June Two - 2007 - A powercap Technologies - supercapacitors A few weeks ago, I received an email from Vadym Koposovych of PowerCap Technology. They are a ultracapacitor and supercapacitor manufacturer in the Ukraine. He wrote about their work with the ultracapacitor: APowerCap Technologies develops supercapacitors of superior performance and promotes them to the market. Supercapacitors, also called as ultracapacitors or electrochemical double layer capacitors (EDLC), are high-power energy storage cells that can give new life to the wide spectrum of devices, from mobiles, PDAs, and laptops to hybrid electric vehicles. Our superior carbon-based EDLC nanotechnology was highly evaluated by leading experts including Dr. A.F. Burke's lab in the Institute of Transportation Studies, University of California, Davis. The EDLC technology allows to: Produce carbon-based supercapacitor devices at a low cost due to the use of 4 times cheaper nanoporous electrode materials Reach high discharge power density of 8 -10 kW/kg (up to 3 times higher than closest competitors), and high specific energy of the cell Reduce the leakage current to 1-3 mA per 1 F
Operate the energy cell in wide temperature range (from -50 to +70 °C). Their website and information is here: http://www.apowercap.com/?pg=14&news_id=13&lang=eng&arh=-.

I am waiting for the day when we will be using ultracapacitors in our mobile phones and cameras. That day should not be too far away now. ~g May 31, 2007 - Moving the site...Ok... today we just moved to our new format. This format will allow us to do RSS feeds and other things that we want and need to do. I have a forum in the process of being built where people can discuss ideas about this technology. I contacted a few people in the industry to assist me in the moderation of the topics.

Bottom line: You can expect great things and more information on ultracapacitors over the next few days as we flush this new page out. Thanks again for the emails of support and ideas. We appreciate your support. Thanks, Greg

May 12, 2007 - Using Maxwell's Boostcap In Heavy Equipment I just saw where Maxwell will be using it's Boostcap ultracapacitor to provide power for heavy duty hybrid electric vehicles and other industrial equipment. It will be done using different cell balancing, monitoring, and thermal management components from a company called Glyn High-Tech Distribution. They will be using the ultracapacitor to specifically power heavy duty equipment like: hybrid cranes, hybrid buses, trucks, electric rail vehicles, and fuel cell powered forklifts. Maxwell says that this module (HTM BMOD0063P125) will meet or exceed transportation industry requirements for watt hours of energy storage and watts of power delivery per kilogram. These units are similar to other modules, but use a larger 3000F ultra capacitor. It is cased in a rugged, splash-proof aluminum chassis that is IP 65 compliant. It weighs less than 50 kg and it is designed to perform reliably through one million or more deep charge/discharge cycles. That will equal about 15 years of operational life. April 18, 2007 - MIT Soon To Demonstrate The Nanotube Ultracapacitor A few days ago, Professor Joel E. Schindall told the Le Figaro newspaper that MIT's works on ultra capacitors may be demonstrated within the next few months. In late 2005., MIT's LEES (Electromagnetic and Electronic Systems) were working on increasing the storage capacity of ultracapacitors. Capacitors store energy as an electrical field, making them more efficient than our current batteries, which get their energy from a chemical reaction. Ultra-capacitors are capacitor based energy storage cells that provide a quick and massive bursts of instant energy. They are used in fuel-cell vehicles to provide an extra burst for accelerating into traffic and climbing hills. Currently they will need to be larger than a battery to hold the same charge. Via their website: MIT's LEES Lab overcame the energy limitation by using vertically aligned, single-wall carbon nanotubes -- one thirty-thousandth the diameter of a human hair and 100,000 times as long as they are wide. It would reportedly permit ultracapacitors to give a car a 160 km range on electric power, and reduce energy storage units by two thirds in weight and 75% in size by comparison with existing nickel metal hydride units as used by Toyota's Prius. April 05, 2007 - OptiXtal's World First Ultra-Thin SuperCapacitor WOW! Check out the new SuperXcap by OptiXtal. It's an ultra capacitor that is currently designed for smaller applications like cell phones and cordless tools. It instantaneously generates the power to the devices and recharges in only seconds. They say it has 500,000 recycle charges before change out. OptiXtal capacitors are light, trim, thin, and flexible. For manufactures of almost any device, they can be located where ever needed. The world has a critical and growing need for more and more electric power to run everything from manufacturing plants, small miniaturized electronic communication products, to hybrid automobiles and other modes of electric transportation. The new SuperXcap will be making a significant difference in all future power delivery designs in a lot of different industries. This will change some things.
March 26, 2007 - EESTOR & Feel Good Cars Feel Good Cars has worldwide rights to purchase EEStor's new ultra-capacitor for their small vehicles. Their new ZENN (Zero Emission No Noise) is a luxury low speed neighborhood electric car. They are currently called either Low Speed Vehicle (LSV) or NEV (Neighborhood Electric Vehicle). They are made for roads marked 35mph or less. The current markets for the ZENN include drivers in planned communities, urban commuters, drivers who participate in car-sharing programs, users on university or corporate campuses, communities on islands, environmentally sensitive areas such as parks and some car rental companies."By driving a ZENN you cut emissions, not comfort or performance. With its European styling and appointments, you also don't have to give up style to feel good while you drive."
Ian Clifford, CEO of Feel Good Cars March 21, 2007 - Supercapacitors In Camera Phones I recently read an article about how super-capacitors will soon be used to power the LED flash in camera phones. The combination of power LEDs and supercapacitors could become the crucial breakthrough that will enable high quality LED flash in camera phones. Here is the article: LED Magazine March 12, 2007 - Ultra-Capacitors & Batteries in Hybrid Cars I read this pdf...
again today.. it is a PDF about UltraCapacitors and batteries in hybrid vehicles. It is a great document about Electric Vehicles (also called EV's). It discusses the Advantages & Disadvantages of hybrid energy storage. This document gets very technical talking about cycle statistics, energy dissipation, fuel usage of idle-restart, experiments showing using ultracapacitors with batteries. You will find it interesting. It was made by the National Renewable Energy Lab. The below PDF was developed by the National Renewable Energy Lab (NREL) about UltraCapacitors and batteries in hybrid vehicles and cars. It is a great document that discusses advantages & disadvantages of hybrid energy storage in Electric Vehicles (also called EV's). Click to download PDF February 26, 2007 - Could UltraCapacitors Replace Batteries?? We were recently contacted by Nici Lewis a writer for Medical Imaging Magazine. They quoted us about UltraCapacitors in their recent story about the possibility of UltraCapacitors replacing batteries. Here is the article: Medical Imaging Magazine. Great magazine!! February 13, 2007 - Really?? An UltraCapacitor BMW? Never known for making environmentally friendly vehicles, BMW now believes that they have a future in hydrogen. Until recently, BMW has been very quiet about hybrid electric vehicles. That is changing... BMW is working on a hybrid using an ultracapacitor that is nothing like we are used to. "Ours is lighter, faster and more efficient," says BWM Technology Guru Professor Freymann. Super capacitors, power boosted by regenerative braking, replace batteries. "[The super capacitors] are lighter and store less power, but unlike batteries we can use all their power — all 100 percent." So they give a quick, high-power, short-term "fix" to a small electric motor (mated to a conventional gasoline engine), used only for standing-start acceleration. "An electric engine has a lot of torque at low revs — that is its main benefit — so it's ideal for fast initial acceleration. At higher revs, once you've begun to accelerate, nothing can beat an internal combustion engine. Our hybrid approach combines the best characteristics of both engines."

It will be interesting to see what BMW does for the hybrid electric vehicle and the ultracapacitor.…. stay tuned....January 23 2007 - Secret Breakthrough?? Change The World?? In a move called "Game Changing" - a secret startup company in Texas, EEStor, announced that it has reached production milestones. They claim that their hybrid of a battery-ultracapacitor will "replace the electrochemical battery" in almost every use - from hybrid electric vehicles - laptops to mobile phone. They claim they theirs will outperform the best lithium-ion batteries on the market at half the cost, density, and charge time. They will ship ultra capacitor systems for use in electric vehicles this year. 10 Times more powerful than any battery on the market at the half the cost. This appears to be the break though that this market has been waiting for. Time will tell as this company moves into the market. --- reporting live - Greg A. January 2007 - Green Energy = Clean Energy Plug Power is an established leader in the development and deployment of clean, reliable, on-site energy products. They currently integrate fuel cell technology into backup power products like ultra capacitors for telecommunications, utility and uninterrupted power supply applications. They are actively engaged with customers in targeted markets, including the United States, Europe, Middle East, Russia, South Africa and South America. In the 9th Annual GSM 3G Africa conference, Plug Power introduced its new battery-free GenCore backup fuel cell system using the ultracapacitor technology. Plug Power designed the ultracapacitor solution option for customers to provide more reliable and durable on-site backup power in remote regions with severe climates that adversely effect battery life spans and overall performance.January 2007 - Ultracapacitors- Top Pick for 2007

Maxwell Technologies, Inc. is the top speculative pick for 2007 from Gregg Early. Most of the press goes to bio-nano, batteries, or cosmetics when the press gets a hold of a nanotech story. Sure they're sexy & mundane; curing cancer, electric vehicles, rub-on facelifts & mundane; but they don't always have the substance that a business needs to ake a real breakthrough.

Maxwell is one of the few companies that specializes in capacitors and increasingly, ultracapacitors. This new generation of capacitor has the potential to revolutionize motive and stationary power storage and distribution as we know it. The company has just inked a deal for a 3 million unit order from one of Europe's largest wind turbine makers, which doubled the initial order the wind company previously placed. A very good sign.

Maxwell is also working with a German OEM (original equipment manufacturer) regarding ignition systems that could make car batteries obsolete. There's plenty of potential reward. Buy Maxwell up to 14.35 as a speculative play. December 2006 - Nesscap Files Patent - Infringement Suit Against Maxwell SENSUL, South Korea, Dec. 15 -- Nesscap Co. a privately-held company recognized as a global leader in ultracapacitor technology, product development, sales and manufacturing, has filed a patent-infringement lawsuit against Maxwell Technologies, a San Diego, California-based ultracapacitor manufacturer. The lawsuit alleges that Maxwell's products, including the D-cell & Boostercap ultracapacitors, infringe upon Nesscap's patented intellectual property. NessCap filed the lawsuit in the United States District Court for the District of Delaware in Wilmington, Delaware. The firm of Edwards Angell Palmer & Dodge LLP represents NessCap Co. in the lawsuit. "NessCap has invested significant capital, resource and effort in developing our own proprietary and patented technology and we will not allow Maxwell to infringe," said Dr. Sunwook Kim, founder and chairman of the board of NessCap Co.Dr. Kim further observed: "For whatever reason, after our merger discussions ended abruptly, Maxwell started the legal battle by filing a lawsuit against us for infringement in San Diego, which we will demonstrate has absolutely no merit. We and our legal team have conducted an extensive review of our patent estate and we have determined that NessCap ultracapacitors, which Maxwell accuses of infringement, are protected by NessCap patents that predate the Maxwell patents at issue in the San Diego lawsuit. We are convinced that we have a very strong position." NessCap stands as a global leader in technology innovation and product development of ultracapacitors. We feature the widest array of standard commercial products in the market, ranging from 3 farads to 5000 farads, with...
industry-recognized alternative organic electrolytes. Our NessCap products are available in either cells or modules. In addition, they can be used in the transportation, power and consumer markets. December 2006 - Maxwell Gets Winded...SAN DIEGO - Maxwell Technologies Inc., a maker of ultra capacitors used to extend battery life in electronic devices, said Wednesday, December 6th, 2006 that a European wind energy company placed an order for 3 million ultracapacitors.

Financial details were not disclosed. However, the company said the order, which will be filled over two years, is for double the quantity of its previous largest "D cell" order.

Shares of Maxwell jumped 56 cents, or 3.8 percent, to $15.16 in after-hours trading, after gaining 31 cents, or 2.2 percent, to close at $14.60 on the Nasdaq November 2006 - Ultracapacitor Market Sees Unlimited PotentialDUBLIN, Ireland -- (BUSINESS WIRE) -- Research and Markets (http://www.researchandmarkets.com/reports/c45752) has announced the addition of World Ultracapacitor Markets to their offering.

Ultracapacitors are an age old discovery which had not found proper use until identified as a good energy storage device with intricate modifications. The latest technology has increased the surface area of each electrode while minimizing the dielectric distance between the two electrodes, thereby enhancing several key properties of ultracapacitors for a wide application market. However, these technical advancements contain some limitations. For example, the energy density of ultracapacitors is low compared to the battery technology they target. Ultracapacitors have already found their way into the consumer electronics market by using its memory storage capacity for advanced electronic devices. It will very likely succeed in the transportation market, where it can be used for regenerative breaking; stop and go applications; power train; and acceleration–aspects that reduce consumption of fossil fuels in vehicles. Similarly, in the industrial sector, ultracapacitors are seen as a probable addition to batteries to enhance their lives and reduce maintenance costs of entire systems.

This analysis focuses on the World Ultracapacitor Market. This research service analyses the overall growth in the Ultracapacitor market, revenue analysis, market share analysis, competitive structure, market and technology trends, industry challenges, drivers, restraints and pricing trends for three application markets: the transportation, industrial and consumer electronics sectors. Topics covered include: total ultracapacitor market, transportation, industrial, and consumer electronics. This study also contains a comprehensive competitive analysis and the geographic analysis for the world market. Market share is given by each application.

Market Sectors Transportation Industrial Consumer Electronics Technologies November 2006 - Maxwell offers hybrid & electric car solutionMaxwell Technologies, Inc. (NASDAQ: MXWL) has introduced a new compact 125-volt ultracapacitor circuit module for scalable energy storage and power delivery solutions for use by heavy hybrid and electric vehicles and heavy-duty industrial applications requiring up to 1,500 volts.

Maxwell bases the new module on its 2.7-volt BOOSTCAP MC3000 power cells and incorporates proprietary balancing, monitoring and thermal management capabilities to ensure industry-leading charge/discharge performance, high reliability and long operational life, according to the company.

"This high-performance module is designed specifically to satisfy rapidly growing global demand for ultra capacitor-based braking energy recuperation and torque assist systems for hybrid bus and truck drive trains and electric rail vehicles," said Dr. Richard Balanson, Maxwell's president and CEO. "It meets or exceeds transportation industry requirements for watt-hours of energy storage and watts of power delivery per kilogram, and is designed to perform reliably through one million or more deep charge/discharge cycles, which equates to more than 15 years of operational life."

Michael Everett, Maxwell's vice president and chief technical officer, said that integrated monitoring capabilities and a highly efficient cooling configuration enable the new module to sustain continuous current of up to 150 amps with minimal temperature increase in high-temperature environments.

"In addition to managing high current, this module is built to withstand the harsh environments and demanding duty cycles typical with heavy transportation applications," Everett said.

The HTM BMOD0063-P125 is encased in a splash-proof, IP 65-compliant aluminum chassis weighs less than 50kg and measures 315x425x744mm. Up to 12 modules may be linked in series to deliver a total of as much as 1,500 volts. Maxwell also offers a line of standard 15- to 48-volt multi-cell pack and modules.

Ultracapacitors deliver up to 10 times the power and longevity of batteries, require no maintenance and operate reliably in extreme temperatures. In transportation applications, they efficiently recapture energy from braking for reuse in hybrid and all-electric drive trains, reducing energy consumption and emissions. They also provide compact, lightweight, "life-of-the vehicle" solutions to stabilize automotive power networks and power new, all-electric subsystems, such as drive-by-wire steering. In mission critical industrial applications, where backup power is critical for continued operation or a soft shutdown in the event of power interruptions, they provide energy storage. In wind turbine blade pitch and braking systems and other industrial applications, they provide a simple, solid state, reliable solution to buffer short-term mismatches between power available and power required.October 2006 - C size., but 1/3 the weight Maxwell Technologies Inc.&rsquo;s Boostcap 2.5V ultracapacitor cells and multi-cell packs have the same external dimensions as the familiar C-size battery but weigh only one-third as much.
The 120-farad BCAP0120 P250 Power-type C-cell is engineered for high-cycling applications that require the lowest equivalent series resistance (ESR) and highest efficiency, while the 140-farad BCAP0140 E250 Energy version is designed to provide more economical solutions for lighter duty applications. Both lines can be packaged in a six-cell, 15-V pack.

The ultracapacitors are hermetically sealed with a double seaming process to ensure long life and reliability. Applications include industrial robotics, actuators, telecommunications back-up, aircraft door and air bag actuation, and distributed power nodes for automotive subsystems. September 2006 - No More Battery Freeze-OutWe may soon see the end of cars that won't start because the batteries are too cold. Ultra capacitors that are much less resistant to extreme temperatures are being developed that will take the place of batteries in providing juice to starters.

Maxwell Technologies has partnered with Kromberg & Schubert to develop an electrical system that places Maxwell's Boostcap ultracapacitor near the starter to reduce cabling and overall system cost. Ultracapacitors are a better choice for starting vehicles because of their superior reliability and small footprint, as explained in Maxwell's press release: So adding a capacitor extends the battery life and allows smaller batteries to be installed. The technology isn't cheap today, but because they provide benefits to all kinds of vehicles --hybrids, EVs, and ICEs -- the research dollars being spent today will cut the cost substantially. It may take a few years, but someday you'll see ultracapacitors in new vehicles.

"Automotive batteries store a great deal of energy, but must be over-sized to deliver current rapidly enough for acceptable starting performance, and their ability to deliver such current drops off sharply when the temperature approaches freezing. Ultracapacitors store less energy than batteries, but can deliver ample current for starting at temperatures as low as -40 degrees..."