

# One thing we have learnt this week – fast charging

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[250px-Parallel-plate-capacitor.svg](#) [8/03/250px-Parallel-plate-capacitor.svg](#) Could fast charging electric cars be on the way? I have written about this before but this week I learnt of another report on a new fast charging technology. There are a number of problems with electric car adaption (apart from the one that it does not solve the general problems caused by cars).

- The first is cost.
- The second is range.
- The third s charging point numbers.
- The fourth is charging time.
- The fifth is number of models.
- The last is grid capacity.

Car costs are falling as battery production capacity builds so this becoming less of an issue. The fact that all manufacturers have pledged to make majority electric vehicles will help this and this does not like being a limiting factor at the moment. Ranges have increased dramatically over the last 5 years and are said to be increasing at around 6-8% a year. There are said to be enough charging points at the moment but due to the number of street parked cars this could be an issue in the future. You can see where the idea of people not owning a car in the future but using autonomous vehicles comes in. My view is the idea of car ownership will be much harder to shift than people think and this issue could act as a brake (sic) on electric cars. One limit is said to be a narrow range of models but the answer to point one applies here as well. The grid capacity issue is a major one if electric cars really take off and will be very expensive to solve. We are not just talking about generating capacity but the grid itself will need upgrading. Certainly in the UK the grid needs renewing anyway. So this may be a beneficial happen-stance. For electric cars to succeed they need to be cheap to buy, cheap to run (undoubtedly true now), you need good range, you need reliable charging, find a charging point easily and last you car needs to charge fast. At the moment charging is too slow. It needs to be as quick as filling a tank. A variety of solutions have been proposed to this problem. This includes battery swapping, new battery technology and the use of capacitors. The first two have not really happened leaving an entry point for the last idea. Capacitors are not a battery but hold the opposite charge on two plates separated by an insulator. When connected to a power supply electrons are removed from one plate and supplied to the other. When you connect to a power demand the reverse occurs. Charging and discharging is very quick and they have a long life. Up and till now they do not have capacity to run a car for more than a few miles. Bu various groups are working on new super capacitors using nano materials such as graphene. The advantage of nano materials is they can build up enormous surface areas for tiny amounts of material. In the short term these researchers and companies say that they see capacitors as an addition to batteries handling braking and acceleration which put strains on the car battery. Its is easy to see this fast charging method is the way to go though and will mitigate many of the problems alluded to above. Neil

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