Public Affairs

RAC written submission to the BEIS inquiry into electric vehicles – developing the market and infrastructure

This response has been written by Nicholas Lyes, RAC Public Affairs Manager, on behalf of RAC Motoring Services

About the RAC

With more than eight million members, the RAC is the oldest and one of the UK's most progressive motoring organisations, providing services for both private and business motorists. As such, it is committed to making driving easier, safer, more affordable and more enjoyable for all road users.

The RAC, which employs more than 1,600 patrols, provides roadside assistance across the entire UK road network and as a result has significant insight into how the country's road networks are managed and maintained.

The RAC is separate from the RAC Foundation which is a transport policy and research organisation which explores the economic, mobility, safety and environmental issues relating to roads and their users.

The RAC website can be found at www.rac.co.uk.

In September 2017, the RAC published its latest Report on Motoring.

Summary of response:

The RAC's response is based upon motorists' attitudes towards electric vehicles, charging infrastructure and their future needs. With this in mind we argue the following:

- Charging infrastructure needs to evolve in a way that reflects user needs which will differ fundamentally from those of refuelling conventional vehicles. A model of future demand needs to be developed and tested against the ability of the grid to satisfy this.
- There will be specific areas where rapid charging will be essential (Motorway Service Areas for example), and others (such as supermarket and shopping centre car parks) where more time will be available for charging because drivers will be away from their vehicles for longer.
- EV owners will want to charge their vehicles overnight and whilst this is straightforward for house owners with drives or garages, provision must be made for those reliant on on-street parking or shared parking in flats and developments etc.
- At present, pure EVs are still seen as impractical by many drivers, so there may be argument in the short term to give greater priority to encouraging the take-up of plug-in hybrids.

RAC Response

1. **How will increased uptake of electric vehicles, to meet the Government's 2040 target to end the sale of new diesel and petrol cars, affect the electricity grid? What action is needed to manage impacts, and to make the most of opportunities afforded by vehicle-to-grid technologies?**

1.1. The RAC is not able to comment on grid capacity. However, demand patterns and degrees of flexibility need to be modelled in order to understand the likely demands on the grid. For example, there is flexibility about when a vehicle is recharged when its owner returns from work in the evening and does not plan to use the vehicle until the following morning. In this instance, charging can be delayed until a time of night when other demands on the grid are low. In contrast, drivers wishing to recharge their vehicles at a motorway service station part-way through a journey need immediate access to rapid charging and the only way of smoothing the peaks in demand on the grid is through local generation or storage.

1.2. The Government must recognise that at present there is little appetite for the take-up of electric vehicles amongst the majority of motorists and that many of those purchasing pure electric vehicles are doing so as a second vehicle primarily for local use. Many of these purchasers still have a conventional vehicle that they use for longer journeys. The RAC has not seen a reliable forecast of when sales of pure EVs will overtake sales of conventional and other ultra-low emission vehicles. In the 2017 RAC Report on Motoring, which is based on an independent survey of a representative cross-section of UK motorists, only 2% of drivers said that they would choose a pure electric vehicle as their next vehicle. 5% of drivers claim that they will opt for a plug-in hybrid. So while the Government has a 2040 target in mind for ending sales of new conventionally fuelled vehicles, it is much more difficult to forecast the 'tipping point' at which new EV sales start to dominate.

1.3. In Quarter 2 2017, there were 18,000 new electric vehicle registrations and are growing[1]. In 2014, the RAC asked drivers through the RAC Motoring Opinion Panel what they considered to be the biggest barriers to purchasing an EV, These emerged as concerns about battery range, a lack of confidence in the charging infrastructure and about a higher initial purchase price. We acknowledge that the market has moved on since then but the RAC believes that there will only be a mass switchover to pure EVs when three criteria have been met, i.e.

- The purchase price is no greater than that of a conventional vehicle of similar size and quality
- Battery technology is such that EVs have a range of at least 250-300 miles based on "real world" driving with an ability to recharge when necessary to at least 80% capacity in no more than 10-15 min
- The charging infrastructure is sufficiently ubiquitous such that drivers are in no doubt of their ability to recharge at a location of their choice without queueing.

1.4. Research in the 2017 RAC Report on Motoring[2] found that 49% of drivers believe they would be more likely to purchase an ultra-low emission vehicles if the vehicle excise duty structure offered

[1] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/644479/vehicle-licensing-april-to-june-2017.pdf

[2] https://www.rac.co.uk/pdfs/report-on-motoring/rac_rom_2017.pdf

greater incentives,. Currently the Government levies no Vehicle Excise Duty on pure electric vehicles with a list price of under £40,000; however, as we have already stated, the practical limitations of an electric car mean there is still little appetite from drivers to purchase one apart from those seeking a second vehicle for local use, and for whom range and availability of charging facilities are less restrictive. However, we would encourage policy makers to review the 2017 Vehicle Excise Duty rates for plug-in hybrid vehicles. After year 1, plug-in hybrids will pay £130 a year in VED, which is only £10 less than the standard rate which applies to conventional vehicles. Motor manufacturers are introducing plug-in hybrid versions of many popular models. With a battery range of 20 miles or more, such vehicles can operate on battery alone when driving through areas of poor air quality. They therefore offer a stepping stone towards the zero emissions world of the future in a way that is not limited by either current battery technology or the charging infrastructure

How do charging infrastructure requirements differ for alternative types of vehicle, journey, and user (including fleets)?

2.1. It is essential that drivers have the flexibility to charge their vehicles in a way that fits in with their lifestyle and their journey plans. For example, owners are likely to want to charge their vehicles overnight at home, whilst at their place of work if they commute by car, and they will need access to rapid charging in public car parks and at motorway service areas. We believe the Government should make extra provision in the Automated and Electric Vehicles Bill to require public and private sector car park operators to provide charging facilities. At present the Bill only compels large fuel retailers to provide charging facilities but we feel that this provision fails to recognise how drivers of EVs will wish to behave. Conventional filling stations exist because of the storage facilities requirements for hydrocarbon fuels and the rapidity with which refuelling is possible. In contrast, there will be no need for segregation of recharging facilities on safety grounds and recharging will take longer than refuelling a car with petrol of diesel. Drivers will therefore want to use the “charging time” productively, which is not possible at most filling stations.

2.2. Drivers are likely to want to charge their vehicles at home overnight. So it is also vital that vehicle owners are not disadvantaged because of where they live. If an owner has off-street parking such as a drive or garage, recharging their vehicle is far easier than for those who only have access to on-street parking or an allocated parking space for a flat or within a development. Property developers and management companies need to provide, or allow their residents to install charging points and we would encourage the Committee to engage with the Department for Communities and Local Government to understand what provisions need to be made in order to ensure this happens. Local authorities may wish to explore further options for on-street charging, for example

looking at the feasibility to adapt street lights so these can support EV charging. Some London Boroughs have already started to do this on a small scale[3].

2.3. Policy makers must also prepare for different vehicle ownership models. Car clubs are becoming more popular[4], particularly in urban areas and amongst younger people who may not attach the same priority to vehicle ownership as previous generations. If car clubs continue to expand, this will create a requirement for rapid charging facilities at vehicle pick-up and drop-off points because a club member collecting an electric vehicle will expect it to be fully charged.

How should new infrastructure for electric vehicles and associated grid reinforcements be sustainably funded?

3.1. The RAC is not in a position to respond to this question and would encourage the Committee to consider the relevant sections of the RAC Foundation's recent report 'Ultra-low emission vehicle infrastructure: what can be done'[5]

Please address any comments or further contact to:

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[3] http://www.independent.co.uk/environment/london-street-lamps-electric-car-charging-points-ubitricity-tech-firm-hounslow-council-richmond-a7809126.html

[4] https://www.automotiveworld.com/news-releases/zipcar-volkswagen-commercial-vehicles-collaborate-fuel-innovation-london/

[5] http://www.racfoundation.org/assets/rac_foundation/content/downloadables/Ultra_Low_Emission_Vehicle_Infrastructure_Harold_Dermott_September_2017.pdf