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## Clayton Power develops intelligent BMS master/slave for battery management of Lithium cells. By Christian Mogensen, Denmark; December 18, 2009

The newly developed Battery Management System from Clayton Power provides new opportunities for storing alternative energy in small or large scale lithium battery banks.

The Battery Management System gives new possibilities for storing for example large amounts of energy from wind turbines during night time operations, ready to be used when people wake up in the morning.

Lithium batteries are the new systems of choice, offering high energy density, flexible and lightweight de-

sign, and longer lifespan than conventional lead battery technologies.

The next generation of batteries provides new possibilities and can be used in many different areas such as, the automotive or maritime market, for off-grid systems, energy storage facilities or battery banks for alternative energy sources.

The battery systems can also be used for traction in EV's or electric driven boats. But common for all is the demand for high security and optimal controlling of the individual

lithium cells. This is done by a BMS (Battery Management System).

Clayton Power are field leaders in developing the technology to control lithium batteries on small as well as larger scale. Through development and dedicated research Clayton Power has build a range of strong applications and products that grants the possibility to produce almost any voltage level needed.

The new Battery Management Systems from Clayton Power has

*Continued on Page 2: Intelligent BMS*

## Every Londoner Within Mile of EV Charging by 2015 by Sami Grover, 12.30.09

While the City of London may have withdrawn free electric car parking, the UK capital continues to see fast and furious progress toward a truly electrified trans-

portation system. From city-wide electric vehicle charging at Sainsbury's supermarkets to the auctioning of electric charging points, electric car infrastruc-

ture in London is developing constantly. Now the Mayor of London has set out a strategy for putting 100,000 electric vehicles on the capital's streets as soon as possible. And it's ambitious indeed.

Launching his new Electric Vehicle

Delivery Plan for London (PDF), Mayor Boris Johnson stated the case for decisive and forward thinking Government action to kick-start the

risk of serious and irreversible climate change, yet this does not need to be about hair shirt abstinence. I want to pursue radical yet practical steps to cut energy waste. Electric vehicles are a clear example of how technology can provide the solution to the biggest challenge of our generation."

Highlights of the plan include installing 25,000 charging spaces in London's workplaces, retail outlets, streets, public car parks and station car parks by 2015. Once completed, says Mayor Johnson, every Londoner will be within one mile of an EV charging point. Crucially, the

*Continued - Page 2: London EV's*



market: 'A golden era of clean, green electric motoring is upon us and London is well ahead of cities around the globe in preparing the right conditions for this.

'There is an urgent need to tackle the

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**Editors Notes** - This issue has a new twist, putting the Table of Contents on Page 2, allowing the Front Page to have Full width for the prime two stories we will present each issue. Also - Member Application and EV Conversion Manual Order form has been placed on the last two pages - separate from all stories. News in the Areas of Wind, Solar, and Electric Vehicles is rapidly Increasing. and the Newsletter was extended by 4 pages to give a full 10 pages for content and to allow for this adjustment.

## Hot Links!

**Ontario 2009 Wind Power Record - up 60%**

<http://tinyurl.com/y8elugc>

**Day4 Energy to 5.1 mW Solar**

<http://tinyurl.com/day4energy>

**Hydrogenics CSA Solar H<sub>2</sub>**

<http://tinyurl.com/y8ma8to>

**Next Issue: FEB 2010**

**Editor: Robert Weekley**

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## *Intelligent BMS - From Page 1*

been developed and tested together with leading manufacturers of lithium ion, lithium polymer and lithium titanate batteries, to meet future challenges.

As opposed to normal systems the Clayton Power BMS consists of a Master/Slave system. One Master can control up to 31 Slaves and each Slave can control up to 16 lithium cells. This gives the possibility to build a system of up to 496 cells all controlled individually by the BMS. The Master/Slave system can control from 12V to 1500V.

The BMS Master/Slave system controls charge and discharge, cell temperature and cell balancing. Also it grants information on the state of charge, battery health as well as a lot of other safety features. The flexibility of the management system allows for configuration of the BMS to communicate with specific applications or in a network of power systems.

**Source:** [renewableenergyworld.com](http://renewableenergyworld.com)

**URL:** <http://tinyurl.com/ya03hm5>

**Other:** [www.claytonpower.com/front](http://www.claytonpower.com/front)



About Clayton Power - Clayton Power was founded in the late 1990s in Denmark. The company is known for creating modern power solutions for industrial and leisure-based use of mobile power, UPS (Uninterruptible Power Supply), storage and backup power systems. Clayton Power has a range of robust and very compact line-card cover power products to include DC/AC power inverter technology, such as True or Pure Sine Wave Inverters, Inverter/Chargers (Combi) and Battery Management Systems (BMS) for Lithium Battery Technologies.

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## *London EV's - From Page 1*

Mayor's office is also committing to getting at least 1,000 Greater London Authority fleet electric vehicles by 2015. These are bold moves, and could herald a huge boost to the electric vehicle industry in London and around the world.

Of course we shouldn't forget that London has excellent public transportation, and electric cars aren't going to fix everything. But given the fact that countless Londoners still drive, it can hardly be a bad thing if they make a move toward a greener vehicle to do it in. And with London's car clubs gaining strength, and cyclists finally being taken seriously, the picture is getting rosier for London's transportation network.

**Source:** [Treehugger.com](http://treehugger.com)

**URL:** <http://tinyurl.com/y867q46>



## **Canadian Solar Begins Ontario Plant Site Selection** Jan. 5, 2010

Canadian Solar Inc. (Kitchener, Ontario) has begun site selection and approval for establishing a 200 MW silicon-based solar module manufacturing facility in Ontario. The company will nail down decisions on the specific site, cost and size in the first quarter of 2010 and begin construction soon thereafter.

The company expects the facility could create 500 new manufacturing jobs in the area and sufficiently supply electricity to 60,000 homes per year. The plant's price tag is estimated at C\$24 million (\$23.23M). When finished, it stands to rank among the largest solar panel manufacturing facilities in North America.

**Source:** [pvsociety.com](http://pvsociety.com)

**More:** <http://tinyurl.com/yafly55>

<http://www.canadian-solar.com/>



## Electric cars to hit the road in 2010 by Peter Corbett, Jan. 2, 2010

Electric vehicles have been hyped before as the car of the future, but 2010 could be the year plug-in vehicles finally take off.

Advances in battery technology, the introduction of three new electric models, a volatile oil market, eager consumers concerned about global

**"It's a whole new world," said Jim Stack, chapter president of the Electric Auto Association-Phoenix**

warming and a huge federal investment in charging stations have converged, pointing the way to an automotive future without tailpipes or exhaust gases.

Nissan will deliver 1,000 of its zero-emission, five-passenger Leaf hatchbacks to Valley and Tucson

buyers in December. Other carmakers, including Tesla Motors, with its high-performance sports car, and Chevrolet, with a four-passenger Volt, are hustling to get more electric cars on American roads as acceptance grows and the technology accelerates.



"It's a whole new world," said Jim Stack, chapter president of the Electric Auto Association-Phoenix, a group of electric-vehicle owners. "It's

amazing technology that is already here and very safe."



Hybrids, which have grown in popularity the past few years, combine electric and gasoline engines to increase fuel mileage and reduce emissions.

Plug-in electric vehicles like the Leaf and Tesla Roadster are different. They have no internal-combustion engine. With its lithium-ion battery, the Leaf, which was being shown off

*Continued - Page 6: EV's On the Raad*

## Supermarket Launches City-Wide Electric Vehicle Charging by Sami Grover, 11.20.09

From turning waste food into energy to delivering food by barge, UK supermarket Sainsbury's has been exploring alternative energy and transportation for some time. They even recently unveiled "people-powered" checkouts, though on closer inspection they appeared to be gasoline driven. Now the company is taking a significant step toward real, far-reaching electric vehicle infrastructure across London.

The supermarket chain is launching a city-wide electric vehicle charging network at eleven stores, including Beckton; Camden; Chiswick; Cromwell Road; East Dulwich; Greenwich Peninsula; Islington; North Cheam; Sydenham; Wandsworth and White-

chapel. Nine of the charging points are open now, with Wandsworth and Whitechapel opening later this month.



Taking a bold move like this across the nation's capital will, says Sainsbury's Neil Sachdev, Sainsbury's commercial director, "turn London into an electric vehicle superhighway, giving electric car drivers greater freedom. Sainsbury's is al-

ready one of the country's largest users of these vehicles and we hope that this initiative will encourage more of our customers to follow our lead."

Of course, let's not forget that London has excellent public transportation, and electric cars aren't a panacea. But given the fact that countless Londoners still drive to get their groceries, it can hardly be a bad thing if they make a move toward a greener vehicle to do it in. And with London's car clubs gaining strength, and cyclists finally being taken seriously, maybe a saner, more integrated system of transportation is emerging.

Now if Sainsbury's could start delivering groceries to homes in electric vehicles, then we'd really be on a winner.

Source: Treehugger.com  
URL: <http://tinyurl.com/yex5ymf>



# Panasonic Starts Mass-Production of High-Capacity 3.1 Ah Lithium-ion Battery

December 18-19, 2009

**Panasonic Corporation developed a 18650-type high-capacity 3.1 Ah lithium-ion battery and began mass production of the battery this December. The new 3.1 Ah battery has a nickel positive electrode and an energy density of 675 Wh/L. The same type (18 mm in diameter x 65 mm in length) of batteries are widely used in laptop computers.**

**Editors Note:** The Lithium Ion Cells of the 18650 format first used in large quantities for EV use were in the AC Propulsion tZero, and had a nominal capacity of 1.8-2.0Ah. These Cells took the car up from a 100 mile Range on Optima Yellow Top Lead-Acid, to a Range of over 300 miles. This Cell holds about 50% more power per Cell. [bit.ly/tZero\\_Wikipedia](http://bit.ly/tZero_Wikipedia)

Demand for lithium-ion batteries is growing as a power source for mobile devices such as laptop computers and mobile phones because their

metal oxide layer between the positive and negative electrodes. The



layer prevents the battery from overheating even if a short circuit occurs.

Capitalizing on this technology, Panasonic commercialized a high-capacity 2.9 Ah lithium-ion battery with a nickel positive electrode (energy density: 620 Wh/L) in 2006.

energy density battery can also contribute to downsizing and weight reduction of portable devices. With adoption of the nickel positive electrode, the new rechargeable battery excels in durability in actual use and charge retention - the battery can be stored for a long period of time because of low self-discharge.

Panasonic will continue to refine its battery technology to deliver lithium-ion batteries combining safety with high capacity and use this technology to develop commercially viable green energy storage systems.

**Source:** physorg.com

**URL:** <http://tinyurl.com/3100mAh>

**More:** [greencarcongress.com](http://greencarcongress.com);

<http://tinyurl.com/y8tb78z>

**Comments:**

Now this is  $(1000/44.5) * 11.2 \text{Wh} = 252 \text{Wh/kg}$ ! This is the highest energy density I have seen for any mass market and secondary cell.

Tesla use 8000 of the 18650 cells to get a 70kWh battery for their 300 miles version of the Model S using about 0.233 kWh per mile.(1) If Tesla used this new cell from Panasonic they could make a  $(8000 * 11.2 \text{Wh}) = 89.6 \text{kWh}$  battery and get a  $(89.6 / 0.233) = 384$  miles range for the Model S.

**Ref:** 1) Model S battery pack specs:

<http://tinyurl.com/tesla-S-300>

**More: 1.5 kWh Module**

<http://tinyurl.com/y9t979z>

**And:** <http://tinyurl.com/18650s-grow>

<http://tinyurl.com/teslapack>



Model	NCR18650 (Current model)	NCR18650A (new high-capacity model)
Capacity	2.9 Ah	3.1 Ah
Volumetric energy density	620 Wh/L	675 Wh/L
Mass	approx. 44 g	approx. 44.5 g
Voltage	3.6 V	3.6 V
Charging voltage	4.2 V	4.2 V
Capacity	10.4 Wh	11.2 Wh

high energy density and light weight properties are suitable for these applications. As such devices become more sophisticated and powerful, they require more robust and safer batteries that do not cause abnormal heating.

The company successfully achieved safety and high capacity by using its unique Heat Resistance Layer (HRL) technology that forms an insulating

Based on the cell construction with the nickel positive electrode and the HRL, the company added improvements to the battery and succeeded in developing the 3.1 Ah lithium-ion battery, the industry's highest capacity in the 18650-type.

The new battery provides long-lasting power to laptops. This high

**A Word from Our President**— Hello EV Enthusiasts - I hope you all had a good Christmas Season and welcomed the New Year in style. We wish you well. Maybe we can move forward in some of the more successful endeavors that we enjoy advocating electric propulsion.

"Twenty ten" is a new term for me, and perhaps to you, however it is a very good date identifier. And with that advancing thought we note that there is a lot more EV activity, talk, and indeed action happening around the world. Our newsletter does a great service bringing you the latest EV news. Well done to our editor. Robert Weekley

I think we are in for some new sub compact vehicles, Fiat (Chrysler) for one, and perhaps GM and Ford allowing their European small vehicles to find their way to our roads. They would make great conversions, along with Lithium batteries. And they may appear as factory EV's as well.

I have to report that we may not get to meet the public at the next Auto Show. I have been told there is a big change with many new companies wanting paid space and that means we are odd man out. There is a glimmer of hope in that I am to check at the end of the month and there may be something without vehicles. Perhaps in the Rogers Centre on the 100 level. I never liked that area as the traffic and people are much different.

I sent a manual to Maureen Lowrey, Neil Gover's wife with the new cover showing Neil's truck. She went through it and informed me it was not in the right order. The index in the middle, etc. So I took them all back to the printer and he fixed it.

I am pursuing any and every chance to advance the High School Conversion concept and there have been some developments in that area to which I can report later. All the best, Howard Hutt, President, EVSC



## **Supporting Electric Vehicles, by Antonio Villaraigosa Mayor of the City of Los Angeles** December 16, 2009 01:39 PM

**This morning I had the opportunity to participate** on a panel with World Bank President Robert Zoellick, Sir Richard Branson, UN OECD General Secretary Angel Gurría, Governor Arnold Schwarzenegger and others on the importance of public-private partnerships.

At this meeting, I was pleased to announce the "C40 Electric Vehicle Network," a new public-private partnership between 14 of the world's largest cities - including Los Angeles - car manufacturers and a leading energy company to increase electric vehicle usage and accessibility.

Over the next year, participating cities will take specific steps to make their cities more electric vehicle friendly and will collectively address four areas of municipal action that are critical to the successful introduction of electric vehicles. Those areas are:



1. Addressing charging infrastructure and related electricity supply systems;
2. Streamlining permitting processes;
3. Coordinating monetary and non-monetary incentives; and
4. Publishing plans on mobilizing demand for electric vehicles in city fleets.

At the same time, car manufacturers such as BYD, Mitsubishi, Nissan and Renault; and the energy company, EDF Energy, will provide support to

the cities as they make vehicle procurement and infrastructure investment decisions.

Cities are the largest emitters of carbon and contribute the most pollutants to our environment. The conversion of major vehicle fleets to electric power, gives cities an opportunity to reduce emissions and become more sustainable.

**Source:** huffingtonpost.com

**URL:** <http://tinyurl.com/ybs4gfv>

**The Main Site of Reference:**

**URL:** <http://www.c40cities.org/>

**More Stories on this thread:**

**Sydney Joins the C40  
Electric Vehicle Network**

Source: aussiemotoring.com

URL: <http://tinyurl.com/y94ns9x>

**COP 15: Big city mayors  
announce C40 Electric  
Vehicle Network**

Source: hybridabc.com

URL: <http://tinyurl.com/yd9j2wu>



### **EV's On the Road - From Page 3**

around the Valley over the holiday weekend, has a range of 100 miles

## **ZERO EMISSIONS, IS FORGETTING THE PRICE OF GAS!**

between charges. Chevy's Volt has a gasoline engine that kicks in once the car has used up its electric charge after an estimated 40 miles.

Nissan has selected Phoenix and Tucson; Southern California; Seattle; Portland, Ore.; and Tennessee as its U.S. launch markets for the Leaf in December, with wider availability by spring 2011, Nissan spokesman Tim Gallagher said.

Nissan has not disclosed Leaf's price, but it is expected to be in the same range as a fully loaded Prius hybrid, approaching \$30,000. Nissan has partnered with Scottsdale-based Ecotality to install thousands of home-charging systems for Leaf owners and 2,300 public charging stations in Arizona by summer 2011.

Ecotality has a \$99.8 million contract with the U.S. Department of Energy to install 11,000 chargers in five states.

Green Fuel Technologies Inc. of Phoenix plans to install as many as 4,000 charging stations in the Southwest next year, company Chief Executive Officer John Casey said.

Ecotality is targeting shopping malls, supermarkets and major employers for charging stations, as well as adding fast-charge stations at key stops between Phoenix and Tucson, said Colin Read, Ecotality vice president of corporate development.

"When the cars hit the road, we don't want drivers to have to worry about charging them," Read said. "The first users must have a successful experience to pave the way for these cars in the market."

There are at least 30 electric cars that private owners operate in the Valley, not counting hybrids, said Stack, of the Electric Auto Association. Some are left over from a previous development push of electric cars in the 1990s.

Toyota, Ford and General Motors each built hundreds of plug-in electric vehicles starting in the mid-1990s. GM's EV-1 developed a devoted following, but the company abandoned its development and took back all the cars when the leases expired.

That sparked a huge backlash among electric-vehicle proponents. Many of the EV-1 cars were crushed at the GM Proving Ground in Mesa, said Zan Dubin Scott of Plug in America.

Paul Scott, vice president of Plug in America, said it's time to start running cars on "American electrons instead of foreign oil."

World oil production has peaked and demand will spike as millions of consumers in China and India buy automobiles, he said, adding that U.S. gas prices will surge to \$5 to \$6 per gallon.

**Did you know? The U.S. has over twice the electricity generating capacity of any other country - 986,000 megawatts at the end of 2006.**

Scott, who recently drove the Leaf in Los Angeles, praised the car's performance. He predicted it will sell well when it hits the market. "The Chevy Volt and Nissan Leaf are leading us back into an age of electric cars," Scott said.

One of the Valley's electric-car pioneers is Roger Richardson, a retired Air Force veteran who lives in Surprise.

He bought a Tesla Roadster in August and has put about 3,500 miles on it. The two-seater sports car, with a base price of \$109,000, accelerates from zero to 60 mph in 3.9 seconds. He charges it with photovoltaic panels on his roof.

"This is my protest against our oil addiction," Richardson said. "I'm supporting the technology so we can get away from relying on the (Middle East) to keep our energy going."



**Source:** azcentral.com

**URL:** <http://tinyurl.com/2010-leaf>

### **Relevant Sites:**

[www.nissanusa.com/leaf-electric-car/](http://www.nissanusa.com/leaf-electric-car/)  
<http://tinyurl.com/2011-Volt>  
<http://www.phoenixeea.com/>  
<http://www.pluginamerica.org/>  
<http://www.teslamotors.com/>

### **Similar Interests:**

**Tesla Motors Canada - EV Future:**  
<http://tinyurl.com/Tesla-Canada>



## **Toyota Develops Solar Charging Station for Electric Vehicles**

December 27, 2009

Toyota Industries Corp has developed a solar charging station for plug-in hybrid vehicles (PHVs) and electric vehicles (EVs). The municipal government of Toyota City, Aichi Prefecture plans to build 21 such stations at 11 locations such as the municipal office and branch offices. Full operation of the stations will begin in April, with 20 Prius Plug-In Hybrids.

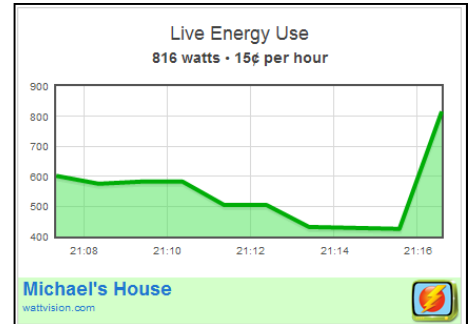
# WattVision Is Latest Tool for Easy Real-Time Energy Monitoring (Video)

by Jaymi Heimbuch, 12.30.09

Wattvision is a new plug-n-play tool for real time energy monitoring. Like most power monitors available on the market, you just snap a sensor on to your electricity meter and you can get real-time energy consumption data on your computer or smart phone. But an interesting pricing structure, super simple displays, and social networking tools for energy

competitive - companies are all working to make their information more accessible and easy for users to understand (and remember to utilize) than the rest of the companies on the market. The easier it is, the more likely users are to stick with that service. Until the smart grid comes along, that is...which is quite a ways off still.

If you're interested in how Wattvision looks, you can check out their live demo of a house in New Jersey, which shows energy consumption updated every 10 seconds: <http://www.wattvision.com/demo>



Source: Treehugger.com

URL: <http://tinyurl.com/yc3zccjp>

## Solar EV Charge- From Page 6

The station is grid connected, and also captures power generated by the 1.9 kW solar panel in an 8.4 kWh storage battery, for subsequent use in



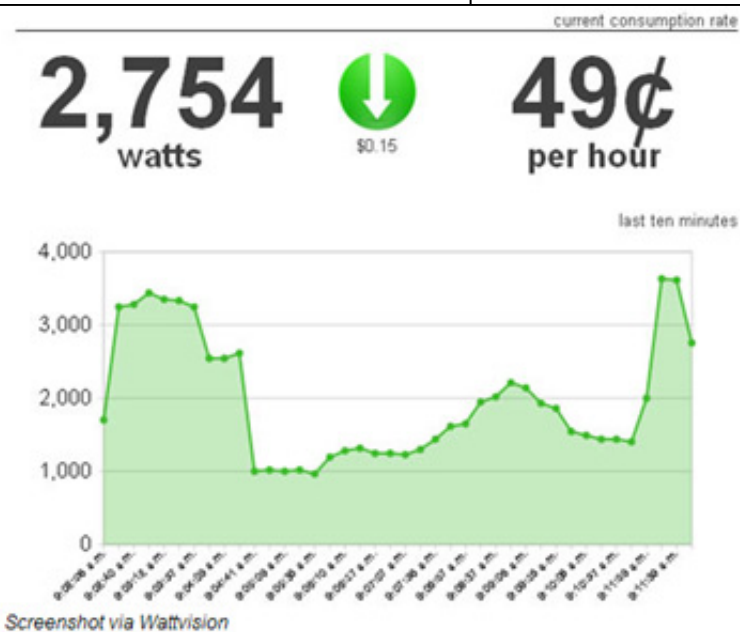
charging. Maximum output using grid power is 202VAC/3.2kW. Self-sustained operation using solar power from the battery pack has a maximum output of 101VAC/1.5 kVA.

Excess solar power can be used for facilities in the system, or sold to a utility company. TIC envisions that the station can also provide power to electrical equipment in a disaster.

Source:

[electric-vehicles-cars-bikes.blogspot.com](http://electric-vehicles-cars-bikes.blogspot.com)

More: <http://tinyurl.com/ya6h6uw>



The market is crowded, however, with big named players taking prime position - such as Google's PowerMeter, which is already spreading across the globe and partnering with power monitor companies in an effort to leap-

consumption data could help set Wattvision apart from the rest of the market.

As Jetson Green notes, "Wattvision could really help a homeowner out. Knowledge is power, and knowing how equipment uses energy may cause some users to make changes to save energy. It all depends on the user, though."

That really is the key to making changes in energy consumption. What's measurable is manageable, but the biggest problem we have in conserving energy is getting people to want to consume energy.

That is one of the reasons why the emerging market of energy dashboards and power monitors is so

frog the need to network with cumbersome utility companies who are slow to jump on board with smart metering technology.

Wattvision is still in beta mode, but is selling the Wattvision Sensor for \$199 (currently only \$149 with the code "wvbetablog"), which works with certain digital energy meters, with equipment compatible with more meters on the way. Once beta mode is over, Wattvision will have a tiered pricing structure based on the level of service a user wants for monitoring energy, including how much information you have access to and how many properties are included in the account.

# Tesla Motors and Panasonic working together on battery tech

by Domenick Yoney, Jan 8th 2010

While Tesla Motors still won't say they will be putting Panasonic cells in the Model S battery packs (come on guys, 'fess up!), they have announced they are working with the Japanese mega-corp. In a new press release, the two companies divulged that they



will "collaborate to develop next-generation battery cells for electric vehicles." Unlike many other companies with electric vehicles that will be powered by prismatic (flat, rectangular-shaped) cells, Tesla uses the 18650 format found in most laptops and since Panasonic also seems to have this preference, it seems natural for the two to develop a working relationship. The relationship is an open one since Tesla declares itself steadfastly supplier-agnostic and the company formerly known as Matsushita Electric Industrial Co., Ltd also has many other customers.

Says JB Straubel, Tesla's Chief Technology Officer, of the fraternization, "Our collaboration with Panasonic will accelerate the development of next generation EV cells, enabling Tesla to further improve our battery pack performance," For its part, Panasonic sees the consociation as a validation of their nickel-based chemistry and its ongoing research and development investment in the energy storage area.

## PRESS RELEASE

Tesla and Panasonic Collaborate to Develop Next-Generation Battery Cell Technology

CARLOS, Calif. - (Business Wire)

Tesla Motors and Panasonic today announced that they will collaborate to develop next-generation battery cells for electric vehicles.

Tesla, the only carmaker producing highway-capable electric vehicles, will use Panasonic's battery cells in their newest battery packs. The cells are comprised of Nickel-based Lithium ion chemistry, the highest energy density battery cells in production today, preferred by Tesla for EV applications because of their high capacity, light weight, durability, and long life.

"Our collaboration with Panasonic will accelerate the development of next generation EV cells, enabling Tesla to further improve our battery pack performance," said JB Straubel, Tesla's Chief Technology Officer. "Combining Tesla's rigorous cell testing and understanding of EV requirements with Panasonic's cutting-edge battery technology will result in custom cells optimized for use in EVs."

Panasonic is the world's leading battery cell manufacturer and a diverse supplier to the global automotive industry.

"Being selected by Tesla to provide cells for their current and next-generation EV battery pack is a tremendous validation of Panasonic's nickel-based chemistry and the extensive investments Panasonic continues to make in lithium ion R&D and production," said Naoto Noguchi, President of Panasonic Energy Company.

Panasonic is one of the world's largest producers of Lithium-ion battery cells. Furthermore, Panasonic is the global leader in lithium-ion cell technology, and is midway through a 3-year USD\$1 billion investment in

lithium-ion battery cell R&D and production facilities. The first of the new facilities in Suminoe, Japan will begin production in April 2010.

Tesla's current battery strategy incorporates proprietary packaging using cells from multiple battery suppliers. This new cell will also be compatible with other cell form factors to enable the continuation of Tesla's strategy of using cells from multiple suppliers. Tesla has already delivered more than 900 cars to customers in North America and Europe.



## About Tesla

Tesla's goal is to produce increasingly affordable cars to mainstream buyers – relentlessly driving down the cost of EVs. San Carlos, Calif.-based Tesla sells cars online and has delivered nearly 900 Roadsters to customers in North America and Europe. In addition to South Florida, Tesla has showrooms in California's Silicon Valley and Los Angeles, New York, Seattle, Boulder, London Munich and Monaco.

The Tesla Roadster is faster than an Audi R8 yet is six times as efficient as conventional sports cars. With an EPA-estimated range of 244 miles per charge, it costs less than \$5 to charge.

Source: green.autoblog.com

<http://tinyurl.com/better18650s>

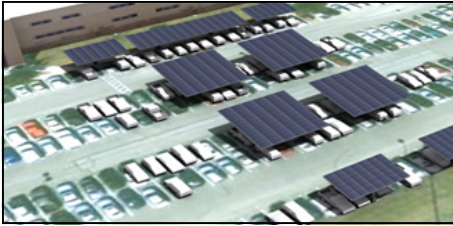


More Stories on this:

<http://tinyurl.com/y9bxm3o>

## Dell Plants a Tree for EV's *It is an EV owners dream!* By Craig Egan, Dec 14, 2009

Earlier this month, Eric Graham, Global Energy and Sustainability Manager for DELL Corporation was



kind enough to give us a tour of his latest project. In an effort to do their part for the upcoming electric vehicle rollout, Dell has installed 8 "Solar Trees" This installation is capable of providing 131,501 watts of annual solar power, which saves 220,000 tons of CO2 and other GHG emissions reductions. There are currently (2) Coulomb electric vehicle charging stations located under these trees, and plans for additional ones as the

need arises. It is an EV owners dream! Free electricity and shade!

The solar array is not grid tied, but is used to provide about 65% of the lighting in a 350,000 sq ft bldg with about 2,000 employees when the energy is not needed for vehicle re-charging.

This installation had a rough estimate of approximately \$704,000, but after rebates and incentives, the system only cost Dell \$179,000. The installation time was approximately 2 months and the overall project has received positive feedback from all of the employees.

Given the success of this project, Dell Plans for more expansion at other facilities worldwide. Along with photovoltaic, Dell has also success-

fully installed solar hot water heating systems in Morocco and Brasil.

**Source:** voices.mysanantonio.com  
**URL:** <http://tinyurl.com/dellsolar>

### ***Related Stories:***

**Dell Computers World Headquarters Plants Some Solar "Trees"**

*With the help of Envision Solar, Dell Computers has recently installed several "solar trees" in the parking lot that offers shade to about 50 parking spaces.*

**Source:** greenharbor.org  
**URL:** <http://tinyurl.com/dellsolar2>



## 600,000 Square Foot Solar Power Rooftop Completed by Southern California Edison

**Matthew McDermott, 12. 2.08**

You may not like big box buildings from an aesthetic perspective--I hate to say it but I'd prefer a whole city of Brutalist concrete architecture over a bunch of steel framed big boxes--but they sure do have a lot of roof surface area suitable for solar power.



Southern California Edison is taking advantage of that and is installing 150 rooftops with solar panels, the first of which have just been completed. Eventually the project will cover two square miles of roof space

with solar panels, for a combined peak capacity of 250 megawatts. Here's more on SCE's solar rooftop plans:

### **Next Up: 458,000 Square Foot Chino Building**

The first site was a 600,000 square foot Fontana, California distribution warehouse roof, which has been covered with 33,700 thin-film solar panels. The next site will be a 458,000 square foot building in Chino, California owned by Multi-Employer Property Trust. First Solar was chosen as installer for both these projects; the installer for future projects has not yet been determined.

**Source:** Treehugger.com  
**URL:** <http://tinyurl.com/600Ksolar>



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## Mega solar farm a go

By Elaine Della-Mattia,  
The Sault Star, January 8, 2010

**DONE DEAL: 20-megawatt plant to be built near Base Line will produce enough electricity to power 8,000 homes .**

What will one day be one of the largest solar projects in Canada and likely North America, begins construction in the city's west end early this spring.

It's expected the first phase of the solar farm will be completed and operational by the end of summer.

Job numbers or local contractors to be used for the project have not yet been determined, but it is expected that some of the labour and materials will be provided locally.

**Source:** saultstar.com  
**More:** <http://tinyurl.com/sault20mw>  
<http://www.q-cells.com/en/index.html>



## Pasadena's ESolar lands 2,000-megawatt deal in China

Todd Woody, January 9, 2010

ESolar Inc. of Pasadena signed an agreement Friday to build a series of solar thermal power plants in China with a total capacity of 2,000 megawatts, in one of the largest renewable energy deals of its kind.

Coming four months after an Arizona company, First Solar, secured a contract to build an equally large photovoltaic power plant in China, the ESolar deal signals China's emergence as a major market for renewable energy.

"They're moving very fast, much faster than the state and U.S. governments are moving," said Bill Gross, ESolar's chairman and the founder of Idealab.

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Under the agreement, ESolar will provide China Shandong Penglai Electric Power Equipment Manufacturing Co. the technology and expertise to build solar "power tower" plants over the next decade. Those solar farms would generate a total of 2,000 megawatts of electricity; at peak output that would be equivalent to a large nuclear power plant. The terms of the agreement were not disclosed.

The initial project, which includes a 92-megawatt solar power plant to be built this year, will be located in the 66-square-mile Yulin Energy Park in the Mongolian desert in northern China. The region has become a hot spot for renewable energy, with the 2,000-megawatt First Solar project planned 60 miles to the north.



Penglai Electric will manage the ESolar power plants' construction and another firm, China Shaanxi Yulin Huayang New Energy Co., will own and operate the first projects.

Although China is the world leader in producing photovoltaic panels such as those found on residential rooftops, the ESolar deal is the country's first big venture into large-scale solar thermal power production.

ESolar's power plants use fields of mirrors called heliostats to focus the sun's rays on a water-filled receiver that sits atop a slender tower. The intense heat vaporizes the water, and the resulting high-pressure steam drives an electricity-generating turbine.

"We chose ESolar because of its demonstration in commercial maturity, sustainability and long-term potential to compete against fossil fuel," Eric Wang, a Penglai Electric spokesman, wrote in an e-mail from Beijing, where the deal was signed.

ESolar already manufactures its heliostat arrays in China, and under the terms of the agreement with Penglai it will also build its power plant receivers there. Gross said that ESolar would retain control of the intellectual property behind the technology's design and operation.

Nathaniel Bullard, a solar energy analyst with consulting firm Bloomberg New Energy Finance, said the ESolar deal indicated China was moving aggressively to pinpoint technologies around the world that could help it meet its ambitious renewable energy goals.

"If you're identified by China as a leading technology developer, the technology will be imported with the implication that your technology will over time become local," he said. "You effectively have one stakeholder, the government, which makes development much easier."

In August, ESolar, which is backed by Idealab, Google Inc. and other investors, threw the switch on its first project, the 5-megawatt Sierra SunTower demonstration power plant in Lancaster that supplies Southern California Edison.

"We have almost half a year of production and enough convincing data to convince a company that the technology works as advertised," Gross said.

He said negotiations with Penglai Electric began about six months ago after executives approached ESolar and then flew to Los Angeles to see the Sierra plant.

Although the power tower concept is not new, ESolar relies on a sophisticated software system and imaging technology to control 176,000 small mirrors that form arrays at its standard 46-megawatt power plant. The software positions the mirrors to create a virtual parabola to focus the sun on the receiver tower.

The mirrors' dimensions -- each is about the size of a television screen -- allow ESolar to make and install them cheaply and use less land for the power plant.

**Source:** latimes.com

**URL:** <http://tinyurl.com/eSolar>

**Company:** <http://www.esolar.com/>



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## Who we are - What we do

**We are a non-profit group of Electric Vehicle (EV) Enthusiasts, Environmentalists and Engineers. We are vitally concerned with clean electric transportation.**

We meet at Centennial College, Scarborough, Ashtonbee Campus, 7:30pm, room B216 - the third Thursday of the month, excluding the Summer Holiday months of July and August.

We have displayed EVs at the Toronto Auto Dealer Association (TADA) Autoshow, Skills Canada, Molson Indy, Association of Power Producers of Ontario (APPrO), the Green Living Show, and The Electric Distributors Association (EDA).

We encourage vehicle conversions from Gasoline to Electric by Canadian Automotive Students and we are available to offer a seminar to assist the students. To purchase an EV we will try to offer information on make and availability.

Individual \$30.00, senior \$20.00, business \$100.00 that includes a bi-monthly newsletter, the "EV Surge".

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