

I have been nagged to write a short article about switching from a petrol-powered car to an electric one, so here are my initial thoughts after 4 months of use, including a 1000-mile round trip to Scotland.

Having decided for environmental reasons that I wanted to go electric, I initially considered getting a Kia e-Niro to replace my Kia Sportage. Having taken it for a test drive my wife and I were a little underwhelmed so decided to try out a Volvo XC40 P8 Recharge at the showroom next door. This was much more to our taste (not surprising, given the huge price difference) and I decided on a business lease as this enables me to reclaim half of the monthly VAT through my business. As this is a new model, I had to shop around and ended up going to Warrington to collect it, but this gave me the chance to get a feel for the car on the journey home.

Most electric vehicles have the option of one-pedal driving, where deceleration when pressure is removed from the accelerator pedal is much greater than with a conventional drivetrain. The slowing process also generates a small amount of electricity to recharge the battery. On my initial journey home from Warrington, I was surprised to find the process remarkably intuitive, and only used the brake pedal twice.

Electric cars have a slightly different driving feel because of the extra weight of the large battery covering most of the base of the chassis: my own car is more than half a ton heavier than its petrol or diesel equivalents. Generally speaking, acceleration in an electric vehicle (unlike the old milk floats!) is good and many including mine have quite spectacular acceleration: 0-62mph in 4.9 seconds for the Volvo.

Charging an electric car is a longer process than filling a car's fuel tank, a factor which needs to be taken into consideration when planning a long journey. Most electric cars today have an "official" range of between 200 and 300 miles, although these figures can sometimes seem to have been plucked out of the air! My Volvo has an official range of 259 miles, but my own experience suggests that between 200 and 230 miles is more accurate. If I had the patience on a long run to keep my speed below 60 mph (on a warm dry day) I would probably get close to the official range. Normal daily use means that many people only need to top up the battery every week or so: those with a dual-rate electricity tariff can charge cheaply overnight and those with solar panels can charge on a bright day using a mix of generated and Grid power.

The basic statistics for different types of charging station are as follows:

Normal mains connector – 7 miles of range per hour on charge

7 kW domestic charging point – up to 20 miles per hour

22 kW fast charger – up to 90 miles range in an hour

43-50 kW rapid charger – about 140 miles per hour

150 kW rapid DC charging – about 100 miles in 15 minutes

350 kW ultra-rapid charging – more than 200 miles in 15 minutes

Most cars can only accept some of these types of charge and the ultra-rapid works at that speed with virtually no currently available vehicles. Every electric vehicle has its own maximum charge rate, as do charging points, and the smaller maximum charge rate of the two determines the actual rate. Cars charge more slowly on colder days, and also as the charge gets above 80%.

Charging at home costs about 5 to 6 pence per mile on a standard tariff, or less if you generate your own electricity (wind turbine or solar panels) or have a dual-rate tariff and charge overnight. Charging at rapid public charge points can cost up to 4 times as much, equivalent to the cost per mile of petrol or diesel.

After an admittedly brief ownership I would say that the main advantages and disadvantages of an electric car (or at least my own) are as follows:

Pros:

- Significantly lower running costs and less frequent servicing.
- No road tax.
- Lower environmental impact (zero emissions).
- Better acceleration.
- Grant available towards the cost of a home charging point.

Cons:

- Initial purchase price is much higher than a petrol or diesel vehicle.
- Range is less and “filling up” is less convenient and takes longer than with an internal combustion engine.
- Charging infrastructure is still not fully developed.
- Home charging is not practicable for those without off-road parking.
- Public charging points can be expensive.
- Initial range anxiety in the first weeks of ownership.

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