



Political
Intelligence

Electric Vehicles

Charging ahead or stuck in the slow lane?

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Context

Electric vehicles (EVs) have long been touted as a major solution to urban air pollution and it has been suggested that their widespread use could play a significant role in mitigating climate change.

In order to understand EV policy, the Government's wider priorities must be taken into consideration. In recent years, environmental issues have been ascendant and are now higher up on the policy agenda than ever before. This is illustrated by the Government's 25 Year Environmental Plan, issued in January, and the Clean Air Strategy due to be published later in Q3 or Q4 2018.

In this context, mainstream political parties in the UK have recently sought to set out policies that would facilitate the uptake of EVs and the expansion of connected infrastructure. To this end, in February 2017, it looked like the Government was going to introduce significant new legislation on electric vehicles in the Vehicle Technology and Aviation Bill, but the Bill became a casualty of the snap election.

A year on, the Automated and Electric Vehicles Bill, which contains many proposals from the scrapped Bill, looks set to become law. Here we will discuss the key features of the legislation before assessing how far it is likely to go in meeting the challenges that EVs face.

Automated and Electric Vehicles Bill

The Automated and Electric Vehicles Bill aims to deliver the 2017 Conservative Manifesto commitment to "ensure almost every car and van on UK roads is a zero-emission vehicle by 2050". This ambition has been recently echoed in suggestions that the Government is considering restrictions on the sale of new petrol and diesel cars as well as some hybrid models as part of its 'Road to Zero' strategy. In order to facilitate the widespread use of EVs, the related infrastructure must be robust and widely accessible.

The Government has expressed the view that infrastructure is best planned and delivered by local authorities, businesses and individuals. As such, the infrastructure proposals in the Bill are rather limited. The proposal in the Bill to introduce a requirement for charging facilities to be made available at key strategic locations, such as motorway service stations and large fuel retailers, has been widely welcomed. However, given that charging facilities already cover the majority of the UK's motorway network, it seems unlikely that this policy will have a large impact.

The Bill would also introduce the requirement for a standard means of utilising charging points to be made available by service-providers, with the aim of improving users' experience of EV charging infrastructure. This would enable people to use charge points on a more ad hoc basis which would likely boost consumer confidence in EVs and could benefit operators through the increased use of charge points.



Perhaps the most significant provision in the Bill is the proposed requirement for EV charging points to have 'smart' capability. This 'smart' technology would allow charging points to receive data from other energy system participants which would enable them to regulate the power of a charge or put charges on a timer in order to balance energy supply and demand. This proposal could go some way in allaying concerns about disruption caused by the extra pressure put on the energy grid by EVs.

In order to assess the potential impact of the Bill, we must understand the key policy issues that need to be addressed in order to encourage the widespread uptake of EVs in the UK.

Key Requirements

Planning

- Develop a strategy with local authorities for delivering on-street charging facilities.
- Ensure that new housing developments provide the necessary charging points to meet predicted demand.

Resilience

- Ensure mitigation against cyber-attacks on charging devices.

Charging Network Coordination

- Greater coordination of charging infrastructure rollout by central Government; including collaboration with all local authorities.

Awareness

- A nationwide public awareness campaign on EVs by central Government and industry around both EV technology and related grants.

Planning

One of the most pressing infrastructural issues facing EVs is the difficulty for people without off-street parking facilities at home to charge their vehicles overnight. In the UK, over a third of homes do not have off-street parking and in urban areas this number is much greater, for example, in London 60% of people do not have access to off-street parking.

Whilst the Government does have an On-Street Residential Charging Scheme fund which was made available to local authorities in 2016, only five councils have thus far come forward to access funding. Many local authorities have explained this reticence by stating that they do not have the necessary budget to fund the outstanding 25% of the cost that is not covered by Government funding.

Furthermore, the Bill does not provide planning provisions to ensure that new developments provide the necessary charging points and, as such, this problem of home-charging looks set to grow in the future.

In addition to this, it is important to acknowledge the different requirements for charging points in residential areas, when compared to those in strategic public locations. For example, at a motorway service station an EV driver would want to use rapid charging facilities; whereas at home, speed is less of a priority, as vehicles can be charged overnight, as such there is more flexibility around smart charging.

BP recently announced their acquisition of Chargemaster, the UK's largest car charging firm; a move designed to help BP realise their ambition of becoming the leading provider of energy to EVs and ULEVs. As part of this, BP have said that they aim to introduce chargers in their UK forecourts capable of delivering one hundred miles of range within ten minutes. This will help to deliver the rapid charging needed in strategic public locations in the UK.

The Government's decision to award £22m to a project aimed at developing EV batteries that can be charged in less than twenty-five minutes is another positive step in realising rapid charging.

In order to build on the introduction of rapid charging points in strategic locations and consolidate an effective charging network in the UK; smart charging facilities must be rolled out on a greater scale in residential areas.

Resilience

A core requirement is that EV charging points are resilient to both the peaks of demand on the national grid and cyber-attacks (as well as other threats to the power supply). Many consumers still express reservations about the vulnerability of EVs in this area, especially when compared to petrol, diesel and hybrid alternatives.

The Bill brings forward proposals to require charging points to have 'smart' capability. This will address concerns about



the potential for a spike in the use of EVs to have a detrimental impact on the national grid during peak times.

The Bill does not, however, address the mitigation of other issues that could threaten the resilience of EVs, such as cyber attacks. The issue of cyber-resilience will inevitably grow in prominence as the connectivity and data sharing capabilities of EVs develop.

Charging Network Coordination

Statistics released by the Department for Transport suggest that the UK has one of the largest networks of rapid charge points in Europe; however, this network will have to be extended even further to boost consumer confidence. It is estimated that there are 16,000 charging points in the UK, which serve over 130,000 electric and hybrid vehicles; however, a recent report by Emu Analytics suggested that the UK will need over 80,000 more EV charging points by 2020 in order to support increased demand.

The fact that the planning and delivery of charging infrastructure has been largely devolved to local authorities goes some way to explaining why the rollout of EV infrastructure has been patchy across the UK, with 7% of local authorities having fewer than two charging points. The disjointed nature of local authorities in the UK makes it difficult to roll out infrastructure in a consistent manner

across the country without the collaboration of local authorities or the involvement of central government. As such, there are still significant black spots in the UK's charging network and the availability of charging points remains a postcode lottery; indeed, there remain more charging facilities in Orkney than in Grimsby, Hull and Blackpool put together. In this context, it is difficult to envisage the successful rollout of charging infrastructure in the UK without significant coordination from central Government.

Furthermore, in 2017, the Government pledged £400m to support the rollout of an EV charging infrastructure across the UK, with half of the money coming from public funds and the other half matched by private investment. However, the Treasury recently stated that the process of raising the private investment has not yet begun, with the 'procurement for the private sector fund manager' due to be appointed at some point in the summer of 2018.

Awareness

The assumption upon which the 'EV revolution' is predicated is that consumers will be willing to embrace EVs and all of the lifestyle modifications that their use entails. However, the willingness of people to switch to EVs is by no means a foregone conclusion. Awareness and confidence in

EV technology is mixed at best, as illustrated by a recent survey carried out by the Institute of the Motor Industry (IMI), in which 82 per cent of respondents said they did not know enough about EVs to switch over from petrol or diesel-powered vehicles. As such, a significant informational campaign from Government and industry would likely be necessary to get consumers to adopt EVs.

Furthermore, awareness amongst individuals and businesses about the Government grants and incentives available for EVs and charging points seems to be limited. As such, EV grants must be publicised more widely in order to develop the perception of EVs as an economically comparable alternative to 'traditional' vehicles.

Conclusions

Taken as a whole, the proposals in the Automated and Electric Vehicles Bill appear to be relatively modest in scope; which is perhaps explained by the Government's view that infrastructure delivery should not be dictated by central government. In order to facilitate the effective rollout of a comprehensive EV charging network in the UK, there must be coordination by central Government.

Alongside coordinated infrastructure development, the Government must work with local authorities to develop a workable strategy for delivering on-street charging facilities and provisions for the incorporation of charging points in new developments.

It is unfortunate that the incentives that have been put in place by the Government to encourage the use of EVs, such as grants and tax incentives have not been effectively communicated. Knowledge about the nature and, indeed, existence of such incentives remains patchy and, as such, it would have been promising to have seen a developed scheme for decimating information about EVs and related grants to the widest possible audience included in the Bill.

In addition to greater awareness, public confidence in EVs would likely be boosted by more developed Government policy on the resilience of EVs and the related network; including mitigation against cyber attacks.

The fact that legislation pertaining to autonomous vehicles received extensive coverage in the Bill, whilst the proposals pertaining to EVs were comparatively modest seems short-sighted. Given that it remains to be seen whether the widespread use of autonomous vehicles will ever be a reality, this policy area has received a disproportionate amount of attention, especially when contrasted with EVs, an avowed area of interest for the Government.

Ultimately, whilst the Bill contains several sound measures, we may conclude that it amounts to a missed opportunity. Several core challenges relating to EVs remain unaddressed and, if the uptake of EVs continues to increase as predicted, the Government will be forced to contend with these issues further down the line.



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