



Three exciting cars in one

The V60 Plug-in Hybrid, which will be launched on the market in 2012, is three cars in one. At the touch of a button you can decide which one you want to drive. The three alternatives Pure, Hybrid and Power give the car three different temperaments. The front wheels are driven by a D5 turbo-diesel engine producing 215 hp. The rear axle has an electric motor producing 70 hp.

In **Pure mode**, the car is powered as much as possible by its electric motor. If the battery is recharged with renewable electricity, the car has a range of up to 50 km with minimal emissions of carbon dioxide.

The car's range on battery power is affected by the terrain, climate and driver's driving style. Most drivers in Europe cover less than 50 km a day.

Hybrid is the default mode whenever the car is started. The diesel engine and electric motor work together to ensure the optimal balance between driving pleasure and eco-friendly progress. Carbon dioxide emissions in the combined driving cycle are 49 g/km, which corresponds to diesel consumption of 1.9 l/100 km (NEDC). The car's total range is about 1200 km.

In **Power mode** the onboard technology is used to give the car the best possible performance. The diesel engine and electric motor have a combined output of 215 + 70 horsepower and maximum torque of 440 + 200 Nm. Thanks to the electric motor's lightning-quick torque delivery, acceleration from 0 to 100 km/h takes 6.9 seconds.



More benefits

- You can key in the length of your journey (short, medium or long). The control system then calculates the balance between diesel and electric power to ensure the lowest possible carbon dioxide emissions for the intended route.
- If you want you can save battery power to allow you to drive on electric-only power later on, for instance when you enter the city centre.
- Via a button in the centre stack, you can activate electric All Wheel Drive. Instead of the mechanical transfer of power in a conventional four-wheel drive system, torque distribution between the diesel-driven front wheels and the electrically powered rear axle is handled by the central control unit.
- The instruments have been configured to provide all necessary information about diesel and electricity consumption, battery capacity, remaining range and so on.
- On the outside, the concept car's design emphasises its carbon dioxide-lean nature. These details include the lightweight wheels with exceptionally low air resistance and tyres that are specially designed for low rolling resistance.

Refuel the car at home

All you need to "refuel" the V60 Plug-in Hybrid is a regular 230-volt earthed power socket. You can recharge the car at home, at a roadside recharging station or at work.

The time it takes to recharge the battery pack depends on the current available. A full charge with 10A takes 4.5 hours. This drops to 3 hours with 16A, while charging via a 6A socket takes 7.5 hours.

To start off your journey in comfort, you can pre-warm or pre-cool the passenger compartment using electricity from your home. Pre-programming takes place using the in-car settings menu or via remote activation. There will also be an option for communicating with the car via a computer or mobile phone app.

"In order for true car enthusiasts to think green, you have to give them the option of driving carbon dioxide-lean without taking away the adrenaline kick that promotes genuine pleasure. This second-generation hybrid is the perfect choice for the uncompromising buyer who wants a car with superb green credentials as well as keen driving pleasure."

Stefan Jacoby, President and CEO, Volvo Cars



www.volvocars.com



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Tackling the climate challenge

At the 2011 Geneva Motor Show, we unveiled the Volvo V60 Plug-in Hybrid – a virtually production-ready car that can run on diesel fuel, as a high-efficiency hybrid, or as an electric car with a range of up to 50 km on battery power. It's a technological achievement that no other car maker is yet able to offer.

The plug-in hybrid is the unique result of close cooperation between our two companies.

No single industry or organisation can tackle the climate challenge on its own. The foundation for a sustainable future must be built by all of society working together.

This project shows how we can work together to take yet another step from individually carbon dioxide-lean products to a well thought-out climate-smart lifestyle.

With our joint innovative powers and spearhead competence, Vattenfall and Volvo Cars are working together to tackle society's climate problems and oil dependence.

We are also creating jobs and are profiling Sweden as a world leader in the development of next-generation environmental and vehicle technologies.



The future is electric

Electricity is taking on an increasingly central role in modern society. Energy efficiency combined with new electrically powered products helps slow down the pace of climate change.

Vattenfall is playing an important part in the rapid development of electricity production.

Wind power is being introduced on a broad front and continues to undergo development, biofuels are increasingly replacing fossil fuels, wave power is expected to enter commercial operations within the next decade and new technology is currently being developed to reduce carbon dioxide emissions from coal power.

Electric power is the key to the future for the transport sector too.

An electric motor is roughly four times more energy-efficient than a combustion engine. What is more, it offers a wide range of additional benefits such as far lower fuel costs, no local emissions of carbon dioxide, and much quieter operation.

The increase in consumption caused by a rise in the number of electric cars will be more than covered by our ambitious expansion plans for renewable energy sources. A normal-sized wind power station, for instance, produces sufficient renewable energy to power 3,000 electric cars.

On its domestic markets, Vattenfall will offer buyers of the Plug-in Hybrid entirely renewable electricity – which means that the car produces minimal emissions of carbon dioxide in electric mode.

Low emissions pay in the long term

The cost of the battery pack means that the Plug-in Hybrid is more expensive than a Volvo V60 powered by a combustion engine.

On the other hand, fuel costs are just one-third those of a conventional car. The cost of running on electricity in Sweden is about 30 kronor (EUR 3.40) per 100 km.



From vision to reality

In January 2007 Volvo Cars and Vattenfall entered into an industrial partnership with the aim of testing and developing plug-in hybrid technology. The first step was to build a demo fleet of three Volvo V70s that were tested throughout 2009.

This partnership resulted in the formation of a joint company, V2 Plug-in-Hybrid Vehicle Partnership.

The initiative has been jointly financed by the two companies. The project is now on the threshold of market introduction of the Volvo V60 Plug-in Hybrid. The market launch of the new car is scheduled for 2012.

"With renewable electricity from Vattenfall, the plug-in hybrid can be driven with minimized climate impact and local emissions. The huge environmental and consumer benefits of the electric car make it a highly significant step forward in the battle against climate change."

Øystein Løseth, President and CEO, Vattenfall

Car facts, Volvo V60 Plug-in Hybrid

Diesel engine	2.4-litre, 5-cylinder D5 with Start/Stop and 6-speed automatic transmission, 150 kW (215 hp)
Electric motor	50 kW (70 hp)
Battery	Lithium-ion
Battery location	Under the luggage compartment floor
Battery capacity	12 kWh, of which 11.3 kWh to power the car
Performance, diesel + electric motor	215 + 70 hp/440 + 200 Nm
Acceleration 0-100 km/h	6.9 seconds
Fuel consumption (NEDC combined)	1.9 l/100 km
Carbon dioxide emissions	49 g/km
Range in electric mode	Up to 50 km
Charging time	3 hours (230V/16A) 4.5 hours (230V/10A) 7.5 hours (230V/6A)
Production start	2012

