2,089	5.6%	10.6%

Source: LME

Exhibit 6: Natural Gas and Crude Oil
(From February 2, 2009)



Source: EIA

Executive Director's Notes



WRITING THE HISTORY OF THE ELECTRIC VEHICLE

One day someone will undoubtedly write a history of how the American automobile industry transformed itself from one that is technologically dependant on petroleum to one where vehicles are powered primarily by stored electrical energy generated from domestic and largely renewable sources. Several chapters are already predicable: the abortive launch of the EV1, the development of the first commercial Li-Ion batteries, the successful (we hope) launch of first generation mass market vehicles, such as the Volt and the Leaf.

But the most interesting stories will inevitably be those that passed with little notice at the time. Without the perspective that time provides, it is often difficult to judge the significance of events. Major paradigm changes occur, important markers pass by, the significance of which are not fully understood until a later time.

This past week has, perhaps, seen one of those markers. Last week, Best Buy Europe announced that it is going into the business of selling electric cars. According to Best Buy, electric cars are nothing more than big computers—and Best Buy knows how to sell computers. Since EV's are mechanically simpler than hybrids and ICE vehicles and theoretically easier to maintain, Best Buy may not be far off the mark. Whether it will succeed in this new venture remains an open and interesting question.

The interesting part of the story, however, is not whether Best Buy has identified a new and profitable product line. Rather it is the question of whether the EV's that have made it possible for a Big Box Retailer to enter the automobile business are going to force a restructuring of the automobile industry itself.

Several months ago, Andy Grove, the former Chairman of Intel, wrote an Op Ed in the [Wall Street Journal](#) predicting that electric vehicles would transform the automobile industry by forcing it to move from a vertical structure to a horizontal structure. Grove argued that horizontally structured industries permit greater cost compression and greater efficiencies than those organized on a vertical model, such as the automobile industry today. Grove credited the horizontal restructuring of the computer industry at the end of the last century with facilitating an information technology revolution fueled by low cost computing.



Is the entry of a Big Box Retailer into the automobile business the beginning of a horizontal restructuring? How can GM, Ford and Nissan compete with a Best Buy, which is manufacturer agnostic and light years more efficient in product distribution than the Old School OEM's? Unfortunately, we will have to wait another twenty years to read the history. But it is just possible that we will one day look back and say that this week was when an important part of that history began.

A handwritten signature in black ink, which appears to read "James J. Greenberger". The signature is fluid and cursive, with a large initial "J" and "G".

James J. Greenberger
Executive Director

Announcements:

- **Next Webinar Program:** The NAATBatt bi-monthly Webinar series continues on Tuesday, May 4, 2010, with a program entitled "*Developments in Anode Technology*". The program will look at new anode technologies coming onto the market today and explore next generation non-carbon based anodes that may shape the market of the future. The speakers at the May 4 program will be Dr. Bharat Chahar, Co-Founder and Product Manager, CPreme® Energy Storage Systems at ConocoPhillips Specialty Products, and Prof. Gleb Yushin of the Georgia Institute of Technology, School of Material Science and Engineering. The program will begin at 2:00 p.m., EDT and last for approximately 45 minutes. To register, please click on the following link: <http://events.meetingbridge.com/Register/?06123165585>.
- **AABC Conference in Orlando:** The 10th Annual International Advanced Automotive Battery Conference & Symposia will run from May 17-21, 2010, in Orlando, Florida. Information and registration for the conference is at: <http://www.advancedautobat.com/AABC/index.html>.
- **Southern Growth Policy Center Conference:** A conference of Southern governors, automobile executives and economic development officials outlining strategies for continuing the development of the automobile industry in the South will be held in Lexington, KY on June 7-8, 2010. NAATBatt is a supporting organization of the conference. For more information about the program, entitled *Driving the Next 20 Years: Creating the New Southern Automotive Industry*, visit: <http://www.southerngrowth.com/conference/conf.html>.
- **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
- **NAATBatt Membership Information.** NAATBatt is now 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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