



## Chevrolet Volt

### Sweet revenge

Review | "The biggest mistake of my career", is what the former CEO of General Motors called his decision to discontinue the development of the electric car. Once, the owner of Chevrolet was a true pioneer in the field of electric vehicles, but the powers that be put an end to that. The Japanese seized the opportunity and have not given away their lead to this day. But now Chevrolet is back with the revolutionary Volt.

Why General Motors ("GM") decided to stop developing electric cars has always been a mystery. A whole film ("Who killed the electric car?") is dedicated to the question. Most probably it wasn't just one reason but a combination of factors that lead to the end of the development of electric cars.

One of those factors was without a doubt the limited range. When a traditional car has 100 km left in the tank, one goes for fuel just to be on the safe side. Many electric cars cannot travel for more than 100 km with a full battery.



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### Range Extender

That is why Chevrolet opted for a different approach. The Volt is an electric car with a spare petrol engine called a "range extender". Just like a traditional electric car, the Volt is charged using a regular outlet. After four hours of charging the Volt can travel 80 emission free kilometres (about 50 miles). After 80 km the petrol engine takes over, so the Volt can cover a total of 500 km (300 miles) without stopping.

This takes away the biggest objection against driving electrically. The Volt has a long range and is still much kinder to the environment than a regular car.



According to research by Chevrolet, the average car owner drives less than 80 km per day. In that case the Volt can always be used like a pure electric car. Emission levels will only depend on the kind of power plant. A plant burning coal will cause more pollution than what driving a similar size car with an internal combustion engine would. When powered by green energy, the Volt is the cleanest car available to date.

## Driving

Driving electrically isn't just less of a burden to the environment, it is also much more comfortable. While a petrol or diesel engine only performs well at high revs, an electric motor offers its full power from the outset. This is why the Volt doesn't just accelerate quickly, but also far more fluent than most cars.

Another advantage: because an electric motor has the same power output no matter what the engine speed is, a gearbox is not necessary. The Volt therefore behaves like an automatic.



As long as the Volt is powered by its batteries, it is an exceptionally quiet car. It's only when opening the windows, that the tyres can be heard. When the batteries are drained and the "range extender" kicks in, this cannot be felt but it can most certainly be heard.

The "range extender" doesn't directly drive the wheels. Instead it generates just enough current to power the electric motor. From a technical point it is no problem to charge the batteries as well, but this would cost too much petrol thereby partly defeating the purpose of the car.

Because the petrol engine isn't directly connected to the wheels, it can always run at the most efficient engine speed. This also makes it more efficient than an engine that directly propels the wheels. However, it does mean the engine speed doesn't vary with the angle of the accelerator and that takes some getting used to. In "mountain mode" the petrol engine can run so fast that the driver would rather stop at the nearest charging point and wait a few hours before carrying on again.





## Fuel economy

To encourage the driver to save energy, the trip computer shows exactly what is going on under the bonnet. At the end of each ride a pie chart-like sphere showing a green and a blue area displays which part of the journey was covered on electricity and how often the range extender was utilised.



During the first test drive 121 km was covered; the first 80 km using the electric engine and after that 41 km using the "range extender". The average fuel consumption over the test whole drive was 5.13 litres of petrol plus 10.5 kW-h on electricity. The combined energy consumption was 4.2 litres per 100 km (67 mpg).

Chevrolet communicates more spectacular figures and those are just as realistic. As stated before, the art of

driving the Volt is trying to utilise the electric motor as much as possible. When mainly driving on battery power, the range extender is not needed at all and fuel consumption can be close to zero.



## Company car

The Chevrolet Volt has been designed in America, but has been altered for the European market. And it shows, because the steering is light yet not too light. The suspension is nice and firm so that this electric car corners well. Because of the weight of the batteries the Volt isn't an agile car, but it certainly isn't dull either.

The Volt is much more than Chevrolet's technology showcase. Thanks to its revolutionary technology this is one of the very few electric cars that can be used daily, making it the clean conscience alternative to the traditional company car.



This is also reflected in the available cabin space. Despite many other electric vehicles, the Volt is a large car offering ample room in the front. The room in the back seat is less than average for a car this size. The boot is deep, but because the batteries raise the loading floor, the total volume is meager.

To emphasise the feeling of driving a special car, the dashboard looks futuristic. This doesn't just apply to the layout (with many flush mounted buttons) but also to the materials and colours. For example, the test vehicle was executed in black with shiny white accents.

As to luxury and safety the Volt is also a serious company car. All the usual kit is there: from a very well functioning (electric) climate control to an integrated satnav, communication and audio system. The latter is made by Bose and sounds acceptable, even in this respect the vehicle is adapted to European taste. In the end the Volt only has one rival: the Vauxhall Ampera, because it is exactly the same car from the same company - only its looks and price differ.



## Conclusion

Once, General Motors, the mother company of Chevrolet, was a pioneer in the field of electric cars. Management felt that large cars with large engines were the future, so they killed the electric car. The Japanese swiftly took over. Now, after more than a decade, Chevrolet is back again with an electric car.

Chevrolet wants to reclaim its leading position by choosing a different and especially more usable technology. The Volt is primarily an electric car, but thanks to a spare petrol engine it can also cover larger distances without the need to stop and charge every few kilometres.

As an extra added bonus the Volt isn't just as roomy as traditional company cars, because of the electric motor it is also more comfortable. How economic the Volt is depends on how frequently the range extender is used and what source generates the electricity to charge the car. This test drive proves that the revolutionary technology works very well, taking away most of the objections against buying an electric car. For GM the Chevrolet Volt is sweet revenge for their biggest mistake from the past. ■



# Specifications

## Chevrolet Volt LTZ

### Size and weight



Length x width x height	448 x 179 x 144 cm
Wheelbase	269 cm
Kerb weight	1.732 kg
Trailer	unknown
Trailer - braked	unknown
Battery	35 kWh
Luggage space	310/1005 l
Tyre size	215/55R17

### Engine and performance



Max power	150 PS @ 1 rpm
Max torque	370 Nm @ 1 rpm
Drive	front wheels
Acceleration 0 - 62 mph	9 secs
Top speed	160 km/h
Average mileage	83.33 kWh / 100 km
Mileage urban	unknown
Mileage extra urban	unknown
Range	km (NEDC)
CO2 emissions	0 gr. / km

### Price

Price	Â£ 35,255
Price base model	Â£ 35,255