An electric car?
My first 3000 kilometres going electric

Since September 2014 I am driving an electric car. Why have I chosen a vehicle whose motor is propelled just by electricity? I considered it quite carefully:

Car driving – a big climate killer

In the combustion of petrol and diesel but also of gas in car engines, exhaust emerges. Inhaled exhaust of cars damages your health. But it also contains carbon dioxide (CO_2) a so called Greenhouse gas.

In nature there always have been Greenhouse gas emissions. When they reach the atmosphere they reflect infra-red radiation coming from the earth back to the surface of the earth. Thus they supply together with the sun sufficient warmth to make life on earth possible. Otherwise it would be to cold on earth. Mankind, however, produces too much Greenhouse gas due to our way of industrilization, our agriculture and last but not least, our traffic. In this way the average temperature on the surface of the earth is constantly increasing. Traffic alone causes about one sixth of the CO_2-emissions worldwide, that is more than 16 percent.

Global warming endangers the balance of world climate. Glaciers melt, the sea level rises, together with climate zones the vegetation areas und habitats of man, animal and plants shift. The consequences of these changes are evident even today: a diffenrent distribution of rainfall, more serious and frequent floodings and droughts, a spread of parasites and tropical diseases - and more environmental refugees, too.

Since 2000 I have driven a small car which required only 3 to 4 litre of diesel per 100 kilometres in order to save the environment and to contribute as little as possible to global warming. I certainly considered

Alternatives to car driving ,
too:

Like many others I often cycle or walk distances within Braunschweig. Without the annoying search for parking space this is just more convenient, easier and often more fun. Furthermore there are e-bikes, i.e. bicycles with electric motors which assist or substitute physical effort. They make it easier to cover longer distances by bike.
Local public transport, first of all busses and trams, utilize energy more effectively. By using public transport the environment and the climate is markedly less affected as if each passenger would drive through town in his or her own car. Energy is used more effectively. The same ist true for railways. Moreover trams and trains can be shifted to electricity produced from renewable energies. In this way they will not emit CO_2 at all.

Since March 2014 the Braunschweiger Verkehrs-AG for example has been testing the electric bus EMIL (Electric mobility by inductive loading) on one of its bus lines. Thus busses can be run by electricity produced from renewable energies as well.

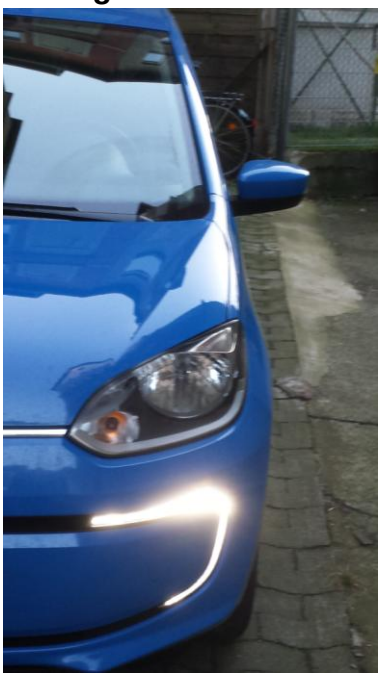
If I have to drive a car, it should be an electric car!

Like so many others, unfortunately I cannot do without a private car. For professionel and private reasons I frequently have to drive to places outside Braunschweig. Usually not further than to Hannover or Goslar but often more than once a day. Unfortunately this cannot yet be done in a reasonable time by public transport. Therefore I had to get myself a car but an electric car – for the sake of the environment. And so far, I am well satisfied with its performance:

Driving without CO_2-emissions

An electric car has no exhaust, thus emits no CO_2. It is important, however, that in producing the electricity which propels its engine as little as possible CO_2 should be emitted, too. This can only be done by producing electricity from renewable energies such as sun, wind, water or geothermics. Consequently the electricity offered at the electric vehicle charging stations (EV-charging stations) of BS-Energy and other suppliers is derived 100 percent from renewable energies. Therefore I see to it that at least my own sockets charge the electric car with green energy as well.

Driving without toxic exhaust and less fine particles



In spite of filters besides CO_2 there are always other toxics which harm your health in the exhaust of cars. It is a good feeling not to be a part of this anymore with an electric car. Moreover driving an electric car is said to emit markedly less health harming fine particles.

Driving without noise pollution

As the driver you hear very little of the electric engine, other traffic participants hear it almost not at all. As they rather hear the sounds of its tyres and the wind my electric car draws attention to itself by permanent LED headlights.

Myself I have not jet experienced dangerous situations resulting from pedestrians not having heard my car.

Economical driving

In the production and disposal of electric cars as of all goods CO_2 emissions emerge still today. Even to some extent in producing renewable energies. Unfortunately carbon-neutral production as practised by SOLVIS in Braunschweig is still rare. Furthermore I sometimes have to charge the battery of the electric car with „normal“ electricity in which production a lot of CO_2 is set free. For example if I visit friends and I have to charge the car, but they do not obtain their electricity from renewable energies. Last not but least, as a principle you should consume as little energy as possible. For all these reasons I have checked with the car computer how economically my electric car consumes energy in kilowatt per hour (kWh) compared with a car propelled by a diesel engine.

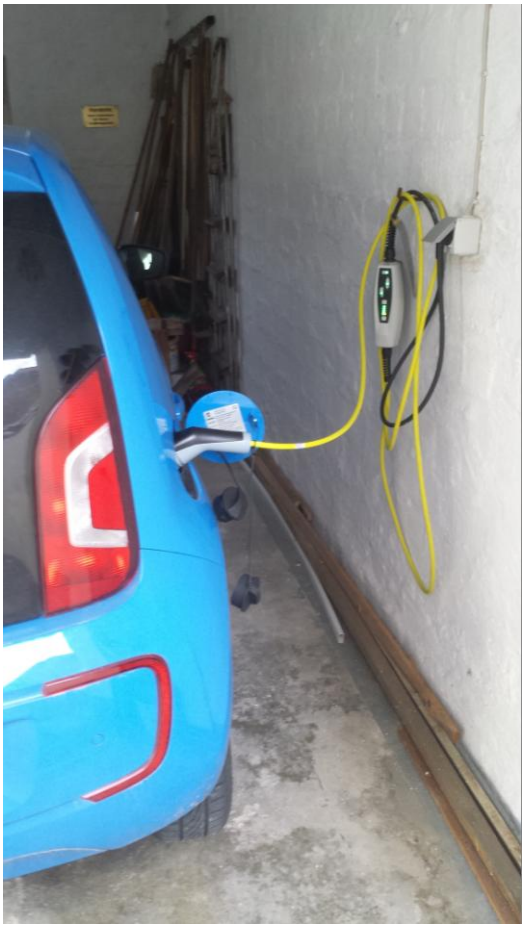
After 3036 kilometres the average consumption per 100 kilometres was:

Electric motor:		12,8 kWh
Other consumption (heating, light, radio etc.)		3,3 kWh
Recuperation (Recovery of energy by braking and taking the foot off the accelerator):		- 2,2 kWh
Overall consumption:	12,8 kWh + 3,3 kWh – 2,2 kWh =	13,9 kWh

As 1 litre diesel is equivalent to about 10 kWh 13,9 kWh equate to only 1,39 litre diesel. So my electric car is markedly more economic than conventional cars because it consumes for 100 kilometres merely energy which equates to 1,39 litre diesel.

Solvable loading problems

As the fully charged battery of my electric car only lasts for 120 to 160 kilometres it has to be charged more often than a „normal“ car has to be tanked. But unfortunately there are still few public EV-charging stations even in Braunschweig (www.braunschweig.de/wirtschaft_wissenschaft/wissenschaftsportal/stromtankstellen.html) . And they might be occupied. Therefore I have build up my own net of facilities for charging: I have normal sockets at home in my garage, at places of family and friends, an outside socket at my office and a fast charging facility at my car dealer.



Of course charging takes markedly more time than tanking up a „normal“ car. But up to now I never felt that charging times were unpracticably long. I always utilize my net of facilities for charging and recharge the battery long before it is flat.

Thereby each charging period becomes shorter. Moreover I usually stay for a couple of hours anyway where I have a facility for charging. So the battery is already fully charged long before I want to drive further.

Plugging in and unplugging the charging cable, too, soon became much easier for me than I had previously expected.

Sufficient range

So far the range of my electric car was always sufficient for more than 90 percents of the destinations I have been heading for in the past. My own net of facilities for charging, my manner of charging and a more conscious, pre-planning attitude to car driving are preconditions for this. For example for a destination in Hannover-Ricklingen I am head to regularly I found in the internet a private facilitiy for charging with a pioneer of electro-mobility.

I have also not yet got stranded because of a flat battery. The car computer constantly

shows the range in kilometre which the current charge of the battery allows. On request it indicates the radius within which I may reach destinations. Also the radius of destinations where a round trip without recharging is possible may be shown. If I enter a destination outside the radius into the navigation device, the car computer warns me. It also warns me when the range drops under 30 kilometres.

For longer distances which I formerly drove by car without thinking too much, my Bahncard will now finally be used again. And if I once – for whichever reason - truly need a car for a long distance I may fall back on a service the manufacturer of my electric car calls „Erweiterte Mobilität“ (Extended mobility): While my car stays with my car dealer, gets charged and waits for me with a full battery, I am provided with a „normal“ car free of charge. This service runs for 3 years, up to 30 days per year but of course with a limit of free kilometres. It goes withput saying that by using this service, i.e. driving a „normal“ car, I deepen my carbon footprint again.

Driving with a safety buffer

As the electric car has just one forward gear beside the reverse gear, its acceleration is very good – from 0 to 130 kilometre per hour in one go. Hence I am getting off the traffic lights pretty fast. While overtaking on roads, however that occurs seldom, the good acceleration provides additional safety, too.

But lately I am tending to drive slower than before. What I had heard about drivers of electric cars, I now notice in regard to myself. As you not only may safe energy but even recharge the battery by braking and taking the foot off the accelerator (recuperation) you are driving with more foresight. According to the car computer my average speed so far amounted only to 38 km/h, also because I am above all driving on roads and within build-up areas.

E-cars for everybody?

Some people actually need no car at all for their mobility. Some therefore have no car (anymore) and entirely rely on public transport, cycle, walk and exceptionally participate in car-sharing or rent a car.

Some people need a car but cannot yet meet their mobility needs with electric cars. Their range is too short for their everyday distances, their charging times too long. And electric cars are still much quite expensive – whether you buy or lease them.

These car drivers may fall back on gas propelled or hybrid cars which are already more environmentally friendly than most of the „normal“ cars. In hybrid cars an electric motor is combined with a combustion engine which charges the electric motor. The battery of so called „plug in“ hybrid types may also get charged via sockets. For me however, such cars were out of the question, because I was not sure whethter their carbon footprint is less deep and their energy consumption lower than those of my previous car. This small car did need just between 3 and 4 litres diesel for 100 kilometres.

Some people certainly are in a situation similar to mine. They can manage with an electric car and integrate it into their everyday life. They should decide for an electric car, because only stronger private demand will enable the manufacturers to solve the technical

problems with the batteries, the range and the charging times and to offer electric cars at lower prices.

The public sector should support the network extension for EV-charging stations with access for the public, because their small numbers keep many who are in the position to do so from acquiring an electric car. The city of Braunschweig together with partners is planing to install 16 fast charging stations within the public and semi-public (for example indoor car parks) space. Currently potential sites are being considered. I look forward to it.

I readily shall give further information if contacted via my email adress rechtsanwalt.dr@kamphenkel.de.