

The Future of Electric Vehicles Stakeholder Workshop

11th October 2018 Centre for Life, Newcastle

Overview

On Thursday 11th October, stakeholders from a broad range of sectors gathered from across the United Kingdom in the Centre for Life, in Newcastle, to discuss the future of electric vehicles. This workshop was intended to offer opportunities for stakeholders from academia, industry, business, NGOs and government to meet and discuss the trajectory of electrification of transport. The day was split into three sessions, each with a different focus. Below are the key themes that emerged from those three areas.

Summary of Outputs

Policy and Investment to 2050

Stakeholders discussed what issues would prevent the growth of electric vehicles (EVs), and what would accelerate this growth. The themes could be broadly split into two sections: barriers and drivers.

Stakeholders agreed that there were many barriers preventing demand for electric vehicles, and located most of them in the near term. Up-front costs were frequently referred to as the most important factor, which could be mediated in the short term by policies such as company car tax, vehicle excise duty or fuel duty. In the 2020s demand from the public for electric vehicles was perceived as being depressed by range anxiety, insufficient or unreliable charging infrastructure, and financial barriers such as up-front cost, warranty issues with batteries, and difficulty of valuing second-hand EVs. A large-scale shift in knowledge and understanding was seen as necessary. The fractured networks of charging points posed a problem that might last into the 2030s, without regulation. However, for some stakeholders the main issue preventing uptake of electric vehicles was supply, rather than demand, limited by access to materials for batteries, development of battery technologies, and the capacity or willingness of car manufacturers to shift their development cycles.

The drivers for uptake of EVs were thought of more specifically in terms of policies to decarbonise transport, and improve air quality. Specifically, the Automated and Electric Vehicles Act was seen as leading to better provision of public charge points, but stakeholders were uncertain of what forms regulations would take. Public demand for EVs would be increased in the short term by policies such as the plug-in grant, Clean Air Zones in urban areas, and the Go Ultra Low campaign. Financial support for sales of EVs was seen as necessary until EVs and ICEVs are at up-front price parity. In the 2030s financial benefits to consumers from owning EVs, for example through V2G technology, would become important, as well as changes in use and ownership, such as shared ownership or automation of vehicles. Supply of electric vehicles would be increased through grants for R&D, for example through the Faraday Challenge. However, supply would also depend on policies offering regulatory certainty, such as a phase-out or more short-term targets. It was suggested that a tax or penalty on ICEVs would benefit both supply and demand of EVs.

Fuels and Vehicles (Technology)

The session on the development of different fuels and technologies elicited broad consensus. In particular, passenger cars, small vans and motorcycles were viewed as very likely to be powered by batteries, whereas larger goods vehicles would be suitable for hydrogen.

Passenger cars were seen as largely home for battery electric vehicles, with adoption driven by fleet transitions, life-cycle cost comparisons, and environmental concerns among users. The benefits of plug-in hybrids were dependent on uncertain charging behaviours. Development of electric passenger cars was seen as held back by the government's mixed messaging, for example with the freezing of fuel duty or allowing sales of conventional hybrid vehicles post-2040. Autonomous vehicles would increase electrification of vehicles, perhaps in the 2030s. A sufficient size for batteries for cars was likely to be around 60 kWh.

Light Goods Vehicles could be battery or hydrogen fuel cell (HFC) powered, though currently electric vans are expensive and likely to be more viable in terms of costs around 2030, at the same time as autonomous vehicles were anticipated by stakeholders. Heavy goods vehicles and buses, having longer duty cycles, were seen as better suited to fuel-cell or gas power (HFCs, natural gas or biomethane), rather than battery-electric, and would likely develop in the 2030s. However, frequent stops and predictable routes make rapid charging of BEV buses an option.

Smart and public charging

This session discussed the complexities of charging large numbers of battery-electric vehicles. An ideal form of charging was generally agreed upon: that BEVs should be charged in the times of low electricity demand, particularly at night, and avoid peak times, in particular the early evening, so as to minimise impact on the grid.

Many stakeholders raised the challenge of providing charging for drivers in dense cities, who might not have off-street parking. Solutions were proposed, such as 'hub' charging, workplace charging, and increasing amounts of destination charging, particularly at supermarkets. The London taxi fleet was raised as a solution to providing clean transport for citizens, but also posed a problem: DNOs have no visualisation of where taxis are charging, and rapid charging of many at once could potentially strain the local grid.

Stakeholders grappled with the varying forms of smart charging, which they acknowledged as necessary for the grid to supply electric vehicles at large scale. How to gain consumer acceptance of smart charging was debated: should smart charging happen automatically, regardless of how users of electric vehicles want them to charge? This idea raised concerns of overbearing government control of people's lives. An alternative was large tariff differentials: financial incentives and disincentives based on demand or carbon intensity. Stakeholders suggested that education and apps would make it easier for the public to control charging in response to demand or carbon intensity. This raises issues for the government's regulations following the Automated and Electric Vehicles Act.

One difficulty facing stakeholders is the multiplicity of actors in energy: energy suppliers, DNOs, National Grid, OFGEM, aggregators, and local, decentralised systems. The regulatory landscape, too, is seen as fractured and changing: a stakeholder pointed the complexities of regulations regarding DNO use of storage, or the reselling of electricity post-meter.

Smart charging and urban charging was clearly an unresolved issue, with consumer rights and complex definitions, actors and regulatory landscapes complicating discussions.

Please note that the views, thoughts, and opinions expressed in the text above belong to those that attended and participated in the workshop and do not necessarily reflect those of the event organisers.