

## Review of 'Electric Vehicles – What's All the Fuss' by Laurence Chittock, via Zoom on Thursday 23 February 2023



We had a large Zoom audience on 23 February when Dr Laurence Chittock gave us an excellent wide-ranging talk on 'Electric Vehicles, What's all the fuss?'. We also welcomed members from Kingsbridge Estuary u3a, representing their Transport, Past, Present and Future Group. Word got around that this talk was not to be missed and it wasn't.

Laurence started by outlining the topics to be covered, whetting our appetite for an interesting and varied talk to come and satisfying us that our many queries, doubts and unease about electrically powered cars would be covered during his presentation.

In talking about the background to the development of Electric Vehicles (EVs), he discussed climate change and the recent hot summer, leading on to the problem of CO<sub>2</sub> emissions and the need to reduce these to avoid global warming and the consequent effects on our lives and the planet. Some excellent animated graphs showed how CO<sub>2</sub> emissions had increased since the 1800s in different countries and it was noteworthy how the UK's emissions dominated the world during the industrial revolution but that China was now the world's biggest producer. That also demonstrates how the different economies have compared over the years. Laurence showed that while transport is currently the largest polluter in the UK, it was hoped that electrifying vehicles would reduce this even though it entailed an increase in electricity generation.

After a short discourse on the history of the car, leading to the present predominance of fossil fuelled vehicles, Laurence drew attention to the King Review of 2007, outlining to government the potential for CO<sub>2</sub> reductions in vehicles and the introduction of the 'Cabled' trial of EVs. One unknown was whether the number of vehicles or the number of charging points would drive the introduction of EVs. Another problem was the worry about long distance trips.



His own Doctorate work on the subject was discussed with a tongue-in-cheek mention of a punning thesis title. He concluded that the range was sufficient for most, but not all, trips and that location of rapid chargers was important. Development of this and other work has led more recently to a ban on the sale of new fossil fuelled vehicles in the UK from 2030 and to manufacturers developing production lines for EV construction.

Much work has been done more recently on increasing the range of EVs and reducing their charging time.



Laurence admitted that he himself didn't have a pure EV currently as he didn't have a driveway to aid charging, but that he did have a hybrid vehicle and was very happy with it.

To conclude, Laurence told us that an electric car approximately doubles your household electricity consumption. Charging points couldn't just be placed anywhere and the electricity cable infrastructure had to be suitable. There was inevitably going to be some significant growth in the ability to meet the electrical load from future charging of EVs. He finally speculated on the future of transport and possible (nightmare) scenarios of the sky becoming full of delivery drones etc. – not to be taken too seriously! But bicycles and electric buses are felt very much to be part of the future. Also we should be prepared to sacrifice some activities which up till now we've taken for granted.

Laurence recommended a website giving details of current public charging point locations – <https://www.zap-map.com/> and for more information see <https://www.spenergynetworks.co.uk/pages/charge.aspx>. Also mentioned was an aluminium battery – see for example <https://cleantechnica.com/2019/10/20/uk-man-invents-aluminum-air-battery-in-his-garage/>

An indication of the huge interest in Laurence's magnificent and high-quality presentation was the lively discussion which took place afterwards which continued well past the normal allotted time. We learnt such a lot, especially about the research which goes on behind the scenes. A superb talk from Laurence, which will provide food for thought for quite some time.



***Review by Ian McLauchlin***

*Photo of Laurence and charging point by Christine Chittock*

Laurence very kindly agreed to allow us to record his talk so that it can be viewed at any time by u3a members only. Just click or tap on the link in the members' edition of the March 2023 newsletter.

He has also written a fascinating article on 'How to forecast demand for charging stations'. See <https://blog.ptvgroup.com/en/city-and-mobility/ev-uptake-how-to-forecast-demand-for-charging-stations/>

