

E-CHARGING INFRASTRUCTURE IN THE UNITED KINGDOM

This article is part of a series on the future of e-charging infrastructure in the European Union and United Kingdom. In this piece we will discuss:

1. An overview of the United Kingdom ("UK") e-mobility market.
2. The legal framework for the construction and operating of electric vehicle ("EV") chargepoints.
3. The subsidies and tax benefits that exist to incentivise the construction or operation of EV chargepoints.
4. The different business models in the UK e-mobility market.

OVERVIEW OF THE E-MOBILITY MARKET IN THE UK

The race is on to transform the UK's transport sector in the next 15 years.

The UK Government has indicated it wants to bring forward its ban on the sale of new petrol, diesel or hybrid cars in the UK from 2040 to at least 2035.¹ This change comes after the Independent Committee on Climate Change advised that the original date of 2040 was too late to achieve the UK's net zero carbon-emissions target for 2050, which was enshrined into UK law in June 2019.²

By accelerating the phasing out of petrol, diesel and hybrid cars, the UK Government is depending on the rapid expansion of the EV market in the next few years to fill the gap.

With the 2035 deadline as a formidable backdrop, the UK Government, as part of its "Road

to Zero Strategy", has introduced (or is consulting on) a number of schemes and law changes to support the expansion of all areas of the e-mobility market. Fundamental to increasing the uptake of EV vehicles in the UK is ensuring that there is adequate e-charging infrastructure installed throughout the UK.³

The expansion of e-charging infrastructure in the UK has been rapid. As at 27 May 2020, there were 31,680 charging connectors in the United Kingdom (an increase from 1,503 at the end of 2011)⁴ and the UK e-charging market is recognised as one of the most advanced in Europe.⁵ However, it will need to continue to grow rapidly

³ This is to address "range anxiety" – the fears over the distance an EV can travel between charges, which is a key factor for people considering buying an EV. Source: House of Commons Library, Briefing Paper, "Electric Vehicles and infrastructure", David Hirst, Number 7480, 25 March 2020 (<http://researchbriefings.files.parliament.uk/documents/CBP-7480/CBP-7480.pdf>).

⁴ Source: <https://www.zap-map.com/statistics/#region>.

⁵ Source: PwC report: "Powering ahead! Making sense of business models in electric vehicle charging", October 2018 (<https://www.pwc.co.uk/power-utilities/assets/powering-ahead-ev-charging-infrastructure.pdf>).

¹ Source: HM Government Open Consultation: "Consulting on ending the sale of new petrol, diesel and hybrid cars and vans", 9 April 2020 (<https://www.gov.uk/government/consultations/consulting-on-ending-the-sale-of-new-petrol-diesel-and-hybrid-cars-and-vans>).

² Source: <https://www.gov.uk/government/news/uk-becomes-first-major-economy-to-pass-net-zero-emissions-law>



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to ensure that the UK Government's bold ambitions become a reality.

LEGAL FRAMEWORK FOR THE CONSTRUCTION AND OPERATION OF CHARGEPOINTS

LEGAL REQUIREMENTS TO CONSTRUCT AN EV CHARGEPOINT

The legal framework for the construction of e-charging infrastructure differs across the United Kingdom because the majority of the relevant legislative powers (e.g. town and planning legislation and building regulations) have been devolved to the Scottish Parliament and the Assemblies of Wales and Northern Ireland respectively. The requirements set out in this section are limited to England only unless otherwise stated.

PLANNING PERMISSIONS AND OTHER CONSENTS FOR THE CONSTRUCTION OF EV CHARGEPOINTS

PRIVATE LAND

The construction of EV chargepoints on private land (e.g. off-street public and private car parks) benefit from permitted development rights under English planning law, which means that planning permission is not required, provided that certain conditions are met.

For wall-mounted EV charging outlets, the units must be less than 0.2 cubic metres, be over 2 metres from the highway and must not be within certain types of protected properties (e.g. a designated scheduled monument or the curtilage of a listed building). For upstanding EV charging outlets, their height cannot exceed

1.6 metres (for residential areas) or 2.3 metres (in all other cases).⁶

Other consents may be required depending on the ownership arrangements of the relevant land (e.g. from the freeholder or management agent of a block of flats).

PUBLIC HIGHWAYS

The construction of EV chargepoints on public highways can be done by local authorities without planning permission. Third parties may need to obtain planning permission however and early engagement with the relevant highway and planning authorities is vital to avoid any undue delay. Factors such as whether the proposed site is in a flood risk area or a conservation area, near a listed building or close to a tree will be considered as part of any planning application.⁷

A number of other consents that may be required to construct an EV chargepoint on a public highway. These include a section 278 agreement (required under the Highways Act 1980), which is a legal agreement with the relevant highway authority that allows a developer to carry out works to a public highway and a section 50 street works licence (required under New Roads & Street Works Act 1991), which is a licence to allow developers to install and/or maintain apparatus under a public highway.

Additional consents may be required depending on the nature of the public highway and the requirements of a particular local authority.⁸

FUTURE REQUIREMENTS FOR THE CONSTRUCTION OF EV CHARGEPOINTS IN RESIDENTIAL AND NON-RESIDENTIAL PROPERTIES

Some local authorities in England have already introduced policies that require the installation of e-charging infrastructure in different types of developments (e.g. the London Plan)

⁶ Source: Town and Country Planning (General Permitted Development) (Amendment) (England) Order 2011, Town and Country Planning (General Permitted Development) (England) Order 2015 and Town and Country Planning Regulations SI 2019 No 907.

⁷ Source: London's electric vehicle charge point installation guidance, December 2019 (<http://ruc.content.tfl.gov.uk/london-electric-vehicle-charge-point-installation-guidance-december-2019.pdf>).

⁸ Source: London's electric vehicle charge point installation guidance, December 2019 (<http://ruc.content.tfl.gov.uk/london-electric-vehicle-charge-point-installation-guidance-december-2019.pdf>).

but there is currently no nationwide requirement. The UK Government is looking to change this and has recently concluded a public consultation on proposed amendments to the building regulations in England that will require the installation of EV chargepoints in new residential buildings and certain new non-residential buildings. Under these proposals:

- every new residential building with an associated car parking space must have a EV chargepoint (and this requirement would also apply to any existing building undergoing a material change of use to create a dwelling); and
- every new non-residential building and every non-residential building undergoing a major renovation with more than 10 car parking spaces must have at least one EV chargepoint and cable routes for an EV chargepoint for one in five spaces.⁹

The second proposal above regarding new non-residential buildings is required as part of the UK's transposition of the EU Energy Performance of Buildings Directive (the "EPBD").¹⁰

The EPBD also requires that every existing non-residential building with more than 20 car parking spaces must have at least one EV chargepoint from 2025. If introduced, this change will be transposed through separate legislation rather than an amendment to current building regulations, which are only applicable when building work is being carried out.¹¹ Whilst the UK left the EU on 31 January 2020, the terms of the withdrawal agreement between the EU and the UK mean that (until 31 December 2020, unless extended) the UK is still subject to EU law and therefore under an obligation to transpose the EPBD into national law.

⁹ Source: HM Government Consultation paper: "Electric vehicle charge points in residential and non-residential buildings", 15 July 2019 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/818810/electric-vehicle-charging-in-residential-and-non-residential-buildings.pdf).

¹⁰ Source: Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.

¹¹ Source: HM Government Consultation paper: "Electric vehicle charge points in residential and non-residential buildings", 15 July 2019 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/818810/electric-vehicle-charging-in-residential-and-non-residential-buildings.pdf).

These proposals have broadly been well received but responses to the consultation have asked the UK Government to consider issues relating to the additional cost of any installation for property developers, the relationship between property developers, e-charging infrastructure operators and residents as well as health and safety considerations.¹²

The UK Government was expected to publish its response to the consultation at the beginning of this year, but its publication has been delayed.

LEGAL REQUIREMENTS FOR OPERATING AN EV CHARGEPOINT

ALTERNATIVE FUELS INFRASTRUCTURE REGULATIONS 2017

The Alternative Fuels Infrastructure Regulations 2017 came into force in October 2017 and, even though it is EU legislation, it will remain in force after the UK fully leaves the EU.¹³ These regulations aim to standardise the customer experience across all EV charging infrastructure and ensure that public EV infrastructure is accessible to all. More specifically, these regulations require EV chargepoint operators ("CPOs"):

- to comply with common standards for socket outlets and vehicle connectors and with requirements for intelligent metering;
- to make their equipment available for use by the general public without requiring a pre-existing contract or membership; and
- to make data regarding public EV charging infrastructure, such as its location and type, accessible to the public on an open and non-discriminatory basis.

The Office for Product Safety and Standards has published guidance on these regulations that includes clarifications on what is considered "public" EV infrastructure and good practice recommendations on how best to make data accessible.¹⁴

¹² Source: <https://www.bpf.org.uk/sites/default/files/resources/British%20Property%20Federation%20-%20EV%20Chargepoints%20in%20Resi%20and%20non-Resi%20submission.pdf>.

¹³ Source: Office for Product Safety & Standards: "The Alternative Fuels Infrastructure Regulations 2017: Guidance on the UK Alternative Fuels Infrastructure Regulations", July 2019.

¹⁴ Source: Office for Product Safety & Standards: "The Alternative Fuels Infrastructure Regulations 2017: Guidance on the UK Alternative Fuels Infrastructure Regulations", July 2019 (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/817044/alternative-fuels-regulations-2017-guidance.pdf).

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THE AUTOMATED AND ELECTRIC VEHICLES ACT 2018

The Automated and Electric Vehicles Act 2018 does not itself impose any new requirements for e-charging infrastructure but instead gives the UK Government the power in the future to regulate a number of areas in the e-charging infrastructure sector as and when it deems necessary. The Act states that the UK Government has the power to introduce requirements in connection with:

- the performance, maintenance and availability of e-charging infrastructure (which could require CPOs to co-operate with each other to share facilities or information);
- the method of payment for using e-charging infrastructure;
- the provision of e-charging infrastructure by large fuel retailers or motorway services operators;
- the standardisation of both the type of data made available to the public by CPOs and the method of transmission of such data; and
- the technical specification of any new e-charging infrastructure.

The UK Government has recently concluded a consultation on smart charging for EVs and has said it will use the Act to mandate that all chargepoints sold or installed in the UK have smart functionality (i.e. prioritise charging during off-peak periods when electricity demand is low).¹⁵ The UK Government is currently considering the responses to the consultation and will respond in due course.

The UK Government has also recently announced that it may bring in legislation using its powers under the Act to support the roll-out of a fast-charging network (see “Rapid Charging Fund” below for more details on this roll-out).¹⁶

ELECTRICITY SUPPLY LICENCE

The electricity supply licensing regime in the UK is designed on the basis that electricity is supplied to

¹⁵ Source: HM Government Closed Consultation: “Electric vehicle smart charging consultation: summary of responses”, 27 May 2020 (<https://www.gov.uk/government/consultations/electric-vehicle-smart-charging/public-feedback/electric-vehicle-smart-charging-consultation-summary-of-responses>).

¹⁶ Source: HM Government Policy Paper: “Government vision for the rapid chargepoint network in England”, 14 May 2020 (<https://www.gov.uk/government/publications/government-vision-for-the-rapid-chargepoint-network-in-england/government-vision-for-the-rapid-chargepoint-network-in-england>).

“premises” (e.g. homes or businesses) and therefore EV charging infrastructure does not fit neatly into its rules.

To assist CPOs, local authorities and other businesses in the e-charging infrastructure sector, Ofgem (the UK electricity regulator) issued guidance in October 2019 on the circumstances in which an electricity supply licence would be required.¹⁷ In its guidance Ofgem confirmed that a supply licence would be required for the supply of electricity to an EV chargepoint but that, under most circumstances, the supply of electricity from an EV chargepoint to an EV would not require a supply licence on the basis that an EV is not a “premises”.

The guidance also explored the licensing position at certain sites with complex ownership and letting arrangements involving multiple parties, such as a supermarket carpark. In this scenario it is possible that the owner of the supermarket is supplied electricity by a licensed supplier and then the supermarket supplies the electricity to an EV chargepoint that is owned by a third-party operator who then supplies the electricity to an individual's EV. Ofgem has confirmed that in these circumstances, while the supply of electricity by the owner of the supermarket to a third-party owned EV chargepoint may under the general rule require a supply licence, it is possible such supply could be exempt on the basis it is the ‘re-sale’ of electricity, meaning that no supply licence is required.

Subsidies and tax benefits to incentivise the construction or operation of EV chargepoints

GOVERNMENT SUBSIDIES AND TAX BENEFITS FOR THE INSTALLATION OF INDIVIDUAL CHARGEPOINTS

The UK Government and specifically the Office for Low Emission Vehicles (the “OLEV”), has introduced a number of schemes to encourage EV owners, businesses and local authorities to construct e-charging infrastructure.

THE ELECTRIC VEHICLE HOMECHARGE SCHEME

The Electric Vehicle Homecharge Scheme (“EVHS”) provides grants to assist EV vehicle owners with some of the

¹⁷ Source: Ofgem Guidance: “What you need to know about selling to Electric Vehicle users”, 17 October 2019 (https://www.ofgem.gov.uk/system/files/docs/2019/10/what_you_need_to_know_about_selling_electricity_to_ev_users.pdf).

costs of acquiring and installing an EV chargepoint at home. The grant covers 75% of the eligible costs of installation (up to a maximum of £350) and the application for the grant is made on behalf of a customer by the relevant installer who have been authorised by the OLEV. Individuals are eligible for the grant if they own an EV and own a property with designated private off-street parking.

THE WORKPLACE CHARGING SCHEME

The Workplace Charging Scheme (“WCS”) encourages the installation of e-charging infrastructure at places of business by providing support towards the up-front costs of the purchase and installation of e-charging infrastructure. The scheme is voucher-based, meaning that a successful applicant (which can be a business, charity or public authority) receives a voucher that is valid for 6 months that can be used to partly pay for the installation of e-charging infrastructure by an OLEV-authorized installer. The authorised installer can then redeem the voucher with the OLEV. The WCS reduces the cost of installation by up to £350 per socket for up to a maximum of 40 chargepoints (this was recently changed from £500 per socket for a maximum of 10 chargepoints).

THE ON-STREET RESIDENTIAL CHARGEPOINT SCHEME

The On-Street Residential Chargepoint Scheme (“ORCS”) is available to local authorities and provides access to grant funding to be used to part fund the procurement and installation of on-street e-charging infrastructure in residential areas. The grant funding can cover up to 75% of the capital costs of procuring and installing e-charging infrastructure and (if required) an associated dedicated parking bay. The costs of upgrading or maintaining existing chargepoints is excluded.

The OLEV has said that the maximum it will fund per chargepoint is typically £6,500 (but will consider applications of up to £7,500 per chargepoint on a case-by-case basis). The OLEV does not anticipate any application greater than £100,000 per project. There are several criteria that must be met, including the requirement that the chargepoint is added to the National Chargepoint Registry, which is an open resource listing publicly accessible chargepoints in the UK and designed for use by website and smartphone app developers as well as satellite navigation manufacturers.

CAPITAL ALLOWANCE FOR CHARGING INFRASTRUCTURE

As well as tax incentives for the acquisition of EVs, the UK Government has also introduced legislation so that expenditure on new e-charging infrastructure qualifies for the 100% first-year allowance, meaning that a business can deduct the full cost of such expenditure from its profits before tax. The allowance applies to any expenditure prior to 31 March 2023 (for corporation tax purposes) and 5 April 2023 (for income tax purposes).¹⁸

GOVERNMENT-BACKED FUNDS FOR LARGE-SCALE INSTALLATION OF EV CHARGING INFRASTRUCTURE

The UK Government has also taken steps to make capital available for large-scale development of EV charging infrastructure.

CHARGING INFRASTRUCTURE INVESTMENT FUND

In 2017 the UK Government, through the Infrastructure and Projects Authority, created the Charging Infrastructure Investment Fund (“CIIF”). The CIIF aims to invest up to £400 million to ensure that there is enough capital available to enable the roll-out of e-charging infrastructure in the UK. The UK Government has agreed to invest £200 million to the fund with the remaining amount funded by private investors. The fund is managed by Zouk Capital, a London-based private sector fund manager.

On its first financial close in September 2017, a total of £70 million (funded 50:50 by UAE renewables investor Masdar and UK Government) was raised by the CIIF to support the construction of 3000 rapid chargepoints by 2024.¹⁹ On its second financial close in April 2020, £80 million (funded 50:50 by private investors, including the Church Commissioners for England, and the UK Government) was raised by the CIIF, which will be deployed in due course. The timing of this capital raise hopefully gives a small indication that, despite the COVID-19 pandemic, the UK Government and private investors are still prepared to commit funds to the future of e-charging infrastructure.

¹⁸ Source: HMRC policy paper: “First-year allowance for electric charge-points” (<https://www.gov.uk/government/publications/first-year-allowance-for-electric-charge-points/first-year-allowance-for-electric-charge-points>).

¹⁹ Source: <https://www.zouk.com/news/38-infrastructure/212-over-500m-new-investment-in-green-technologies-for-a-cleaner-and-healthier-future>.

RAPID CHARGING FUND

In the 2020 Budget, the UK Government announced its ambition to roll-out a fast-charging network for EV vehicles in England and that this expansion would be supported by a “Rapid Charging Fund”. This fund will be available to cover a portion of costs of installing high powered e-charging infrastructure at strategic sites across England's road network where such an upgrade would otherwise be prohibitively expensive and uncommercial. By 2023, the UK Government aims to have at least six high powered, open access chargepoints (150 – 350 kilowatt capable) at motorway service areas in England, with some larger sites having as many as 10 to 12 chargepoints. It is hoped that the number of high-powered chargepoints will then increase to around 2,500 by 2030 and 6,000 by 2035.²⁰

BUSINESS MODELS IN THE MARKET

The EV charging infrastructure market is fast-growing and very competitive, with a plethora of different companies. From start-ups to established CPOs and energy companies, vying for market share. In October 2018, PwC, in partnership with the trade association Energy UK, published a report entitled “Powering ahead! Making sense of business models in electric vehicle charging” that focused on CPOs and different business models in the UK EV charging market.²¹ The report was the result of a number of interviews with leading CPOs and other key stakeholders such as electricity supply businesses. The report identified four emerging business models for CPOs in the UK EV charging market:

- **The Portfolio player:** a CPO that operates across different charging segments such as home, work and destination e-charging infrastructure.
- **The Specialist player:** a CPO that only operates in one charging segment to maximise its expertise in a particular area (e.g. rapid charging).

²⁰ Source: HM Government Policy Paper, “Government vision for the rapid chargepoint network in England”, 14 May 2020 (<https://www.gov.uk/government/publications/government-vision-for-the-rapid-chargepoint-network-in-england/government-vision-for-the-rapid-chargepoint-network-in-england>).

²¹ Source: PwC report: “Powering ahead! Making sense of business models in electric vehicle charging”, October 2018 (<https://www.pwc.co.uk/power-utilities/assets/powering-ahead-ev-charging-infrastructure.pdf>).

This article is part of a series on the future of e-charging infrastructure in the European Union and United Kingdom. To read further country specific articles please visit: <https://www.wfw.com/articles/the-future-of-e-charging-infrastructure-in-the-european-union-and-united-kingdom/>

- **The Network Optimiser player:** a CPO that aims on building a future market position across multiple segments with the aim of creating additional revenues by exporting power from clusters of stationary EVs to the grid or by using smart technology to ‘load shift’ (facilitate the charging of EVs at periods of low demand).
- **The Energy Supplier player:** a CPO that uses EV charging to supplement and develop its existing electricity supply business (in particular with existing domestic customers). The report makes clear that any single business may incorporate more than one of these models and that there are other market players that do not fall into any of these models such as local authorities and oil and gas companies (who have entered the market in recent years to diversify their businesses).

As the e-mobility market goes mainstream, technology continues to advance, and the nuances of the customer experience become clearer, it is inevitable that these business models will change and adapt and new opportunities for businesses will emerge. For example, tourist destinations that rely on car-access may look to provide their own EV solutions as visitors become more conscious of their carbon footprint and companies looking to replace their existing vehicle fleets with EVs may seek to form strategic partnerships with CPOs and other market participants.²² <https://www.wfw.com/>

²² Source: Ensto blog entry “5 Great EV Charging Business Models” (<https://www.ensto.com/company/newsroom/blogs/5-great-ev-charging-business-models>).