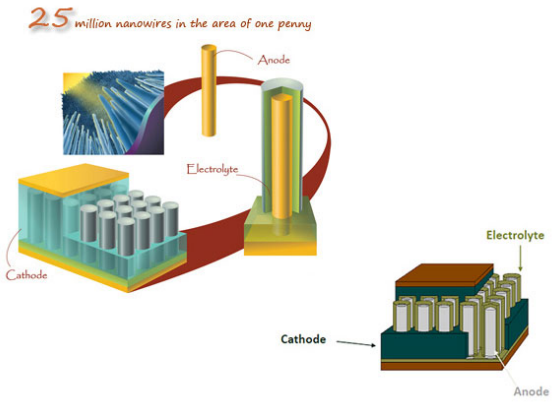
Copper Nanowire Cathode Cells

Prieto 3D Battery

This revolutionary battery architecture intended to address the slow diffusion of lithium ions (Li+) into and between the anode and cathode. This patent-pending architecture is designed around a nanowire array of anodes, uniformly coated by an ultra-thin polymer electrolyte and then surrounded by a cathode matrix. The result is a three-dimensionally structured lithium-ion battery composed of interpenetrating, nanometer scale electrodes with extremely short Li+ diffusion distances and a power density that is orders of magnitude greater than comparable two-dimensional architectures in use today, and under development for future applications. In addition, the use of copper antimonide (Cu_2Sb) nanowires lends an unprecedented degree of stability to the anode and has already demonstrated virtually no loss of capacity over extensive cycling – a dramatic improvement over other anode materials. Such materials and the underlying technologies readily lend themselves to low cost manufacturing and production scale-up, as well as ultra fast recharge capabilities (minutes instead of hours).
Watch http://prietobattery.com/



Cu_2Sb

The third in the series of latest generation Lithium based Battery chemistries comes from Colorado State University. This battery would replace the porous and conductive graphite electrode with microscopically thin copper wires. It's called a 3D unit because these tiny wires—one-thousandth the thickness of human hair—can store ions on their entire surface instead of just on a flat metal surface. The copper itself is less susceptible to heat than other materials, and its ability to store ions is said to be greater than the graphite currently used in lithium batteries. The nanowire lithium battery can store and release much more power than conventional lithium electric car batteries. Current LiFePo4 cells provide power density in the order of 1000W per kg, this chemistry provides in the order of 1,000,000W per kg.

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43
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Cross Coupe Hybrid

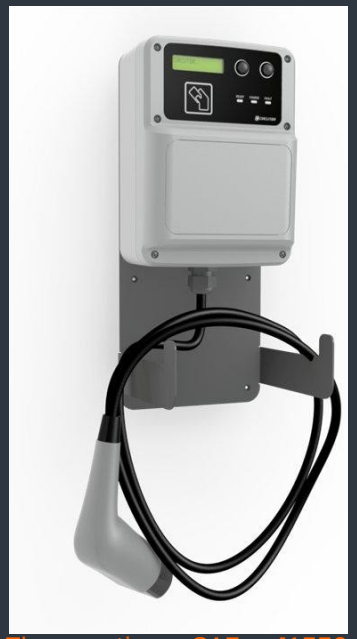
The fossil-fuel propulsion duties are handled by VW's new 2.0-liter EA288 TDI engine, which the stocky crossover cradles with a platform created from VW's MQB (Modular Transverse Matrix) architecture. This iteration also borrows its seven-speed dual-clutch transmission and suspension from the MQB parts bin.
Five modes of operation are available to Cross Coupé TDI drivers: City is aimed at conserving fuel; Sport gives it everything it has; E-mode uses only the rear electric motor; Charging runs a motor with the TDI to top off the battery; and Off-Road forces it into all-wheel drive. To ensure all four wheels are driven, even with a depleted battery, the front electric motor acts as an engine-run generator and sends electricity to the rear axle via an arrangement referred to as an "electric propshaft."
Given the fact that VW has now brought this concept to two different shows, it seems highly probable that something like the Cross Coupé will see production. The hybrid system, with either a petrol or diesel engine, seems likely for the real world in some form, in the not too distant future.

VW Cross Coupe

Volkswagen's Cross Coupe is an interesting Hybrid design that incorporates two electric motors and a diesel. Torque is this hybrid powertrain's strong suit, the diesel provides the front wheels with 400Nm from approximately 1600 rpm, and the pair of electric motors contributing their share (180Nm at the front axle, 270 at the rear) nearly instantaneously. VW says the trio of powerplants can conspire to deliver a whopping 700Nm of torque. Power is channeled to all four wheels, and VW is claiming a 0-to-100-kph time of 6.5 seconds.
The two electric motors can act as generators when the driver lifts off of the accelerator; if the battery is fully charged, both electric motors and the engine are shut off and decoupled from the drivetrain to save energy and fuel (current VW and Porsche hybrids also "coast" in a similar fashion). Energy is stored in a 9.8-kWh, eight-module lithium-ion battery. Plug-in charging is accomplished via an external 230-volt power source. Electric-only range is about 45kms with a maximum speed of 130kph. A Cross Coupé with a fully charged battery and a fresh tank of fuel is theoretically good for 1300km.

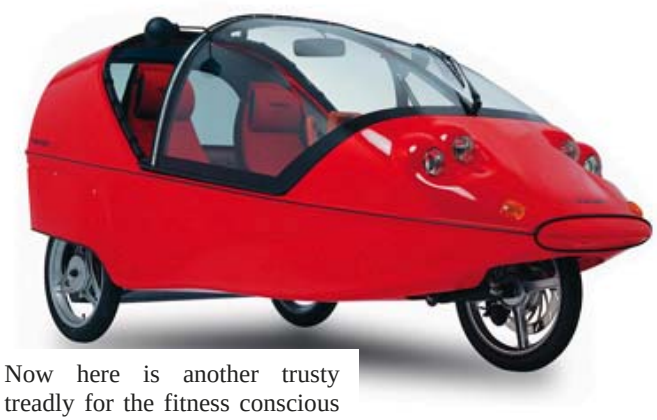
SAE J1772

SAE J1772 is the American and Asian standard for electrical charging connectors for electric vehicles maintained by the Society of Automotive Engineers and has the formal title "SAE Surface Vehicle Recommended Practice J1772, SAE Electric Vehicle Conductive Charge Coupler".
The connector is designed for single phase electrical systems with 240 V 32A AC charging. (Could be used as just the plug and socket)



The entire SAE J1772 system is available from EVPOWER. Plug is $145, Socket is $159 and the charging station is $1181 plus gst and freight.
http://ev-power.com.au/webstore/index.php/sae-charging-plugs-sockets.html

TWIKE



Now here is another trusty treadly for the fitness conscious commuter that lets you take a friend, or if you are feeling weak you can engage warp drive and use the electric motor to do the cruising. In general the TWIKE is a diminutive electric powered car which was developed in Germany. However TWIKE now has sales offices across Europe and in America.
The TWIKE comes in two forms. The TWIKE Active, which has twin pedals sets for the occupants to use in conjunction with the electric motor, and the TWIKE Easy which relies on battery power alone for propulsion. Control of the TWIKE is done with a joystick which provides complete fingertip control of steering, acceleration, turn signals, and brakes, all in one hand. Cruise control allows for a relaxed and energy saving ride.

The TWIKE features an onboard digital display which shows battery charge, range, speed, and more. With 336 volts and up to 17 amp hours of power, the TWIKE has a top speed of 90 kmh and a range of up to 200km.
The TWIKE'S chassis consists of a tricycle wheel layout fitted in an aluminium alloy frame. The body, which has been designed to be as aerodynamic as possible, is formed from plastic.
The first TWIKE's were rolled out 15 years ago. Today there are over 900 TWIKE's on the road, which have together amassed over 30,000,000 km of operation. The TWIKE has been kept up to date and is now fitted with lithium batteries, making it the ideal mode of transport for your daily travels. The TWIKE is efficient, environmentally friendly, and some think "attractive".
Most TWIKEs are on the road in Germany, Switzerland and the Netherlands.

Look What EV's Have Done Now!!

2012 - World Advanced Vehicle Expedition

September 9th through to 22nd saw the running of the 2012 WAVE rally, where 15 teams from across Europe set out from Genoa on route to Amsterdam in rally style stages. The teams visited 45 cities in 5 countries to promote the EV cause. All vehicles must be 100% electric motor driven, no hybrid drive systems are allowed; however the TWIKE is a hybrid in the form of Human/Electric drive.
Points were allocated for various activities throughout the rally, primarily for arriving on time. First place was shared by two teams that compiled 122 point each, German team Twike1, competing in a TWIKE (see article at left) and Austrian Team GreenSportscar running a Tesla. Participating teams need to contribute to renewable energy production equivalent to the total power needs en route measured in kWh, plus a 10% safety margin. This is important, as the vehicles are recharged en route on a daily basis from the grid, which may not be from renewable sources. WAVE participating teams have various options how to contribute to renewable energy production. This may be to produce electricity at home or to buy renewable energy from a power supplier. The main renewable sources employed during the rally were from solar, wind, hydro, biomass and geothermal.

This Month's Q&A Technology Tip

Q. Is there a way to make use of the commercial charging stations that use SAE J1772 connectors?
A. Just so happens that EV-Power are stocking the SAE J1772 plugs and sockets. Normally this would mean that you can only plug into the commercial charging stations that come with the SAE J1772 connectors as standard.
However with a bit of sensible wiring it would be possible to use this connector type and bypass the safety interconnect to the charge station. The advantage off using this connector is compatibility plus the inbuilt sensor circuit that would stop the car being active while charging. (see previous page for details).