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through innovation in transport
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Electric Vehicle Infrastructure Barriers

Executive Summary

Research Report for Transport & Environment

January 2021

Executive Summary

Transport & Environment commissioned Cenex to produce this research report into the barriers preventing the growth and effective operation of the UK's electric vehicle (EV) charging infrastructure network. Specifically, this report was intended to meet the following research objectives:

- Identify the key barriers to the expansion and effective operation of the UK's electric vehicle (EV) charging infrastructure network; and
- Propose policy solutions to address the key barriers identified.

The report explored barriers across four themes that were identified by Cenex through an internal workshop session. These themes are:

1. Poorly Defined and Inadequately Resourced Role of Public Sector
2. Cost of High-Power Charging Infrastructure Installations
3. Difficulty Meeting User Needs in Commercially Unattractive Locations
4. Market Competition Harming the Electric Vehicle Driver Experience

Through desk-based study, 19 barriers were identified. Based on Cenex's 15-years of EV infrastructure project experience, each identified barrier was provided with a score qualifying the impact and scale of its negative effect on the EV charging infrastructure network. These scores were used to rank the barriers and identify the top five barriers that Cenex considers most responsible for preventing the growth and effective operation of the UK EV charging infrastructure network.

This report found that the five most significant **barriers** to the growth and effective operation of the UK EV charging infrastructure were:

A. Capital and revenue funding

The lack of revenue funding made available to local authorities by UK Government is preventing them from committing staff resource to deliver and manage high-quality local charging infrastructure networks.

B. Lack of accessible, clearly targeted capital funding to cover grid reinforcement costs

Prohibitively expensive grid reinforcement costs impact the commercial viability of installing high-power EV charging infrastructure – including rapid and ultra-rapid chargepoints. Expecting the private sector to cover the full extent of these costs is unrealistic.

C. Absence of accurate open data on location, specification, and status of infrastructure

In the UK at present, the only source of live data is privately owned and the only source of open data is not live. This prevents market competition in developing software solutions that improve the EV user experience.

D. Absence of enforceable planning requirements

Ensuring that new-built residential and non-residential developments are equipped to support the transition to EVs will ensure that a greater number of UK residents can be provided access to a convenient and cost-effective means to recharge an EV. National regulations enforcing this requirement upon developers has not been forthcoming.

E. Property leaseholders and tenants cannot unilaterally install domestic chargepoints

Requiring the permission of a freeholder or landlord of a property can present a barrier that prevents a property leaseholder or tenant from installing a domestic EV chargepoint. There is no legal obligation for this permission to be granted, nor is there funding available to support the additional costs that may be incurred in cases where additional works are required to install an EV chargepoint (e.g. in communal car parks).

This report proposes 21 different policy **solutions** aimed at addressing each identified barrier, with most solutions potentially addressing more than one barrier. Each proposed solution was scored against its likely cost and complexity, based on Cenex's understanding of the EV charging infrastructure industry. Solutions were also scored for impact, based on the significance of the barriers it would address.

Following a scoring and ranking exercise, the ten highest-scoring **solutions** were as follows:

1. **UK Government to provide clear guidance, and an instruction or obligation for local authorities to take action to lead or facilitate EV chargepoint installations**

   This will address varying levels of engagement between different local authorities, ensuring that the UK's EV charging infrastructure network achieves comprehensive national coverage and provides a consistent and high-quality service to consumers. It will also raise awareness of EV charging infrastructure in a planning context, making planning authorities more likely to see value in awarding planning permission to develop EV charging infrastructure hubs and imposing requirements to install chargepoints in new developments.

2. **UK Government to develop and publish detailed, official guidance outlining a consistent delivery approach for local authorities**

   Official guidance will address the lack of in-house EV charging infrastructure expertise within local authorities. This will reduce the revenue funding required for local government officers to explore and evaluate different delivery approaches, and support local authorities to deliver EV charging infrastructure of appropriate quality and quantity to meet demand. This guidance must be official in order to command the confidence of local authorities.

3. **Create a government-sponsored network to help local authorities co-ordinate EV charging infrastructure rollout**

   Allowing local authorities to share knowledge and experience in a structured way will support local government officers to make evidenced decisions based on established best-practice. The network should be co-ordinated by a secretariat body, who are independent from government and industry, who would organise events and become a central knowledge bank and point of contact for local authorities undertaking EV charging infrastructure installation.

4. **Introduce and enforce secondary legislation to regulate the level of service provided by the EV chargepoint operators**

   Primary legislation has been introduced through the Automated and Electric Vehicles Act (2018) and this should now be strengthened with secondary legislation to ensure that chargepoints within the UK's EV chargepoint network meet certain standards for reliability and access. This will increase the robustness of the chargepoint network and improve consumer confidence in EVs.

5. **Target the Rapid Charging Fund solely at electricity network upgrades**

   The Rapid Charge Fund is expected to make funding available to support the installation of high-power EV charging infrastructure in areas where the existing electricity supply requires significant and costly upgrades. In order to ensure that this funding achieves the greatest impact possible, it should be targeted specifically to electricity network upgrades – where there is a market failure – and not be used to support other costs, such as charging equipment and equipment installation – where there is no market failure.

6. **Update the National Planning Policy Framework to reflect the importance of EV charging infrastructure**

   At present, the National Planning Policy Framework makes reference to renewable energy installations and advises local planning authorities to consider the environmental benefits of such developments when coming to a planning decision. No such equivalent advice exists for EV charging infrastructure, yet this also has environmental benefits that may arguably be felt more locally. The National Planning Policy Framework should therefore advise local authorities to consider these benefits when assessing planning applications for EV charging infrastructure developments.

7. **Fund the development of a new open EV chargepoint database, providing open access to live EV chargepoint network information**

   Open access to live chargepoint information will unlock a competitive marketplace for software developers to introduce user-focussed services that improve the EV user experience. Such information will also be necessary to accurately monitor compliance with any regulations around the level of service provided by UK chargepoint network operators.

8. **Introduce a legal definition of price transparency, in the context of EV charging infrastructure**

   At present, price transparency in the EV charging infrastructure industry is thought to require nothing more than a price displayed on an EV chargepoint before use. This does not necessarily allow consumers to make effective choices as, by the time they see this price, they may already effectively be committed to paying it to complete their journey. There should be structured debate on what constitutes true price transparency for EV charging infrastructure. The outcome of this debate should be refined into a legal definition which can then be used to ensure that EV-owners have the means to make effective consumer choices on how they charge their EV.

9. **Make Rapid Charging Fund payable only to electricity network operators**

   To maximise the impact of the Rapid Charging Fund, it should be made payable only to electricity network operators. This will further reduce the likelihood that the funding will be used to support costs that the private sector has proven itself already capable of covering (e.g. chargepoint equipment and equipment installation).

10. **Further specify the definition of “ad hoc access”, consulting the public if necessary**

    The definition of “ad hoc access” is set in the Alternative Fuels Infrastructure Regulations (2017) and requires EV chargepoint network operators to provide a means of using charging infrastructure without first having to sign-up to a membership service. In response to this, many chargepoint operators now offer two or more different usage tariffs depending on whether or not a user signs-up to a membership service. It should be debated whether this practice is against the spirit of the original definition, and whether this practice is impacting consumer confidence in EVs. If both are found to be the case, the definition should be strengthened.

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The full report, including in-depth analysis of the barriers and solutions to the growth and effective operation of the UK's electric vehicle charging infrastructure network, is available for free.

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