

UK Automotive's seven-point plan to boost Britain's EV charging infrastructure



ZERO EMISSION

FOREWORD



The automotive industry shares government's Net Zero vision and is fully committed to zero emission motoring. These are evidenced by the very significant investments that have resulted, and are continuing to result, in a rapidly increasing number of plug-in models introduced and an exponentially growing plug-in vehicle market. Plug-in vehicles accounted for a record-breaking more than one in six UK car registrations in 2021, while battery electric vehicle (BEV) registrations rose to an all-time high of one in nine, with more registered than in 2016-2020 combined.

Our outlook is positive, as we believe the new plug-in car market will continue to grow at an exponential rate, resulting in a car parc comprising 9.3 million plug-ins by 2030 (27.0%) and 18.4 million by 2035 (54.8%), of which 6.9 million (20.1%) and 15.3 million (45.6%) respectively are BEVs. However, this outlook is contingent on the key assumption that charging infrastructure is no longer a barrier to mass market uptake. Unlocking the full environmental and socioeconomic benefits of this transition requires collaboration involving industry, government and key sectors such as fleets, infrastructure and energy.

Government, local authorities and the charging infrastructure sector deserve credit for the more than 3,000% growth in public charging infrastructure since the first chargepoints were installed in 2011. However, every single reputable study or consumer survey have invariably and consistently shown that the inadequacy of infrastructure provision is still a concern for many consumers and is a main barrier to mass uptake. Range anxiety has now been replaced by charging anxiety. Although most current plug-in vehicle users charge at home, public chargepoints remain critical for consumer confidence and are heavily relied upon by many commercial and grey fleets as well as the one-third of British households that do not have off-street parking.

As plug-in vehicle registrations surged, public charging infrastructure expansion has failed to keep pace. Plug-in cars on the road had grown a phenomenal 280.3% between 2019 and 2021, but slow/fast public chargepoints grew by just 69.8% in the same period. While BEVs in the car parc grew by a staggering 586.8%, rapid/ultra-rapid charger stock grew by 82.3%. We should be proud that the UK is a leader in the rapid/ultra-rapid charger segment, with its 32 BEVs per charger ratio well ahead of most major markets apart from China (11:1), South Korea (12:1) and Japan (17:1). However, our plug-in cars per slow/fast public charger ratio has deteriorated from 11:1 to 16:1, which compares unfavourably to the ratios in South Korea (3:1), the Netherlands (5:1), China (9:1), France (10:1) and Belgium (13:1).

With government's 2030 and 2035 end-of-sale deadlines in place and binding targets for zero emission vehicle sales expected from 2024, the UK automotive industry is required to make a more significant and advanced commitment than just about any other major car or van market. Yet there is a glaring

lack of an equivalent mandate with binding targets for delivering a commensurate nationwide network of chargepoints that is fit for purpose for the mass market transition and that matches consumer needs.

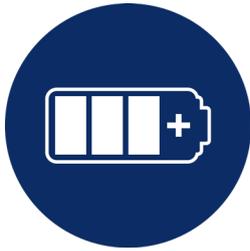
Left entirely to market forces, the rollout of chargepoints will naturally prioritise commercial rather than consumer interests, focussing predominantly on the more profitable types of chargers and high-utilisation locations. As a result, while the problem may not be a **lack** of chargepoints, the provision of public chargers risks becoming increasingly **inadequate**, **inequitable** and **disproportionate** as plug-in vehicle uptake accelerates. The lack of regulation in the charging infrastructure market, meanwhile, has resulted in poor **consumer experience**, as both the Competition and Markets Authority and government have discovered. Charging should really be as easy and uneventful as refuelling.

Industry is determined to work with government and all stakeholders to jointly deliver an ambitious transition to zero emission mobility that has consumers at the heart of it and is accessible and affordable for all. Consumer-centricity must be based on three fundamental principles: **adequacy**, **experience** and **equity**. In this paper we set out the UK automotive industry's views on the key measures required to deliver consumer-centric charging infrastructure that is pivotal to a successful transition. Involving the three inextricable and mutually reinforcing elements of **binding targets**, **proportionate regulation** and **enabling support**, these measures are summarised in the following **seven-point plan**.



Mike Hawes Chief Executive

The Society of Motor Manufacturers and Traders (SMMT)



1. Embed consumer-centricity in policy and a national plan on charging infrastructure

Consumer-centricity means putting **consumer interests first** in every aspect of charging infrastructure development and expansion, including policy-making, and should be based on three key principles:

- **Adequacy:** There must ultimately be at least adequate charging infrastructure to enable motorists to find an available and working public charger on demand. This means there needs to be a binding commitment and a coordinated plan to significantly uplift the number of public chargers of the right types in the right places.
- **Experience:** The consumer experience of charging a plug-in vehicle must be as easy as, if not easier than, refuelling. There must be regulation on a minimum standard of reliability, ease of payment, pricing transparency, information provision, accessibility and security.
- **Equity:** No socioeconomic groups or communities, particularly those in rural areas or reliant on on-street residential charging, should be disadvantaged or left behind. Public charging must also be affordable so that consumers are not “penalised” in the pocket for not having a private driveway and access to a dedicated home charger.



2. Develop and implement a nationally coordinated but locally delivered infrastructure plan

Government's forthcoming EV Infrastructure Strategy is a step in the right direction. However, for maximum effectiveness and impact, the strategy must be accompanied by a **nationally coordinated but locally delivered infrastructure plan** that is delivery orientated. The plan must include:

- A focus on ensuring there is a national network of public chargers of **the right types in the right places**, serving the right needs and achieving as high utilisation as possible. This should be delivered by **mapping** out actual and anticipated consumer charging needs and gaps in provision through the help and involvement of all key stakeholders.
- A comparable **metric** to appropriately assess and track charging infrastructure adequacy over time, and thus signal if additional investment or policy measures are required. This metric should be based on a cars-to-charger ratio, as this provides a more accurate picture of chargepoint **density** and the potential **pressure** on public charging infrastructure based on the expected number of vehicles at a given location. The ratios that should be tracked are **plug-in cars per slow/fast public chargepoint** and **BEVs per rapid/ultra-rapid public chargepoint**.
- Minimum requirements in public chargepoint planning, commissioning and delivery, along with an associated parking space, that meet the needs of **light commercial vehicles**, which have a larger footprint and different form factor compared to cars.



3. Invest significantly to uplift all types of charging infrastructure, particularly public chargers, ahead of need

Government and the infrastructure sector should commit to bold and ambitious investments in expanding the rollout of all types of charging infrastructure, ensuring everyone has a **universal “right to charge”**. Government should build on the success of its current £1.3 billion infrastructure package that will be further strengthened by a share of a new commitment of £620 million. While the largest proportion of public funds has been allocated to future-proofing electricity grid capacity at motorway service areas and major A-roads, increased support is needed in other areas such as:

- Significantly uplifting the number of public chargers **ahead of need**, focussing particularly on creating investable propositions and de-risking private investment in segments where there is genuine market failure, such as certain on-street and rural chargepoints.
- Extending funding support for both **home and workplace charging** through the Electric Vehicle Homecharge Scheme and the Workplace Charging Scheme into the second half of this decade. Home charging will remain the backbone of plug-in vehicle charging for those with access to a dedicated private home charger.
- Reforming the **VAT regime for public charging** by applying the lowest rate (i.e. 5%) across the board for electricity used for charging regardless of where the vehicle is charged. Consumers should not be “penalised” in the pocket for not having a private driveway or garage.



4. Set binding targets to ensure adequate public chargepoint provision and social equity

As a condition of the ZEV mandate that will be introduced in 2024, government should also put in place a **charging infrastructure mandate** by setting **binding targets** of public chargepoint provision on a **graduated basis**, commensurate with expected plug-ins on the road over time driven by the ZEV mandate and predicated on robust modelling that is periodically reviewed. These targets, which set out government commitment and call-to-action to achieve a specific goal by a specific time, should focus primarily on the type of chargepoints that are less likely to follow an organic growth path. Binding targets should not be viewed negatively. If reasonable and well designed, like the gigabit broadband target, they reflect positively on government's zero emission mobility ambitions, hold government to account and provide long-term signals and direction for public-private investment. We suggest the following binding targets:

- **Ratio of plug-in vehicles per fast (7-22kW) public charger in each of the economic regions**, set appropriately and reasonably based on the unique characteristics and consumer needs in each region and reviewed annually for relevance. This target, like carbon budgets, should be **binding on government itself**, who should assume overall accountability but delegate responsibilities, by way of a statutory duty for planning and delivery oversight, to local authorities, whose combined performance influences the ratio of the region.
- **Minimum number of rapid/ultra-rapid (50-350kW) public chargers per forecourt/hub/motorway service area**, depending on the size of the site and expected traffic throughput, and reviewed every two years. This target should be **binding on CPOs**. Compared to fast public chargers, it is not expected that there will be material underprovision of rapid and ultra-rapid chargers, as these are the relatively more profitable chargers in a CPO's portfolio.



5. Enact proportionate regulation to deliver the best outcomes for consumer experience and expansion of provision

We welcome the various announcements so far in which government has set out its intention to regulate to deliver the best outcomes for consumers. We firmly believe it is now important that government follows through and goes further by enacting regulation on the following:

- Setting **minimum standards of consumer experience**. These should include:
 - All public chargepoints, not just rapid and ultra-rapid chargers, must offer ad-hoc access and payment via contactless debit/credit card and network roaming.
 - A mandated minimum reliability rate of 99%, measured per operator per annum.
 - All public chargepoints must make available the “must have” static and dynamic (real-time) information set out in government’s consumer experience consultation.
 - For pricing transparency, all CPOs should charge for the electricity they provide in p/kWh.
- Creating a fit-for-purpose regulatory body, Office of Charging (Ofcharge), to monitor the market, including for price levels and affordability, and enforce the regulated minimum standards.
- Reforming building regulations to mandate chargepoints to be installed in new residential and non-residential buildings, and existing ones undergoing major renovation.
- Introducing a statutory duty on the part of local authorities to **plan for** and **oversee the delivery** of chargepoints on a proportionate and graduated basis.
- Requiring a minimum number of chargepoints in non-residential car parks on a graduated basis.
- Banning long-term exclusive arrangements at motorway service areas.



6. Provide adequate enabling support to incentivise and facilitate delivery of charging infrastructure

The infrastructure sector and local authorities must be supported in delivering charging infrastructure through a raft of measures that should work **in combination**. These support measures are aimed at **de-risking** private investment and creating **investable propositions** to address genuine market failures and plugging recognised **resource gaps** at the local authority level. These measures include:

- **Mixed high-low utilisation blocks for long-term tenders.** Public chargepoint tenders issued by local authorities should be long-term and require both urban and rural, as well on-street and off-street, coverage, thus resulting in successful bidders operating high-utilisation urban and off-street chargers that offset potential losses from low-utilisation rural and on-street chargers.
- **Modified contracts for difference.** Akin to price guarantees, government should set a fair expected annual revenue (strike price) for normal operations, along with stringent service level agreements and other conditions, in specifically targeted low-utilisation, or commercially unattractive, blocks and cover the shortfall in the CPO's verified annual revenues until the market is deemed to have matured.
- **Anticipatory demand-led approach through an online portal.** In areas with insufficient chargepoints, local residents intending to purchase or lease a plug-in vehicle within the next six months should be able to log requests for a chargepoint online. The local authority is then obliged to ensure a chargepoint is installed in the location of need within six months.
- **Adequately supporting and resourcing local authorities.** Statutory duty placed on local authorities to plan for and oversee the delivery of public chargers must be accompanied by greater levels of support in the form of resource funding, not just the existing capital funding. The proposed Ofcharge should be given an additional role as a dedicated national body that assists local authorities with all matters pertaining to charging infrastructure planning and implementation. It should be the custodian of a uniform national guidance, including streamlined planning permission processes and standardised procurement templates.



7. Ensure electricity networks are future-proofed and fit for purpose for zero emission mobility

We welcome and support the use of smart charging and Vehicle-to-Grid (V2G) as demand side response mechanisms to help delay the need for costly electricity network reinforcements. However, smart charging must not be regarded as a panacea for network capacity constraints or an ersatz substitute for much needed network reinforcements. We believe the following measures are necessary:

- Government and Ofgem must put in place frameworks that enable Distribution Network Operators to commit to well justified **anticipatory investments** in local networks that are most constrained and in strategic locations to future-proof charging for heavy duty vehicles.
- Load limitation must be limited to the **boundary of the home only**, and not exercising control beyond the meter. It must not single out the plug-in vehicle as the only “appliance” that is being targeted for the purpose of load balancing and grid protection.
- Regulatory frameworks must encourage the development of **flexibility services and markets** that incentivise consumers to participate in smart charging and V2G.
- In order to ensure the electricity used to power and produce zero emission vehicles by 2035 is as green as the new cars and vans themselves, government must mandate **100% grid decarbonisation by 2035** and legislate for a **binding target of 90% of electricity to be generated from renewables** under normal operation by 2035. This mandate must be supported by increased investment in renewable electricity generation capacity and innovative reforms to electricity markets.

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