

January 2012

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EXCLUSIVES

MEETING REPORT

BATTCON 2012 International Stationary Battery Conference
Hollywood, CA
USA

MEETING REPORT

BCI 124th Convention & Power Mart Trade Fair
Scottsdale, AZ
USA

MEETING REPORT

29th Florida Battery Seminar Part 2
Ft. Lauderdale, FL
USA

PHOTO REPORT

29th Florida Battery Seminar Part 1
Ft. Lauderdale, FL
USA

MEETING REPORT

Battery Power 2011
Nashville, TN

JANUARY 2012



World's largest battery energy storage facility. See story below.

AROUND THE INDUSTRY

China Claims World's Largest Storage Station

China has earned first-place status in the energy world yet again, this time by completing what it says is the world's largest battery energy storage station.

Built in conjunction with a 140MW wind- and solar-energy project in Zhangbei, Hebei Province, the station – with arrays of batteries larger than a football field – will provide up to 36MWh of energy storage, along with a smart power transmission system. The \$500-million phase-one project is designed to help stabilize the electricity grid by storing renewably generated power to manage the ups and downs of intermittent wind and solar sources.

Combining wind and solar power with battery-based energy storage system helps to improve renewable energy efficiency by 5 to 10%, according to BYD, the China-based technology giant. While other systems around the world generate clean energy on a similar scale, no other installation offers nearly as much battery capacity.

The project is the first of many megawatt-level developments planned in cooperation with China's Southern Power Grid. It's part of a national Golden

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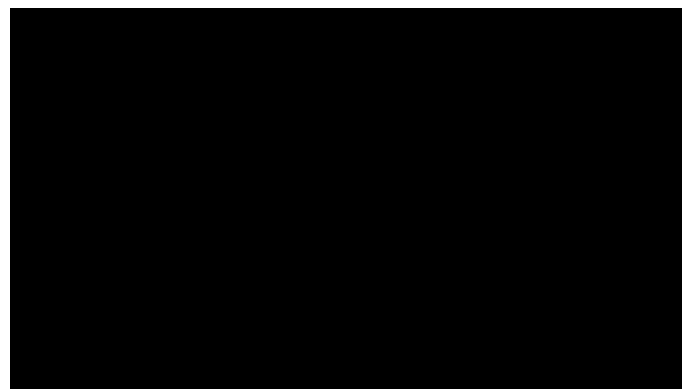
MEDIA DESK

Advanced Battery Concepts - GreenSeal(R) Technology

Better Batteries, Better World

GreenSeal

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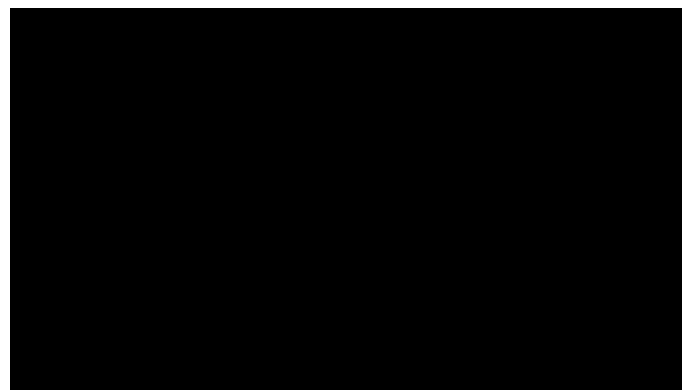


Press Conference: Argonne National Lab Selected by DOE

Press Conference

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Advanced Energy Storage with Johnson Controls and

USA

Sun program aimed at massively expanding the domestic solar energy base.

MEETING REPORT

**EV2011VE Toronto
The End Of The
Beginning**
Toronto, ONT
Canada

MEETING REPORT

**28th International
Battery Seminar And
Exhibition - PART 2**
Ft. Lauderdale, FL USA

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Micro Power Electronics Announces Merger

Electrochem Solutions Inc. of Clarence, New York, has signed a definitive agreement to acquire a 100% interest in Micro Power Electronics Inc. of Beaverton, Oregon, from Weston Presidio. Electrochem is a subsidiary of Greatbatch, Inc. of Clarence, New York.

Micro Power supplies custom battery systems to the portable medical, automatic data collection, military and commercial markets. As a pioneer in the development of Lithium battery systems, smart battery packs, chargers, docking stations, and power supplies, the company has more than 25 years of experience developing battery solutions with its domestic and Asian production facilities. Micro Power is ISO 13485 and 9001:2008 certified.

Electrochem, founded in 1979, is a world leader in the design and manufacture of custom battery and wireless sensing technology solutions. The company is known for its reliable products which are used in the portable medical, energy, military, aerospace, environmental and process control industries.

Azure Reveals More Transit Connect Electric Orders

Azure Dynamics Corp. of Oak Park, Michigan, recently announced 29 new Ford Transit Connect Electric sales, including eight units in Europe and 21 units in North America, which includes a three unit reorder from Johnson Controls Inc.

"With these new orders, our global Transit Connect Electric sales exceed \$29 million in less than 12 months of production," says Scott Harrison, Azure's CEO.

In other news, Azure and RøhneSelmer AS have signed a Letter of Intent (LOI) to enter into an agreement for RøhneSelmer to import and distribute up to 400 Ford Transit Connect Electric vans annually. The LOI is not a purchase order, but begins a collaborative effort to reach a definitive distribution agreement to expand business in the Nordic Region. RøhneSelmer will focus its importation, distribution, sales and service in Norway.

To create the Transit Connect Electric, Azure integrates its Force Drive™ electric powertrain into the Ford Transit Connect. Utilizing a Li-ion battery from Johnson Controls, Transit Connect Electric can achieve a range of 80KM/50 miles to 130KM/80 miles on a single charge and has a load capacity of 530kgs. With 28kWh of power, Transit Connect Electric has a top speed of 120km/h (75mph).

Flicker Honored with the International Lead Award

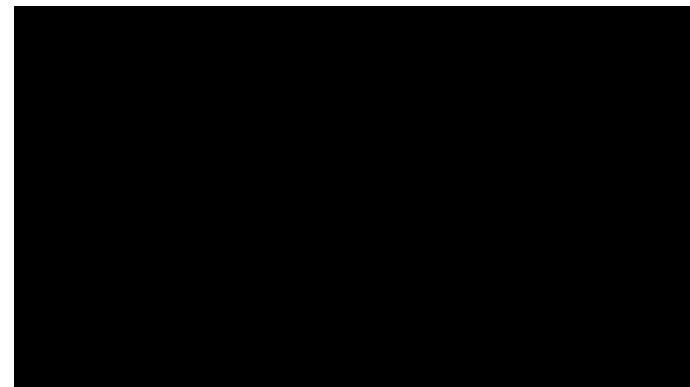
East Penn Manufacturing of Lyon Station, Pennsylvania,

Michigan SmartCo

Advanced Energy Storage is a green technology that is part of a national initiative to reduce reliance on imported fuels.

Johnson Controls

Video



MORE NEWS

Korean researchers develop new flexible, more stable lithium-ion battery
Endgadget

Researchers use snail teeth to improve solar cells and batteries
PhysOrg

What holds energy tech back? The infernal battery
The Olympian

Lithium Batteries Central to Boeing's 787 Woes
Time

Bolivia - - the Saudi Arabia of lithium?
Financial Times

Stanford Battery Lasts 5X Longer
Stanford News Service

Battery Material Prevents Fires, Stores Five Times the Energy
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Humble battery deserves more research
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Department of Energy awards up to \$120 million for battery hub to Argonne-led group
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Flicker

recently announced that Robert P. Flicker, the company's executive vice president and chief operating officer, was honored with the 2011 International Lead Award at the 14th Annual Asian Battery Conference. The award gave tribute to his service in the advancement of the production, processing, and use of lead throughout the industry. The International Lead Award recognizes outstanding work in the lead industry and individuals who excel in its advancement beyond new technologies. The criteria covers multiple facets of marketing, production, recycling and sales of lead or lead products. Contributions to scientific knowledge and relations with

governments and other legislative bodies are also considerations in the selection.

LIOTECH Opens Li-ion Production Plant

One of the world's largest production plants for high capacity Li-ion batteries has been launched in Novosibirsk, Russia by the LIOTECH Co. – a joint venture between Russian Corp. of Nanotechnologies (RUSNANO) and the International holding Thunder Sky Ltd. The plant has a production facility exceeding 40,000 square meters.



Alexey Homlyaskiy, the Deputy Governor of Novosibirsk Region, Anatoly Chubais, the chairman of the board of RUSNANO and Alexander Erokhin, the CEO of LIOTECH LLC took part in the opening ceremony of the new plant (above).

New Battery Consulting Group

Genesee Northern Research LLC is a new technology consulting group specializing in lithium primary batteries for medical and commercial applications. Michael Pyszczek, formerly of Balan Biomedical and Greatbatch Inc., organized the group and will serve as president. The organization includes Christopher Feger and Kenneth Syracuse and will be headquartered in West Henrietta, NY.

Largest Electric Vehicle Trial in Canada



Stanford Ovshinsky dies at 89

[Wikipedia](#)

Self-Charging Battery Generates and Stores Energy Simultaneously

[Tree Hugger](#)

Scientists develop lithium-ion battery that charges 120 times faster than normal

[ExtremeTech](#)

New Spray-On Battery Could Convert Any Object into an Electricity Storage Device

[Scientific American](#)

New nanostructure for batteries keeps going and going

[PhysOrg](#)

Second Wind: Air-Breathing Lithium Batteries Promise Recharge-Free Long-Range Driving--If the Bugs Can Be Worked Out

[Scientific American](#)

Liquid Battery Design Utilizes Heat from Charging and Discharging

[SciTech Daily](#)

IBM Demos Uber Battery That 'Breathes'

[Wired](#)

Volt production on hold for 5 weeks

[Detroit Free Press](#)



Hydro-Québec says that 10 Mitsubishi i-MiEVs were delivered on December 19 to Boucherville businesses selected for the third and final phase of the largest EV trial in Canada. Launched in 2010, the project will continue until the end of 2013.

Hydro-Québec has been overseeing three years of road tests to rate the performance of 30 i-MiEVs. The trials are designed to study charging needs, driving habits and driver satisfaction, as well as the interaction between the cars and the electric grid. The initiative is in line with the 2011–2020 Action Plan for Electric. The i-MiEV, which stands for Mitsubishi Innovative Electric Vehicle, is based on the Japanese i-Car platform. It is an all-electric, highway-capable, charge-at-home commuter car. Capable of traveling 120km on a single charge, the i-MiEV can be recharged in six hours using a 240V outlet or 13 hours using a 120V outlet. A quick-charge station will also replenish the battery to 80% of its capacity in just 30 minutes.

Startup Promises a Revolutionary Grid Battery

Battery developer Eos Energy Storage of New York, New York claims to have solved key problems holding back a battery technology that could revolutionize grid energy storage. If the company is right, its zinc-air batteries will be able to store energy for half the cost of additional generation from natural gas – the method currently used to meet peak power demands.

Company officials say that current prototypes demonstrate twice the energy density of Li-ion batteries. They claim their final product will last for 30 years in grid-scale applications with a cycle life that is orders of magnitude greater than that of lead-acid batteries, making it one of the longest-lasting battery types around.

UQM Secures Powertrain Order from EVI



UQM Technologies of Longmont, Colorado has received an order from Electric Vehicles International (EVI) of Stockton, California for 100 additional PowerPhase HD Select 200 systems that will be equipped in the all-electric UPS delivery vans built by EVI.

The vans will be deployed in California early this year and will replace older-generation diesel trucks, saving an estimated 126,000 gallons of diesel fuel every year.

The power systems EVI is buying is designed specifically for use in commercial vehicles and it includes a 200kW electric motor/generator and controller.

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Nashville, TN

U. S. BATTERY AND FUEL CELL PATENTS

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Official Gazette, Vol. 1372 (November 2011)

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29th Florida Battery Seminar Part 1
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Battery Power 2011
 Nashville, TN

PRODUCT NEWS

Electric Aircraft Market Trend for Larger Batteries

Electric Aircraft 2011-2021 – Market Research Report provides analysis of the electric aircraft market in conjunction with water and land-based electric vehicles (EVs), as there are synergies across the board in terms of the technologies and components used. The report may be the only one available which discusses every type of electric flying aircraft, regardless of size.

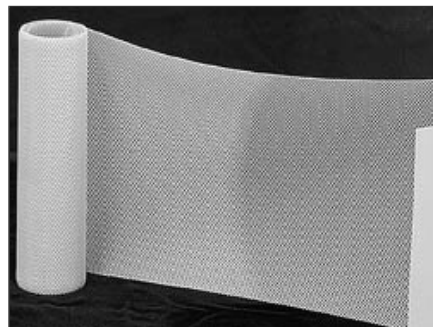
Numerous technologies associated with electric aircraft are discussed in the report, such as powertrains, batteries, fuel cells, supercapacitors, energy harvesting, regenerative soaring and power beaming.

The August 2011 report includes 209 pages of insight into the electric aircraft market, including historical and forecast statistics for the period 2010-2021. Non-technical readers will grasp the basics of the technologies referenced, while more technical readers will identify opportunities to exploit the electric and hybrid aircraft sector.

Visit www.companiesandmarkets.com for more information.

Dexmet Adds High Performance Polymer to Portfolio

Dexmet Corp. has added a high performance polymer to its PolyGrid® portfolio, Victrex APTIV® film made with VICTREX® PEEK™ polymer.



Using specifically designed equipment and processes, Dexmet performs an expansion procedure on the high performance polymer to produce a diamond configured, open area mesh product for filtration applications.

Providing all of the properties of VICTREX PEEK polymer in a versatile thin film format, APTIV film was selected for its superior combination of mechanical strength, chemical and high temperature resistance.

Dexmet uses a precision expansion process which combines a slit and stretch

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function to produce the high performance mesh product. There are no other expanders in the world that can expand thin materials, especially polymer films under 0.127 mm (0.005 in) with opening sizes down to 25 microns and widths up to 610 mm (24 inches). The process has infinite variability which enables Dexmet to tailor a product to exact performance requirements, whether it is opening (pore) size, open area, weight per area, or overall thickness.

For more information, visit www.dexmet.com.

GenSet Eliminator™ Storage and Power System

Ultralife Corp. now offers the GenSet Eliminator, a patent pending storage and power system designed to reduce fuel consumption and maintenance costs by 25%-30% for defense and commercial applications.

The GenSet Eliminator provides energy storage capabilities to generators and renewable energy sources, thereby promoting optimum efficiencies through the continuous charging and discharging of Ultralife's Li-ion batteries incorporated into the system.

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MEETING REPORT

RESEARCH AND DEVELOPMENT

Discovery Warns of Li-ion Catastrophic Failure

Scientists at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Maryland, have developed an inexpensive sensor that can warn of impending catastrophic failure in Li-ion batteries. The sensor is based on the researchers' discovery of an intrinsic relationship between the internal temperature of Li-ion cells and an easily measured electrical parameter of the cell.

Safety concerns remain a challenge to the industry. Battery failure and fires typically result from thermal runaway, a self-perpetuating condition that occurs once a cell reaches a critical temperature.

"An abnormally high internal cell temperature is a nearly universal manifestation of something going awry with the cell," says Rengaswamy Srinivasan, a chemist in APL's research and exploratory development department and one of the inventors. "These changes can occur within seconds, leading to a potentially catastrophic event if corrective measures are not taken immediately. When things start to go wrong inside the cell time is not on your side. "We discovered that we can measure the temperature of the protective layers between the electrodes and the electrolyte of the battery during normal operation," Srinivasan says. "These layers are where the conditions that lead to thermal runaway and catastrophic cell failure begin. This discovery enables us to detect unsafe thermal conditions before surface-mounted temperature sensors, which are the current state of the art, are able to register that any change has taken place."

The sensor operates through a simple electrical connection at the positive and negative terminals of the cell and can operate using power from the battery it is monitoring. With multiplexing circuitry a single sensor can monitor multiple cells in a battery pack.

R&D Trends in LiFePO4

A broadening application base is encouraging LiFePO4 battery makers in China to turn out models with greater capacity, tap density and conductivity toward raising product performance. Companies emphasizing the last adopt organic carbon and high metal ion. Many nanometerize the grain to reduce the diffusion distance.

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Shenzhen O'Cell Technology Co. Ltd's R&D efforts are geared toward improving the battery management system, which comprises overcharge and discharge protection, and CAN or EIA-485 interface.

Shenzhen Topband Co. Ltd, meanwhile, has launched variants promising a longer service life, lower discharge current, greater safety and lighter weight. The enterprise's TB-32180F model, for instance, delivers 180Ah nominal capacity and 360A maximum continuous discharge current, and weighs only 24g.

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