

HOUSE OF LORDS

Environment and Climate Change Committee

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1st Report of Session 2023–24

# **EV strategy: rapid recharge needed**

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Evidence is published online at <https://committees.parliament.uk/work/7846/electric-vehicles/> and available for inspection at the Parliamentary Archives (020 7219 3074).

Q in footnotes refers to a question in oral evidence.

## SUMMARY

A successful transition to electric vehicles (EVs) is essential if the Government is to meet its legally binding net zero target by 2050. Surface transport is the UK's highest-emitting sector, with passenger cars responsible for over half the sector's emissions according to the Government's latest data. Life-cycle assessments of EVs demonstrate that they can provide dramatic reductions in emissions, alongside improved air quality. But with EVs making up about only 3 per cent of all cars currently on UK roads, concerted Government action to get people to adopt electric cars is now needed urgently.

The Government has legislated to end the sale of new petrol and diesel vehicles by 2035 and there has been some welcome progress towards the target—the Government's Zero Emission Vehicles mandate, requiring manufacturers to sell an increasing proportion of EVs each year, was introduced in December 2023. There has also been some progress in the rollout of the UK's charging infrastructure and the Government has recently published strategies to enhance innovation in battery technologies and strengthen the UK's car manufacturing industry.

However, progress is not happening fast enough, and major barriers remain. EVs are still more expensive than their petrol and diesel counterparts, and there is an insufficient range of affordable EVs on the market. Up to 40 per cent of households do not have off-street parking at home and thus are entirely reliant on public charging. The availability of public chargepoints across the UK is highly variable, and the Government has missed its targets for motorway chargepoints. Major funding programmes for public chargepoints have faced serious delays. Many consumers face considerable anxiety around whether and where they will be able to charge EVs reliably, affordably, and quickly, and around the battery range of second-hand cars.

Consumer confidence is critical to secure a successful transition. So, as well as material progress on the above obstacles, the Government must do more to convey a positive vision of the EV transition. We heard calls from a range of witnesses for clearer communication and more leadership from the Government. The Prime Minister's speech announcing the pushback of the petrol and diesel phase-out date from 2030 to 2035 told the public that achieving net zero "is going to be hard". By emphasising the costs while failing to stress the benefits and robustly counter misinformation, the Government is not building public confidence. After the Prime Minister's speech in September 2023, 37 per cent of consumers surveyed by Auto Trader said they would never buy an EV.<sup>1</sup>

The concern the Government expressed to us about the scale of misinformation has not been matched by commensurate urgency in tackling it. Faced with conflicting claims and alarmist headlines, consumers need a go-to source of comprehensive, clear and balanced information so they can make informed decisions about their vehicles. The Government must develop a communication strategy in collaboration with industry and consumer organisations to provide this resource.

1 AutoTrader Group, 'Significant jump in number of people saying they'll never buy an electric car' (25 Septmeber 2023): <https://plc.autotrader.co.uk/news-views/press-releases/significant-jump-in-number-of-people-saying-they-ll-never-buy-an-electric-car/> [accessed 30 January 2024]

The Prime Minister told the country that the UK needs “more time to prepare” and to tackle remaining challenges to the EV transition. The Government must now seize the opportunity it has given itself. It must publish a roadmap through 2035 setting out the steps it will take to achieve the target, focusing on seven key areas:

- **Tackle the disparity in upfront costs between electric and petrol and diesel cars.** There is an insufficient range of affordable EVs, and EVs are more expensive than their petrol and diesel equivalents. The upfront cost of EVs, including second-hand cars, remains a significant barrier to consumer adoption and targeted grants should be reconsidered for EV purchases. Unlike markets across Europe the Government has removed incentives to support private buyers with upfront costs for EVs. This is premature as we seek to move from early adopters and fleets purchasing EVs to a wider proportion of the population. Any incentives should be tapered as the prices of EVs fall and approach parity with petrol and diesel equivalents.
- **Turbo-charge the charging infrastructure rollout.** The number and range of public chargepoints must anticipate demand, giving consumers confidence in purchasing an EV, and keep pace with the number of EVs on the road. The Government must urgently review outdated and disproportionate planning regulations which are a major block to the rollout. While there has been significant private investment, a considerable number of chargepoints necessary for 2035 will not be commercially viable for industry to install by this point. The Government must tackle delays in the rollout of funding schemes for public chargepoint infrastructure and build on the support available to local authorities. The Government must also bring forward legislation to introduce new powers to direct local authorities in areas where there is insufficient infrastructure. As many local authorities face major funding challenges, central government support, such as through the Local Electric Vehicle (LEVI) fund, will be crucial in enabling local government to fulfil its role.
- **Ensure charging is reasonably priced, convenient, and reliable.** While in many cases EV charging costs less than petrol refuelling, the Government must explore options for equalising the discrepancy between the VAT rates for domestic and public charging. The current situation is unfair for drivers without access to off-street parking. Recently introduced regulations to ensure chargepoints are accessible and user-friendly are welcome—these should be reviewed by summer 2025 at the latest to explore how the Government can go further as technology and consumer behaviour evolves.
- **Accelerate grid decarbonisation.** Across the life of an EV, emissions are already considerably lower than their fossil fuel equivalents. But ensuring the EV transition eliminates greenhouse gas emissions from passenger car use requires that the electricity they use for charging is decarbonised. Ongoing work to upgrade the grid must prioritise low-carbon energy generation projects, designating them as strategically important and fast-tracking them through the process.
- **Begin an urgent review of road taxation.** The shift from petrol and diesel to EVs—currently exempt from fuel duty, congestion charging and vehicle excise duty—necessitates a radical rethink of road taxation. The

tax system should be aligned with the Government's policy objectives. Fiscal measures must incentivise low-emission choices and disincentivise polluting ones. As the UK moves away from petrol and diesel cars, people need an understanding of the total cost of motoring with EVs. We support the conclusions of the Transport Committee's 2022 report that comprehensive reform of road taxation is needed, to start an honest conversation with the public and work towards a system that is seen as fair and enjoys public acceptance.

- **Enhance UK manufacturing and battery innovation.** Recent announcements on new investments in the UK's car manufacturing industry and the publication of the Advanced Manufacturing Plan and UK Battery Strategy are welcome. The Government must monitor progress in these areas closely and provide a progress update by mid-2025.
- **Invest in UK recycling.** UK recycling facilities and regulation are not keeping pace with the uptake of EVs. The Government must urgently review and progress options to rapidly accelerate investment in UK vehicle and battery recycling facilities. Effective regulation will ensure that recycling is undertaken by responsible operators, and that the UK is able to recoup as much of the critical materials contained in EV batteries as possible for its own domestic production.

The EV transition covers a wide range of policy areas, from planning regulation to taxation, waste management to industrial strategy. The range of Government departments and non-departmental public bodies which must deliver consistent and joined-up progress across all areas is broad, including the Department for Transport, the Department for Environment, Food and Rural Affairs, the Department for Levelling Up, Housing and Communities, the Department for Business and Trade, the Environment Agency and the Office for Product Safety and Standards. Either the Office for Zero Emission Vehicles must be resourced as a delivery unit to coordinate cross-Government action, or a new body such as a Ministerial Taskforce should be set up to provide direction.

If the Government now moves forward with renewed and concerted focus, it is still possible to ensure a successful EV transition that enjoys the confidence of the public and makes the necessary contribution to the UK's net zero targets. However, if it fails to heed our recommendations the UK will not reap the significant benefits of better air quality and will lag in the slow lane for tackling climate change.





# EV strategy: rapid recharge needed

## CHAPTER 1: INTRODUCTION

1. The transition to electric vehicles (EVs) is integral to the Government's efforts to meet the legally binding target of reaching net zero emissions by 2050.<sup>2</sup> The Climate Change Committee (CCC), the independent advisory body to Government on emissions targets, referred to the full transition to electric vehicles as "one of the most important actions to achieve the UK's Net Zero target."<sup>3</sup> Surface transport (which includes cars alongside other road vehicles and rail) remains the UK's highest-emitting sector, contributing 23 per cent of total UK emissions.<sup>4</sup> In 2021, passenger cars in the UK contributed 56.9 metric tons of carbon dioxide equivalent emissions:

**Table 1: Estimated UK greenhouse gas emissions from a range of sectors in 2021**

Emissions category	Million tonnes of carbon dioxide equivalent
Passenger cars	56.9
Light duty vehicles	18.2
Buses	2.5
HGVs	21.4
Mopeds & Motorcycles	0.5
Railways	1.6
<b>All surface transport</b>	<b>101.7</b>
<b>Total emissions across all UK sectors</b>	<b>426.5</b>

Source: Department for Energy Security and Net Zero, '2021 UK greenhouse gas emissions: final figures: data tables' (June 2023) Table 1.2: <https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fassets.publishing.service.gov.uk%2Fmedia%2F642337b32fa8480013ec0de4%2Ffinal-greenhouse-gas-emissions-tables-2021.xlsx&wd> [accessed 29 January 2024]

2. We launched this inquiry in August 2023 to identify the main obstacles and barriers to a successful and equitable transition to the Government's EV target for passenger vehicles and to make clear and targeted recommendations for change to meet that target. We examined a wide range of areas: the Government's overall approach to and messaging around the transition; the electric vehicles market and process of acquiring an electric vehicle; the end-of-life disposal of electric vehicles; national and regional infrastructure and charging issues; and international perspectives and comparisons.

2 This was legislated for in June 2019. See: The Climate Change Act 2008 (2050 Target Amendment) Order 2019 ([SI 2019/1056](#)).

3 Climate Change Committee, *The UK's transition to electric vehicles* (December 2020), p 2: <https://www.theccc.org.uk/wp-content/uploads/2020/12/The-UKs-transition-to-electric-vehicles.pdf> [accessed 7 November 2023]

4 Climate Change Committee, *Progress in reducing emissions: 2023 Report to Parliament* (June 2023), p 107: <https://www.theccc.org.uk/wp-content/uploads/2023/06/Progress-in-reducing-UK-emissions-2023-Report-to-Parliament-1.pdf> [accessed 8 November 2023]

3. Our inquiry examined how the Government plans to achieve its deadlines for the ban on the sale of new petrol and diesel cars, and for all new vehicles to be fully zero-emission at the exhaust.<sup>5</sup> This will not only contribute to the UK's carbon emissions reduction targets but also towards improving air quality and the consequent health benefits. We examined the costs, alongside the benefits, associated with the phase-out date, and worked to understand Government progress towards decarbonising car usage. We noted the crucial importance of decarbonising the grid underlying the case for the EV transition—this is discussed in further detail in later chapters. We also noted the importance of modal shift: encouraging wider behaviour change in transport towards more climate-friendly solutions and investing in the UK's public transport network. Though our inquiry was targeted towards evaluating the Government's progress on its EV targets for passenger vehicles, we consider this to be just one part of a broader necessary transition.
4. We took evidence from a wide range of witnesses, ranging from individual members of the public to major car manufacturers. We heard from key stakeholders involved in charging infrastructure—including chargepoint operators, local authorities, distribution network operators and the National Grid. We also took evidence from the insurance industry and car dealerships. This inquiry was also the focus for our Youth Engagement Programme with six schools and colleges across the UK.
5. During our inquiry, the Government changed its electric vehicles targets, with the ban on the sale of new petrol and diesel cars pushed back from 2030 to 2035. We heard that this decision risked jeopardising investment and undermining public confidence.<sup>6</sup> The CCC noted that the Government's announcement was not accompanied by corresponding Government estimates of its effect on emissions, “nor with the evidence to back the Government's assurance that the UK's [net zero] targets will still be met.”<sup>7</sup>
6. However, the CCC subsequently found that due to the now-confirmed zero emission vehicle (ZEV) mandate, which will ensure that 80 per cent of new cars sold by 2030 will be zero emission at the exhaust, delaying the fossil car phase-out date to 2035 is expected to have “only a small direct impact on future emissions.”<sup>8</sup> Under the ZEV Mandate, each year vehicle manufacturers are set a target as a percentage of their total annual sales that must be zero emission at the exhaust.<sup>9</sup> Manufacturers that do not achieve the targets set

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5 Department for Transport, Office for Low Emission Vehicles, Department for Business, Energy & Industrial Strategy, The Rt Hon Sir Alok Sharma KCMG MP and The Rt Hon Grant Shapps MP, ‘Government takes historic step towards net-zero with end of sale of new petrol and diesel cars by 2030’, (18 November 2020): <https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030> [accessed 12 December 2023]

6 Q 71 (Dr Chris Pateman-Jones) and Climate Change Committee, ‘CCC assessment of recent announcements and developments on Net Zero’, (12 October 2023): <https://www.theccc.org.uk/2023/10/12/ccc-assessment-of-recent-announcements-and-developments-on-net-zero/> [accessed 1 December 2023]

7 Climate Change Committee, ‘CCC assessment of recent announcements and developments on Net Zero’ (12 October 2023): <https://www.theccc.org.uk/2023/10/12/ccc-assessment-of-recent-announcements-and-developments-on-net-zero/> [accessed 1 December 2023]

8 *Ibid.*

9 Department for Transport, ‘Zero emission vehicle (ZEV) mandate consultation: summary of responses and joint government response’, (25 October 2023): <https://www.gov.uk/government/consultations/a-zero-emission-vehicle-zev-mandate-and-co2-emissions-regulation-for-new-cars-and-vans-in-the-uk/outcome/zero-emission-vehicle-zev-mandate-consultation-summary-of-responses-and-joint-government-response> [accessed 14 December 2023]

out by the mandate must pay a fine of £15,000 per Internal Combustion Engine (ICE) passenger car that is sold outside of the target stipulated in the mandate, unless alternative mitigations are found through “a range of flexibilities including credits, banking, borrowing, trading, and conversion after which final compliance payments are a last resort”.<sup>10</sup> The mandate was approved by Parliament in December 2023 as part of the Vehicle Emissions Trading Schemes Order 2023.<sup>11</sup>

7. Green Alliance analysis suggests that the ZEV mandate alone will deliver almost 14 per cent of all the required emissions savings over the fifth carbon budget period (2028–2032), “making it the biggest single policy intervention in the net zero strategy”.<sup>12</sup> However, as set out in Chapter 2, pushing back the start date risked undermining public confidence in the transition. The key policy challenges remain, and finding solutions remains crucial. As Transport & Environment UK, a clean transport NGO and research group, told us, delaying the targets “will not resolve any of the issues that need addressing”.<sup>13</sup>
8. We are grateful to all those who participated in our inquiry. We hope our findings will support the Government, industry and local authorities to address key challenges and facilitate a smooth transition to electric vehicles over the next decade.

### Structure of this report

9. This report is structured as follows:
  - Chapter 2: The Government’s strategic approach to the transition and public messaging
  - Chapter 3: Acquiring an EV
  - Chapter 4: EV charging
  - Chapter 5: EV end-of-life management and recycling

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10 The Vehicle Emissions Trading Schemes Order 2023 ([SI 2023/1394](#)) and Department for Transport, ‘Zero emission vehicle (ZEV) mandate consultation: summary of responses and joint government response’, (25 October 2023): <https://www.gov.uk/government/consultations/a-zero-emission-vehicle-zev-mandate-and-co2-emissions-regulation-for-new-cars-and-vans-in-the-uk/outcome/zero-emission-vehicle-zev-mandate-consultation-summary-of-responses-and-joint-government-response> [accessed 23 January 2024]

11 HC Deb, 4 December 2023, [cols 174–176](#)

12 Written evidence from Green Alliance ([ELV0099](#))

13 Written evidence from Transport & Environment UK ([ELV0035](#))

## CHAPTER 2: STRATEGIC APPROACH AND PUBLIC MESSAGING

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10. Though the EV transition is achievable by the 2035 deadline, it poses major challenges to industry, the UK's infrastructure and consumer habits of a lifetime. We heard concern about the Government's leadership on this issue, both in terms of communicating a positive vision to the public and in putting in place the coordination structures that are necessary to deliver success for a project of this scale and complexity.

### Messaging and communication

11. The strongest concern about the Government's approach, which we heard repeatedly, was about mixed messaging. From the outset of our inquiry, even before the target date was changed, witnesses raised concerns about a lack of clear and consistent messaging from the Government, which "provided a vacuum for inaccurate press reporting to fill the void."<sup>14</sup> As we heard from the Lancashire Enterprise Partnership, the Government "needs to provide leadership on electric vehicle adoption, but instead there has been a lot of ambiguity. Giving a clear message with clear data helps adoption but also helps the economy by reinforcing the significant investment from UK and international companies."<sup>15</sup>
12. Dr Chris Pateman-Jones, CEO of Connected Kerb EV Charging Solutions, told us that the Government announcement pushing back the dates would have a fundamental impact on public perceptions of EVs:

"the message that [consumers] continually get is, 'It's really hard. It's going to be really hard for you, and you're going to have to sacrifice to adopt an EV'... It would be wonderful if we saw an allocation of time, effort, resource and cash in recognising that this is a big transition for people. It is actually not a hard transition... [but] it is a big mental transition for people ... I would like to see government more involved in public discourse on this".<sup>16</sup>

13. We heard particular concern about the portrayal of EVs in the media. For example, in recent months, a number of alarming headlines about the fire risks of EVs have appeared suggesting EV batteries are "unsafe", that EVs have "alarming propensity to burst into flames" and claiming that "we must put a stop to the electric vehicle revolution—before someone gets hurt."<sup>17</sup> However, as the Association of British Insurers told us, the fire risk of EVs does not exceed that of traditional ICE vehicles.<sup>18</sup> These reports differ from legitimate concerns, such as those suggesting some EV brands mislead

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14 Written evidence from Green Alliance ([ELV0099](#))

15 Written evidence from Lancashire Enterprise Partnership ([ELV0073](#))

16 [Q 71](#)

17 "A fire-breathing monster": Electric cars don't work, says Richard Madeley, *The Daily Express* (4 August 2023): <https://www.express.co.uk/comment/columnists/richard-and-judy/1798806/electric-cars-fires-dangers-environment> [accessed 11 January 2024], 'We must put a stop to the electric vehicle revolution—before someone gets hurt', *The Telegraph* (18 October 2023): <https://www.telegraph.co.uk/columnists/2023/10/18/electric-cars-ev-sleepwalking-into-disaster-battery-fires/> [accessed 11 January 2024] and 'Electric vehicle fires: The little-known but terrifying reality about EV batteries', *The Daily Mail* (17 September 2023): <https://www.dailymail.co.uk/news/article-12516565/Electric-vehicle-battery-fire.html> [accessed 11 January 2024]

18 Written evidence from the Association of British Insurers ([ELV0080](#))

customers about the range of their cars.<sup>19</sup> Ford Motor Company suggested that the apparent emergence of a “vocal anti-EV campaign” is due to the Government’s approach being insufficiently consumer-centric.<sup>20</sup> Several witnesses told us that media coverage of EVs was inaccurate and portrayed EVs in a disproportionately negative light—noting that even when corrected, fact checks often do not reach as wide an audience as the original article.<sup>21</sup> Lauren Pamma, Programme Director at the Green Finance Institute, told us:

“consumers need more information and a trusted source of information. There are so many mixed messages out there and confusion about making the right decision that consumers are worried about what they should do”.<sup>22</sup>

Mike Hawes, Chief Executive of the Society of Motor Manufacturers and Traders (SMMT), told us clear and accurate messaging from Government is crucial, because “any uncertainty leads to consumers sitting on their hands and sends the wrong message.”<sup>23</sup>

14. Richard Bruce, Director of Transport Decarbonisation at the Department for Transport, told us:

“I do think there has been an impact from a concerted campaign of misinformation over the last 14 months or so that has been pushing consistent myths about EVs that people absorb and which is reflected in their appetite [for purchasing EVs]. There is an anti-EV story in the papers almost every day. Sometimes there are many stories, almost all of which are based on misconceptions and mistruths, unfortunately.”<sup>24</sup>

15. Several submissions identified common areas of both confusion and legitimate concern amongst consumers, including:

- the misconception that ownership of petrol and diesel cars will be banned, not just the sale of new vehicles
- concerns about critical minerals and their mining
- limited understanding about recycling and end-of-life
- risks and health and safety<sup>25</sup>

16. Consumers also need clear and accurate information on the full life-cycle emissions of an EV to have confidence that they are purchasing genuinely

19 The Verge, ‘Tesla EVs are apparently overestimating range when fully charged—on purpose’ (27 July 2023): <https://www.theverge.com/2023/7/27/23809751/tesla-ev-range-estimate-anxiety-algorithm-full-charge> [accessed 11 January 2024]

20 Written evidence from Ford Motor Company (ELV0086)

21 Q 60 (Ken Byng), written evidence from Salvage Wire Limited (ELV0011), Nodum Industries Ltd. (ELV0036), the Electric Vehicle Association (EVA) Scotland (ELV0039), Greenpeace UK (ELV0040) the British Vehicle Renting Leasing Association (BVRLA) (ELV0054), Electrifying.com (ELV0075) Phill Jones, Chief Operating Office at Motors.co.uk (ELV0109) and Warwick Manufacturing Group (ELV0124)

22 Q 15

23 *Ibid.*

24 Q 82

25 Written evidence from Salvage Wire Limited (ELV0011), Anthony McClennon (ELV0012), Allen Gilbey (ELV0027), HEVRA (Hybrid and Electric Vehicle Repair Alliance Ltd) (ELV0033), Electrifying.com (ELV0075) and Warwick Manufacturing Group (ELV0124)

environmentally-friendly products, particularly following earlier policies that erroneously encouraged the uptake of diesel vehicles under the assumption that they were less damaging to the environment.<sup>26</sup> The International Council on Clean Transportation reported in 2021 that full life-cycle emissions for battery electric vehicles in Europe (including the UK) are approximately 66–69 per cent lower than their petrol equivalents and that this is likely to improve with further improvements in battery technology and manufacturing.<sup>27</sup>

17. At present, according to Government data, the CO<sub>2</sub> emissions per kilometre of EV passenger cars in each size range is considerably lower than that of diesel and petrol cars. This is despite the ongoing use of fossil fuels to generate grid electricity (which is set to reduce through plans to decarbonise the UK power system by 2035).<sup>28</sup> The table below sets out emissions per car size and fuel type, and accounts for the carbon emissions produced by the generation of electricity used to charge EVs.

**Table 2: Comparing CO<sub>2</sub> emissions of diesel, petrol and EV vehicles by car size**

Car Size	Fuel Type	kg CO <sub>2</sub> e (per km)
Small Car	Diesel	0.13931
	Petrol	0.1408
	EV	0.02981
Medium Car	Diesel	0.16716
	Petrol	0.17819
	EV	0.02168
Large Car	Diesel	0.20859
	Petrol	0.27224
	EV	0.02833
Average Car	Diesel	0.16983
	Petrol	0.16391
	EV	0.02579

Source: Department for Energy Security and Net Zero, ‘Greenhouse gas reporting: conversion factors 2023’ (June 2023): <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2023> [accessed 23 January 2024]

26 BBC News, ‘Why officials in Labour government pushed ‘dash for diesel’’ (16 November 2017) <https://www.bbc.co.uk/news/uk-politics-41985715> [accessed 11 January 2024]

27 The International Council on Clean Transportation, *A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars* (July 2021): available at: <https://theicct.org/publication/a-global-comparison-of-the-life-cycle-greenhouse-gas-emissions-of-combustion-engine-and-electric-passenger-cars/> [accessed 11 January 2024]. See also written evidence from EDF (ELV0115), SMMT (ELV0117), and the Faraday Institution (ELV0047).

28 Department for Business, Energy & Industrial Strategy, ‘Plans unveiled to decarbonise UK power system by 2035’ (7 October 2021): <https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035> [accessed 29 January 2024]

18. Aside from the drop in carbon emissions, many witnesses highlighted benefits EVs offer to public health including improved air quality and reduced noise.<sup>29</sup> The Government estimates that the annual mortality of all human-made air pollution in the UK is roughly equivalent to between 28,000 and 36,000 deaths every year<sup>30</sup>. According to the Department for Environment, Food and Rural Affairs, road transport is the main source of air pollution from nitrous oxides, polycyclic aromatic hydrocarbons, carbon monoxide and particulate matter.<sup>31</sup> A 2020 Department for Environment, Food and Rural Affairs study found that there “will be unambiguous benefits for air quality arising from the elimination of exhaust  $\text{NO}_x$ <sup>32</sup>, with significant reductions in ambient  $\text{NO}_2$ <sup>33</sup> concentrations likely to be experienced at the roadside and in enclosed stations.”<sup>34</sup> Electrifying.com and the Centre for Climate Change and Social Transformations found that the benefits to local air quality resonated strongly with consumers, suggesting that this should be better communicated.<sup>35</sup>
19. Many witnesses called for an accessible and honest source of information on the EV transition: bringing together government and industry sources, addressing consumer questions, advertising current Government incentives, tackling misinformation and raising awareness about the benefits of EVs with the public.<sup>36</sup>
20. We heard that there was previous good practice in this area to be built on: witnesses expressed disappointment that the Go Ultra Low website, part of a joint campaign between the Office for Zero Emission Vehicles, energy providers and the Society of Motor Manufacturers and Traders (SMMT), ended in 2021 (which we were therefore unable to examine).<sup>37</sup> Connected Kerb recommended that a new communications campaign should learn lessons from Go Ultra Low, by involving all stakeholders in the EV ecosystem as well as local and central government and consumer groups.<sup>38</sup> When the Go Ultra Low campaign ceased, the Government stated it had been “an excellent example of how Government and industry have collaborated to increase the uptake of electric vehicles,” but that the Government would

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29 Written evidence from Zouk Capital LLP (ELV0044), Peter Newson (ELV0008), the Centre for Climate Change and Social Transformations (ELV0045), the Urban Transport Group (ELV0063) and Warwick Manufacturing Group (ELV0124)

30 The Office for Health Improvement and Disparities, ‘Air pollution: applying All Our Health’ (28 February 2022): <https://www.gov.uk/government/publications/air-pollution-applying-all-our-health/air-pollution-applying-all-our-health> [accessed 11 January 2024]

31 Department for Environment, Food and Rural Affairs, *What are the causes of air Pollution*: [https://uk-air.defra.gov.uk/assets/documents/What are the causes of Air Pollution.pdf](https://uk-air.defra.gov.uk/assets/documents/What%20are%20the%20causes%20of%20Air%20Pollution.pdf) [accessed 19 January 2024]

32 Nitrogen oxides

33 Nitrogen dioxide

34 Air Quality Expert Group, *Impacts of Net Zero pathways on future air quality in the UK* (June 2020), p 15: [https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2006240802\\_Impacts\\_of\\_Net\\_Zero\\_pathways\\_on\\_future\\_air\\_quality\\_in\\_the\\_UK.pdf](https://uk-air.defra.gov.uk/assets/documents/reports/cat09/2006240802_Impacts_of_Net_Zero_pathways_on_future_air_quality_in_the_UK.pdf) [accessed 11 January 2024]

35 Written evidence from Electrifying.com (ELV0075) and the Centre for Climate Change and Social Transformations (ELV0045)

36 Q 15 (Lauren Pamma), Q 18 Professor Tim Schwanen; Written evidence from Carbon Copy (ELV0041) and Zouk Capital LLP (ELV0044), the Centre for Climate Change and Social Transformations (ELV0045), Connected Kerb (ELV0064), Electrifying.com (ELV0075) Warwick Manufacturing Group (ELV0124)

37 Written evidence from SMMT (ELV0117) and Connected Kerb (ELV0064)

38 Written evidence from Connected Kerb (ELV0064)

be taking a “more streamlined approach going forward” targeting “relevant audiences” with specific messages.<sup>39</sup>

21. However, SMMT noted that while the Government and industry have since published further information on EVs, “it is often presented through the lens of ... early adopters” who often have the advantage of off-street parking and are able to afford the more expensive EV models currently available.<sup>40</sup> They argued “more information and support is likely to be needed for those drivers for whom the benefit of making the transition is more marginal”.<sup>41</sup> A number of submissions recommended that Government should partner with trusted bodies and organisations such as the Energy Saving Trust, “seen as credible by the whole population”<sup>42</sup>, to present honest information about the costs and benefits of EVs in a way mainstream consumers can understand.<sup>43</sup>
22. We received some evidence concerning the types of information that would be most useful to consumers. A May 2023 Auto Trader survey of over 4,000 consumers explored what information they would need to consider buying an EV. It identified the below concerns (in order of priority):
  - (1) that the batteries will last (61 per cent)
  - (2) that charging will be convenient (52 per cent)
  - (3) that charging will be quick enough (51 per cent)
  - (4) that range would always be sufficient for any necessary journey (49 per cent)
  - (5) that EVs are as green as reported (35 per cent)
  - (6) that EVs will have decent resale value (30 per cent)
  - (7) the driving experience (26 per cent)<sup>44</sup>
23. We also heard calls for further information on the cost benefits to consumers of EVs, more accurate information about the longevity and performance of batteries, transparency of charging data and more detailed information on the vehicles themselves.<sup>45</sup> Citizens Advice Bureau noted that if the EV transition is to be successfully communicated to the whole population, messaging should be subject to extensive user testing to take into account different needs, such as low literacy, British Sign Language needs and digital exclusion.<sup>46</sup> Zapmap, an app which helps EV drivers search for available chargepoints, suggested that financial incentives and disincentives are more

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39 Fleet News, ‘Updated: Go Ultra Low campaign to close after funding cut’ (February 2021): <https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleet-news/2021/02/04/go-ultra-low-campaign-to-close-after-funding-cut> [accessed 16 November 2023]

40 Written evidence from SMMT (ELV0117)

41 *Ibid.*

42 Q 18 (Professor Tim Schwanen)

43 Q 15 (Professor Tim Schwanen), written evidence from the British Vehicle Rental and Leasing Association (BVRLA) (ELV0054), Electrifying.com (ELV0075), the Urban Transport Group (ELV0063), the Warwick Manufacturing Group (ELV0124) and Salvage Wire Limited (ELV0011)

44 Written evidence from Auto Trader (ELV0094)

45 Written evidence from HEVRA (Hybrid and Electric Vehicle Repair Alliance Ltd) (ELV0033), Greenpeace UK (ELV0040) and Zouk Capital LLP (ELV0044)

46 Written evidence from Citizens Advice Bureau (ELV0116)



effective than environmental benefits in influencing the majority, and that communication should therefore focus on these.<sup>47</sup>

24. Richard Bruce told us that the cessation of Go Ultra Low had been led by “a sense that we were moving into the mass market, and it was no longer the Government’s job to be putting out some simplistic myth-busting information.” He noted, however, that since then there had been “a very concerted campaign of mistruths and myths.”<sup>48</sup>
25. Mr Bruce told us that the Government’s Plan for Drivers, published in October 2023, includes a “commitment to look again at communications materials.”<sup>49</sup> The Plan states that the Government will “continue to champion the transition to zero emission vehicles, by addressing common misconceptions and showing how they can be a practical option for most drivers.”<sup>50</sup> However, there is no further detail on how this will be achieved.<sup>51</sup>
26. Anthony Browne MP, Parliamentary Under Secretary of State in the Department for Transport, stated that the Government has “concerns about a certain amount of misinformation that is going on.”<sup>52</sup> However, he also suggested that while that a joint campaign between industry and Government had been valuable in the past, “there is now enough information out there from other sources.”<sup>53</sup> The Department for Transport also wrote to us to confirm that 100 per cent of the central Government car fleet will be zero emission by the end of 2027. Latest available data indicates that from September 2022, 25.5 per cent of all central government cars were ultra-low emission vehicles.<sup>54</sup>
27. **The Minister told us that the Government was concerned about misinformation and the Director of Transport Decarbonisation at the Department for Transport stated that there had been a “concerted campaign of misinformation” about EVs in recent months. This echoed concerns from a broad range of witnesses, from individual members of the public to car manufacturers.**
28. **The Government’s concern at the scale of misinformation, however, has not been matched by commensurate urgency in tackling it. A joint consumer information campaign between Government and industry that was praised by several witnesses was ended in 2021. We heard the decision to end the campaign was led by a belief that EVs were moving into the mass market, and misconceptions were dissipating. This is not supported by the evidence we received.**
29. ***The Government should take a more proactive and leading role in communicating a positive vision of the EV transition to consumers, and promoting comprehensive, clear, authoritative, accurate***

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47 Written evidence from Zapmap Limited (ELV0102)

48 [Q 87](#)

49 *Ibid.*

50 Department for Transport, *The plan for drivers* (2 October 2023): <https://www.gov.uk/government/publications/plan-for-drivers/the-plan-for-drivers> [accessed 1 December 2023]

51 *Ibid.*

52 [Q 87](#)

53 *Ibid.*

54 Department for Transport, Office for Zero Emission Vehicles and the Rt Hon Jesse Norman MP, ‘Government charges ahead in car fleet transition to electric vehicles’, (19 January 2023): <https://www.gov.uk/government/news/government-charges-ahead-in-car-fleet-transition-to-electric-vehicles> [accessed 19 December 2023]

*and balanced information. The Government should develop a communication strategy in collaboration with industry partners and consumer organisations to provide clear, authoritative and trustworthy information. This could build on previous successes such as the Go Ultra Low website.*

30. **We welcome the Government’s commitment that the central Government car fleet will be zero emission by the end of 2027. To communicate this commitment more visibly, all cabinet members should be driven in EVs by the end of 2024.**

### **Political priority and Government coordination**

31. We also heard repeated concern that the scale of the challenge which the Government has set both itself and the country has not been matched with the requisite coordination between Departments and prioritisation at the highest levels of Government. Several submissions highlighted a perceived lack of an overarching, long-term approach to strategy and delivery.<sup>55</sup> We note that since the 2030 target was set in November 2020, there has been a churn in leadership, with the UK having had three Prime Ministers and three Secretaries of State for Transport. Witnesses stressed that the key policy challenges are interconnected, and the Government’s response must therefore be holistic. The Urban Transport Group, the UK’s network of city region transport authorities, told us: “The Government has made decarbonising vehicles a policy priority ... However, there is a need for greater cohesion of national policy with less fragmentation.”<sup>56</sup>
32. We heard particular concern that the rollout of EV charging infrastructure is not keeping pace with the number of EVs due to enter the market under the ZEV mandate.<sup>57</sup> These concerns are discussed in more detail in Chapter 4. The Government notably intends to set binding targets for EV production through the ZEV mandate, but there are no binding targets for chargepoint installation. The Institution of Mechanical Engineers told us that the ZEV mandate “cannot drive this transition unless coupled with a suite of other policies to make [EVs] more attractive to consumers.”<sup>58</sup>
33. Witnesses raised concerns about delays to major projects, including the rollout of major Government chargepoint funding schemes and crucial upgrades to the grid distribution network.<sup>59</sup> Mike Hawes noted “we can and have put these cars on the market ... but you cannot compel sales of them. You need to pull every single lever to make that trajectory a reality. What we see is no levers being pulled.”<sup>60</sup> Ford argued that “delayed policy delivery and inconsistencies damages industry and seeds doubt with the media and the public.”<sup>61</sup> The British Vehicle Rental and Leasing Association (BVRLA) told us that consumer anxiety stemming from negative press reports is “compounded by delays to major policy announcements including the

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55 Written evidence from Stellantis ([ELV0038](#)), the Urban Transport Group ([ELV0063](#)) and the Institution of Mechanical Engineers ([ELV0088](#))

56 Written evidence from the Urban Transport Group ([ELV0063](#))

57 Written evidence from the Institution of Mechanical Engineers ([EVL0088](#))

58 *Ibid.*

59 Written evidence from Ford Motor Company ([ELV0086](#)) and Connected Kerb ([ELV0064](#))

60 [Q 18](#)

61 Written evidence from Ford Motor Company ([ELV0086](#))

Zero Emission Vehicle (ZEV) mandate, and the perception of Government disunity on its scope and timeline.”<sup>62</sup>

34. A successful EV transition will involve sustained coordination across Government, particularly given the range of Government departments which have a role in the EV transition. Stellantis, the automotive manufacturer whose brands include Citroen, FIAT, Jeep, Peugeot and Vauxhall, called for “a joined-up, holistic cross-Government departmental plan”, noting that it had been “working with or provided inputs” to the Office for Zero Emissions Vehicles (which works across the Department for Transport and the Department for Energy Security and Net Zero), the Department for Business and Trade, the Department for Environment, Food and Rural Affairs and the Environment Agency.<sup>63</sup> Electrifying.com told us the Government “needs to take a more holistic approach ... looking across the sector instead of from within silos.”<sup>64</sup> Several submissions praised the more “integrated policy” approach of some other countries leading the transition, such as the Norwegian government.<sup>65</sup>
35. We heard calls for the Government to facilitate structures or forums for cross-industry and Government coordination, with the transition championed as a Prime Ministerial priority.<sup>66</sup> Electrifying.com, an electric car-focused research and sales platform, argued that action from Government departments “needs to be collective, with buy-in from the very top—leading by example can be very powerful.”<sup>67</sup>
36. There is some previous good practice to draw on in this area: Steve Gooding, Director of the RAC Foundation, praised the now-disbanded Electric Vehicle Energy Taskforce<sup>68</sup> for its success in bringing together “industries that had not traditionally had to work together ... I think some of us feel its loss and that maybe some version of that needs to be recreated to bring together the different parties.”<sup>69</sup>
37. The Minister, Anthony Browne MP, agreed that the nature of the challenge was cross-departmental.<sup>70</sup> He and Mr Bruce told us that all relevant departments were committed and enthusiastic in working towards the transition.<sup>71</sup> Mr Browne added that he would monitor progress closely:

“If it is not working, if things are disjointed, and if I get complaints from industry—or, indeed, from local authorities—and they do not know where to go, I am happy to look at arrangements and advise the

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62 Written evidence from the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#))

63 Written evidence from Stellantis ([ELV0038](#))

64 Written evidence from Electrifying.com ([ELV0075](#))

65 Written evidence from Stellantis ([ELV0038](#)); we note the difference in the size of the Norwegian and UK car fleets. Norway had 2.9 million passenger cars registered in 2022, while the UK had 33.58 million cars registered at the end of September 2023. See: Statistisk sentralbyrå: Statistics Norway, ‘Table 01960: Registered vehicles, by type of vehicle’, available at: <https://www.ssb.no/en/statbank/list/bilreg> [accessed 23 January 2024] and RAC Foundation, ‘Mobility’: <https://www.racfoundation.org/motoring-faqs/mobility> [accessed 23 January 2024]

66 Written evidence from Green Alliance ([ELV0099](#)) and Electrifying.com ([ELV0075](#))

67 Written evidence from Electrifying.com ([ELV0075](#))

68 From 2020 to 2022, the Electric Vehicle Energy Taskforce brought together senior stakeholders from the energy, infrastructure, automotive and transport sectors to advise industry and Government at Ministerial level. For further information, see: [evenergytaskforce.com](https://evenergytaskforce.com/), ‘EV: energy taskforce’: <https://evenergytaskforce.com/> [accessed 17 November 2023]

69 [Q 40](#)

70 [Q 83](#)

71 [Q 86](#)

Secretary of State and the Prime Minister on whether we need to do something to bring things together. At the moment, on day eight in the job, I have not seen that.”<sup>72</sup>

38. **The challenges involved in the EV transition cover a wide range of departments and policy areas, and joined-up cross-Government coordination is essential. The Government must also work closely with industry to monitor progress in the uptake of EVs and the rollout of charging infrastructure. Unfortunately, we heard persistent concerns about a lack of consistent cross-Government progress on interdependent policy areas, and delays to major projects.**
39. *The Government should focus first on*
- (a) *targeted actions that can be taken now to remove simple blocks in the system such as amending planning and waste management regulations and accelerating delays to the rollout of public chargepoint funding schemes, then*
  - (b) *setting out the actions that will be taken over the next 10 years of the transition in order to map out a long-term approach.*
- This roadmap should be published to enable scrutiny and support consumer confidence.*
40. **We welcome the Minister’s commitment to monitor cross-Government work on the EV transition closely, and advise the Secretary of State and Prime Minister if changes to coordination structures are required. However, we heard strong calls for this to happen now.**
41. *OZEV must be resourced as a delivery unit within Government to achieve this and/or a new body such as a Ministerial Taskforce should be set up to provide direction for the wide range of Government departments, sectors and stakeholders involved.*

### CHAPTER 3: ACQUIRING AN EV

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42. The Zero Emissions Vehicles (ZEV) Mandate guarantees the sale of electric vehicles (EVs) in line with the Government’s phase-out target. However, the ZEV mandate is one tool in service of a broader policy aim: as the Government stated in its delivery plan for transitioning to zero emission cars and vans by 2035, its ultimate goal is to support “mass ownership of zero emission vehicles.”<sup>73</sup> Therefore, our inquiry examined progress towards mass ownership of zero emission passenger cars, evaluated the success of Government interventions thus far in this regard, and identified barriers where further action is needed.
43. We found that the purchase of new and used EVs is increasing, as is the number of EVs being leased. However, we heard that uptake of EVs thus far has been led by corporate fleets and early adopters, and significant barriers exist for the remaining majority of drivers—particularly those on lower incomes.<sup>74</sup> We heard concerns that growth in EV adoption is fragile, and constrained by factors including the upfront cost of EVs, limitations in fiscal incentives and an immature used EV market.
44. The principle concerns highlighted throughout our evidence were
- (1) the upfront cost of an EV, and
  - (2) concerns about the charging infrastructure (which we discuss in Chapter 4).<sup>75</sup>

A 2023 Auto Trader poll of 4,000 UK drivers indicated that upfront cost was the most significant barrier to adoption, cited by 56 per cent of respondents.<sup>76</sup> This was echoed by a range of submissions we received from individual members of the public, and students in our Youth Engagement Programme.<sup>77</sup> While the young people we spoke to were enthusiastic about owning an EV in principle for its environmental benefits, many said the cost was prohibitive, particularly given cost of living challenges. Phill Jones, Chief Operating Officer at car advertising business Motors.co.uk, told us:

“When you put yourself in the shoes of the consumer, electric vehicles still appear quite expensive. We have seen a change in consumer anxiety,

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73 Department for Transport and Office for Zero Emission Vehicles, *Transitioning to zero emission cars and vans: 2035 delivery plan* (14 July 2021), p 2: <https://assets.publishing.service.gov.uk/media/60f9a3918fa8f5042aecd384/transitioning-to-zero-emission-cars-vans-2035-delivery-plan.pdf> [accessed 29 November 2023]

74 Written evidence from Auto Trader (ELV0094)

75 Q 1 (Marc Palmer) Q 3 (Phill Jones), written evidence from The Centre for Climate Change and Social Transformations (ELV0045), the British Vehicle Renting and Leasing Association (BVRLA) (ELV0054), Octopus Electric Vehicles (ELV0087), Hertfordshire County Council (ELV0090) and Phill Jones (Chief Operating Officer, Motors.co.uk) (ELV0109)

76 Respondents were asked about the most significant barrier to adopting an EV. The next most significant barrier was concern about insufficient chargepoints, cited by 47 per cent of respondents. See: Written evidence from Auto Trader (ELV0094) and Auto Trader, ‘Fewer than half of drivers willing to make electric vehicle switch’ (7 September 2023): <https://plc.autotrader.co.uk/news-views/press-releases/fewer-than-half-of-drivers-willing-to-make-electric-vehicle-switch-auto-trader/> [accessed 21 November 2023]

77 Written evidence from Augustus (ELV0001), S Patel (ELV0002), Malcolm Lisle (ELV0005), Steve Neill (ELV0010), Anthony McClennon (ELV0012), Diane Moir (ELV0029) and David Craik (ELV0066)

which is now less about infrastructure and more about pounds and pence, the cost of these cars.”<sup>78</sup>

### Purchasing new EVs

45. We heard that an increasing proportion of new car owners are choosing electric vehicles. The most recent data from the Society of Motor Manufacturers and Traders (SMMT) shows that from January to November 2023, 286,846 new EVs were registered, a market share of 16.3 per cent. This was a 27.5 per cent increase on the same period in 2022.<sup>79</sup>
46. However, the growth in EV uptake has slowed over the past two years. The Office for Budget Responsibility had previously forecast that by March 2023, EVs would account for 17.7 per cent of new car sales based on previous growth. Yet in 2022–23 the proportion was 16.5 per cent.<sup>80</sup> Some other countries are much further ahead: the table below shows new EV registrations as a proportion of new cars in the UK, France, the Netherlands and Norway:

**Table 3: New EV car registrations in January–November 2023 by country**

European Country	Proportion of new car registrations that are EVs
United Kingdom	16.3%
France	16.4%
Netherlands	29.9%
Germany	18%
Norway	83.3%

Source: ACEA, ‘New car registrations: +6.7% in November; battery electric 16.3% market share’ (20 December 2023): <https://www.acea.auto/pc-registrations/new-car-registrations-6-7-in-november-battery-electric-16-3-market-share/> [accessed 14 January 2024]

47. We also heard that UK growth has thus far been led by the corporate market more than individual consumers. Corporate car registrations make up around half of UK new car registrations.<sup>81</sup> In the first quarter of 2023, 49 per cent of new corporate cars were battery EVs.<sup>82</sup>
48. We heard that the new EVs on the market are significantly more expensive than Internal Combustion Engine (ICE) vehicles. Two issues underlie this. First, there is a smaller range of affordable EVs than ICE vehicles in the UK market. Second, even EVs at more affordable prices are typically more expensive than their ICE equivalents (primarily due to the costs of producing batteries). Change is necessary on both fronts for EVs to be an attractive and feasible option for the majority of UK consumers by 2035. The growth in EV uptake will not continue if new electric vehicles remain out of reach for the majority.

78 Q1

79 SMMT, ‘Electric Vehicle and Alternatively Fuelled Vehicle Registrations’ (September 2023): <https://www.smmt.co.uk/vehicle-data/evs-and-afvs-registrations/> [accessed 21 November 2023]

80 The Office for Budget Responsibility, ‘Updated electric vehicle assumptions and their fiscal implications’ (November 2023): <https://obr.uk/box/updated-electric-vehicle-assumptions-and-their-fiscal-implications/> [accessed 14 December 2023]

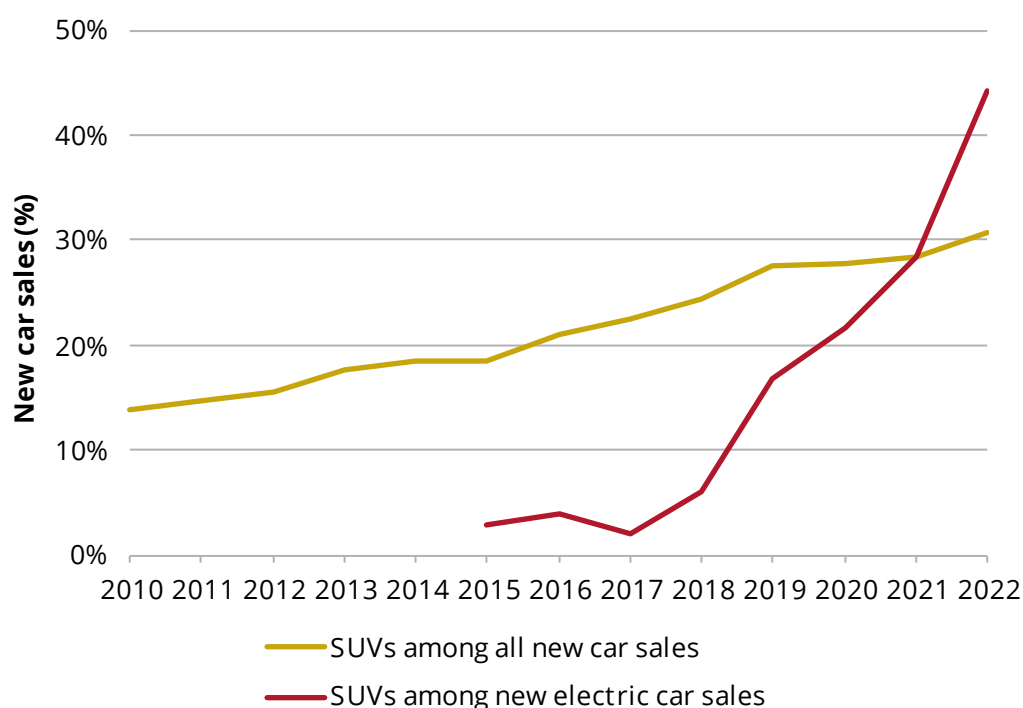
81 Written evidence from Transport & Environment UK (ELV0035) and the British Vehicle Rental and Leasing Association (BVRLA) (ELV0054)

82 Written evidence from the British Vehicle Rental and Leasing Association (BVRLA) (ELV0054)

*A lack of affordable EVs*

49. We heard significant concern that there is an inadequate range of affordable EVs.<sup>83</sup> Indeed, the number of new electric models available to buy for under £30,000 fell from 11 at the end of 2022 to 9 at the start of September 2023. In comparison, there were 87 new internal combustion engine models available for under £30,000 in the same month.<sup>84</sup>
50. In recent years, more expensive sport utility vehicle (SUV)-type vehicles have become increasingly popular, across both ICE and EV models.<sup>85</sup> The figure below shows how this trend has been particularly pronounced in the EV market:

**Figure 1: Sales of sports-utility vehicles (SUVs) as a proportion of all new car sales**



Source: Climate Change Committee, 2023 Progress Report to Parliament (June 2023) <https://www.theccc.org.uk/publication/2023-progress-report-to-parliament/> [accessed 29 January 2024]

51. We heard additional concerns that as well as being less affordable for consumers, these larger, heavier vehicles incur higher emissions in their production, are more likely to cause excessive road wear and increase demands on the grid.<sup>86</sup>

83 Written evidence from Augustus (ELV0001), Anthony McClennon (ELV0012), Transport for West Midlands (ELV0060), myenegi Ltd (ELV0095), Malcolm Lisle (ELV0005), Steve Neill (ELV0010) and the Association of British Insurers (ELV0080)

84 AutoTrader Insight, 'The Road to 2035 Report' (17 January 2024): <https://www.autotraderroadto2030.co.uk/> [accessed 25 January 2024]

85 Q 15 (Mike Hawes), written evidence from Transport & Environment UK (ELV0035) and Lancashire Enterprise Partnership (ELV0073)

86 Q 15 (Professor Tim Schwanen), written evidence from Transport for West Midlands (ELV0060) and The Climate Change Committee, *Progress in reducing emissions: 2023 Report to Parliament* (June 2023), p 112: <https://www.theccc.org.uk/wp-content/uploads/2023/06/Progress-in-reducing-UK-emissions-2023-Report-to-Parliament-1.pdf> [accessed 14 December 2023]

52. As well as there being a smaller range of affordable EVs than ICE vehicles, EVs at all price levels also currently have higher upfront costs than their ICE equivalents.<sup>87</sup> An August 2023 sample of 35 models by Auto Trader found that on average EVs were 33 per cent more expensive than petrol equivalents.<sup>88</sup> Similarly, the Advanced Propulsion Centre found that the price difference between a mid-range EV passenger and ICE passenger car is currently between £7,000 and £10,000.<sup>89</sup>
53. According to the Office for Budget Responsibility (OBR), the price gap at point of purchase between EVs and ICE vehicles has been declining in recent years, but the rate of decline has begun to slow—with a 15 percentage point fall in the two years to March 2022 but only a 6 percentage point fall since.<sup>90</sup> The OBR concluded that “In the absence of low cost EVs, the steep sales growth of the past years, boosted by (usually high-income) early adopters, is expected to slow.”<sup>91</sup>
54. We heard that the primary reason for EVs being more expensive to produce is the cost of batteries.<sup>92</sup> Mike Hawes, Chief Executive of SMMT, told us that the cost of an EV battery is a smaller proportion of the cost of production for an electric SUV than for a smaller EV, and is therefore of less significance:
- “if a small car costs £15,000 for internal combustion and you put a battery pack in there, it is more likely to cost £30,000 ... whereas on an SUV, if it is normally around, say, £45,000, it will be 25 per cent to 30 per cent more expensive than a petrol vehicle. So the market will accept it more readily because the step up is not so great.”<sup>93</sup>
55. We heard that Chinese manufacturers are currently producing a greater range of affordable EVs than manufacturers in the UK and EU. According to SMMT, Chinese-owned brands account for 10 per cent of the UK new EV market, with a further 20 per cent accounted for by non-Chinese brands manufactured in China.<sup>94</sup> According to SMMT, approximately 80 per cent of all cars produced in the UK are exported,<sup>95</sup> and in the first half of 2023, over 90 per cent of all new cars and almost 97 per cent of new EVs were imported.<sup>96</sup> Several respondents noted that the influx of a greater range of affordable Chinese-produced EVs may incentivise UK manufacturers to compete at

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87 Q 43 (Professor Benjamin Sovacool, Frank Burmeister); written evidence from Arval UK (ELV0068), the Association of British Insurers (ELV0080), Zenith (ELV0081), the Petrol Retailers Association (ELV0082), Ford Motor Company (ELV0086); the National Franchised Dealers Association (ELV0112), David Craik (ELV0066), myenegi Ltd (ELV0095) and Pod Point (ELV0101)

88 Written evidence from Auto Trader (ELV0094)

89 Written evidence from the Advanced Propulsion Centre UK (ELV0107)

90 The Office for Budget Responsibility, ‘Updated electric vehicle assumptions and their fiscal implications’ (November 2023): <https://obr.uk/box/updated-electric-vehicle-assumptions-and-their-fiscal-implications/> [accessed 14 December 2023]

91 The Office for Budget Responsibility, ‘Updated electric vehicle assumptions and their fiscal implications’ (November 2023): <https://obr.uk/box/updated-electric-vehicle-assumptions-and-their-fiscal-implications/> [accessed 14 December 2023]

92 Q 15 (James Taylor and Mike Hawes) and written evidence from the Warwick Manufacturing Group (ELV0124)

93 Q 15 (Mike Hawes)

94 Written evidence from SMMT (ELV0117)

95 SMMT, ‘UK Automotive’: <https://www.smmt.co.uk/industry-topics/uk-automotive/> [accessed 19 January 2024]

96 SMMT, *Open Roads: Driving Britain’s global automotive trade* (October 2023), p 5: <https://www.smmt.co.uk/wp-content/uploads/SMMT-Automotive-Trade-Report-2023.pdf> [accessed 19 January 2024]



the more affordable end of the market.<sup>97</sup> We also heard suggestions that the current range of new EVs for sale in the UK follows the typical market rollout of vehicles, with manufacturers prioritising premium vehicles first before rolling out a wider range of options to the rest of the market.<sup>98</sup> The Electric Vehicle Association Scotland told us that “the adherence to this model by UK and EU manufacturers creates a void for Chinese manufacturers to fill. This will result in the opportunity for a price war to reduce the cost of EVs while also increasing the range available.”<sup>99</sup>

56. Some manufacturers raised concern that they would not be able to compete with Chinese-produced EVs, which enjoy significant domestic subsidy.<sup>100</sup> Ford Motor Company told us that manufacturing in Europe is relatively more expensive “because our environmental, health and safety, and employment standards are broadly more stringent than elsewhere.”<sup>101</sup> Mike Hawes also noted that Chinese models often have higher embedded carbon costs in production.<sup>102</sup> There is therefore a risk that an overreliance on Chinese imports to provide affordable EVs may undermine the transition’s contribution to carbon emission reductions.
57. However, we note that the prospect of smaller EVs from UK and European manufacturers has recently become more promising, and heard optimism that while China invested early in battery and EV technology, there is an opportunity for UK and EU manufacturers to catch up.<sup>103</sup> Research by Transport & Environment UK suggests that under “favourable market conditions”, small EVs could be produced in Europe in 2025, priced at €25,000 (£21,321)<sup>104</sup> with a “reasonable” 4 per cent profit margin.<sup>105</sup> Other predictions for when average EV prices will meet those of petrol and diesel vehicles range from 2025–27<sup>106</sup> to the end of the 2020s.<sup>107</sup>
58. Robin Brundle, Executive Chairman at Technology Minerals Plc, told us that new battery technology innovations were already leading to the price of EVs “tumbling in their thousands periodically,” adding that he believed European car manufacturers would become “far more competitive” through 2024.<sup>108</sup> BMW’s Oxford plant was cited in our evidence as a positive recent sign of investor confidence in UK manufacturing.<sup>109</sup> Subsequently in November 2023 Nissan also announced an “up to £3 billion” investment to

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97 Written evidence from the Electric Vehicle Association (EVA) Scotland ([ELV0039](#)) and Octopus Electric Vehicles ([ELV0087](#))

98 Written evidence from Electric Vehicle Association (EVA) Scotland ([ELV0039](#))

99 *Ibid.*

100 Written evidence from Ford Motor Company ([ELV0086](#))

101 *Ibid.*

102 [Q 16](#) (Mike Hawes)

103 Written evidence from the Society of Motor Manufacturers and Traders SMMT ([ELV0117](#)) and the Warwick Manufacturing Group ([ELV0124](#))

104 Conversion correct at time of writing.

105 There is limited reliable data on car margins, but Transport & Environment UK conclude that this is a similar profit margin to what is expected on an equivalent small ICE passenger car. See: written evidence from Transport & Environment UK ([ELV0035](#)), Transport & Environment UK, *Small and Profitable: why affordable electric cars in 2025 are feasible* (September 2023) p 15: [https://www.transportenvironment.org/wp-content/uploads/2023/09/2023\\_09\\_TE\\_report\\_Why\\_affordable\\_electric\\_cars\\_in\\_2025\\_are\\_feasible.pdf](https://www.transportenvironment.org/wp-content/uploads/2023/09/2023_09_TE_report_Why_affordable_electric_cars_in_2025_are_feasible.pdf) [accessed 11 January 2024]

106 Transport & Environment UK, cited in written evidence from Green Alliance ([ELV0099](#))

107 Written evidence from Ford Motor Company ([ELV0086](#))

108 [Q 60](#) (Robin Brundle)

109 Written evidence from Octopus Electric Vehicles ([ELV0087](#))

build three electric car models at its Sunderland factory (though we note that these models will be e-SUVs, not smaller affordable vehicles).<sup>110</sup>

59. Mike Hawes told us industry was trying to drive down the cost of producing EVs, and that “we need to get Government to pull every lever to encourage that.”<sup>111</sup> On 26 November 2023 the Government launched the UK Battery Strategy and the Advanced Manufacturing Plan, with over £2 billion earmarked for the automotive industry, including battery production.<sup>112</sup> The House of Commons Business and Trade Committee, which had found that the UK’s battery manufacturing capacity was “insufficient” and “lags far behind many of its competitors”, noted that these plans should help to address an historic lack of investment.<sup>113</sup>
60. The Climate Change Committee (CCC) suggests that the trend towards heavier, more expensive SUVs needs to be slowed.<sup>114</sup> As well as through increased competition at the cheaper end of the market, we heard that this could be achieved in part through improvements in the UK’s charging infrastructure. In a recent survey of 11,500 drivers, 70 per cent said they did not currently have confidence in the UK’s charging infrastructure.<sup>115</sup> Electrifying.com noted that this undermines the potential appeal of more affordable EVs, which typically have smaller ranges.<sup>116</sup> Mike Hawes said that currently “people demand 200 or 300 miles capacity. If you had the confidence of being able to recharge anywhere—let us say allowing capacity of 100 or 150 miles—the battery put into a vehicle could be that much smaller and lighter.”<sup>117</sup> We discuss the UK’s charging infrastructure further in Chapter 4.
61. **The UK EV market remains concentrated around high value cars (costing over £40,000) and SUVs. Unless the market changes to offer more affordable options to consumers, the Government’s objective of mass ownership of EVs will not be met. This must also change to avoid issues caused by the trend towards heavier SUVs, including excessive road wear and typically higher embedded emissions in production. As set out in further detail below, this change may be enacted through investments in UK production, fiscal incentives to bring price parity at the more affordable end of the market, or taxation on heavier vehicles. The Government should keep the trend towards SUVs under review and consider what measures may be necessary to counteract it given its many negative consequences.**

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110 Nissan Motor Corporation, ‘Three is the magic number as Nissan accelerates the switch to full electric’, (24 November 2023): <https://uk.nissannews.com/en-GB/releases/three-is-the-magic-number-as-nissan-accelerates-the-switch-to-full-electric> [accessed 25 January 2024]

111 Q 15 (Mike Hawes)

112 Department for Business and Trade, The Rt Hon Kemi Badenoch MP, Nusrat Ghani MP, The Rt Hon Rishi Sunak MP, and The Rt Hon Michelle Donelan MP, ‘Business and Trade Secretary launches landmark plan for UK Advanced Manufacturing backed by £4.5bn in Autumn Statement’, (26 November 2023): <https://www.gov.uk/government/news/business-and-trade-secretary-launches-landmark-plan-for-uk-advanced-manufacturing-backed-by-45bn-in-autumn-statement> [accessed 25 January 2024]

113 Business and Trade Committee, *Batteries for electric vehicle manufacturing* (First Report, Session 2023–24, HC 196), p 3

114 The Climate Change Committee, *Progress in reducing emissions: 2023 Report to Parliament* (June 2023), p 112: <https://www.theccc.org.uk/wp-content/uploads/2023/06/Progress-in-reducing-UK-emissions-2023-Report-to-Parliament-1.pdf> [accessed 14 December 2023]

115 Written evidence from Electrifying.com (ELV0075)

116 *Ibid.*

117 Q 17 (Mike Hawes)

62. **By the end of the decade, a broader range of affordable EVs should become available to UK consumers. The growing import of cheaper Chinese EVs will help in this regard, providing more options to consumers and stimulating competition in the market. However, in the longer term the UK must avoid reliance on foreign imports, which are currently mainly Chinese, to support mass ownership of EVs. This is important for the UK's economy, strategic priorities and net zero targets.**
63. **We welcome recent announcements on new investment in the UK's car manufacturing industry. This is positive news for British jobs as well as for the environment. Strong domestic strategies on electric vehicle and battery production will be essential to support further UK EV production and the circular economy. We welcome the recent publication of the Government's Advanced Manufacturing Plan and Battery Strategy. *The Government should provide a progress update on the Advanced Manufacturing Plan and Battery Strategy by summer 2025.***
64. ***The Government must accelerate the rollout of the UK's EV charging infrastructure which is essential in giving UK consumers the confidence to choose smaller, more affordable EVs, which typically have smaller ranges. We discuss this in further detail in Chapter 4.***

#### *Incentives*

65. The Government currently offers some incentives to lower the upfront and running costs of EVs. Currently available grants for purchasing an EV are:
- Motorcycles: up to £500;
  - Mopeds: up to £150;
  - Small vans: up to £2,500;
  - Large vans: up to £5,000; and
  - Taxis: up to £7,500.<sup>118</sup>
66. However, there is currently no grant in place for passenger cars. Previously, the Government offered a Plug-in car grant, which ended in June 2022.<sup>119</sup> When it first launched in 2011, the grant was a £5,000 discount applied to new EVs and petrol hybrid EVs; at the end of its operation, the grant provided a £1,500 discount to new EVs under £32,000.<sup>120</sup> The then Transport Minister Trudy Harrison MP said “Government funding must always be invested where it has the highest impact ... Having successfully kickstarted the electric car market, we now want to use plug-in grants to match that

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118 Department for Transport and The Rt Hon Mark Harper MP, ‘Government sets out path to zero emission vehicles by 2035’, (28 September 2023): <https://www.gov.uk/government/news/government-sets-out-path-to-zero-emission-vehicles-by-2035> [accessed 15 December 2023]

119 Fleet News, ‘Plug-in car grant for electric vehicles pulled by Government’, (14 June 2022): <https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleet-news/2022/06/14/plug-in-car-grant-for-electric-vehicles-pulled-by-government> [accessed 15 December 2023]

120 Carwow, ‘Plug-in car grant (PICG) explained’, (13 July 2022): <https://www.carwow.co.uk/blog/government-plug-in-grant#gref> [accessed 15 December 2023]

success across other vehicle types”.<sup>121</sup> We heard mixed views on the success of the grant. Some told us it was helpful in catalysing early adoption,<sup>122</sup> but others suggested that it only benefitted consumers already able to afford an EV, and therefore its removal had minimal impact on demand.<sup>123</sup>

67. We did not hear any calls to reinstate the grant on its original terms. However, there was support for a new version of the grant targeted at creating price parity for cheaper models with their ICE equivalents and incentivising consumers on lower incomes to make the switch.<sup>124</sup> Transport & Environment UK told us that though “the Government was right to remove the universal plug-in car grant last year, it is clear that targeted incentives ... could be needed to support the next group of potential [EV] buyers into the vehicles.”<sup>125</sup>
68. Research from the Centre for Climate Change and Social Transformations suggests that “pull” incentives such as EV subsidies are more likely to be accepted by the public than “push” incentives such as restrictions on the range of ICE vehicles available.<sup>126</sup> Mrs Diane Moir, a respondent to the inquiry, shared her view with us that “I do not think the range of EVs at the lower end of the market is sufficient to meet the needs of the average car buyer. The current incentives are also not sufficient to encourage me to buy an EV.”<sup>127</sup> We heard concern that the Government had chosen to remove grants for the purchase of passenger EVs, particularly at a time when price parity has not been reached.<sup>128</sup> Students in our Youth Engagement Programme were enthusiastic about driving EVs, but told us that the removal of grants for purchasing EVs had underscored the perception that EVs were not an accessible mass-market option.
69. Other countries have gone further with fiscal incentives to create price parity with ICE vehicles. In Norway, 79 per cent of new car purchases in 2022 were electric, which the World Economic Forum attributes primarily to fiscal incentives.<sup>129</sup> In the Netherlands, sales of new EVs have increased significantly in recent years, from only 1 per cent of new registrations in 2016 to over 23 per cent of registrations in 2022.<sup>130</sup> The Netherlands’ grant scheme provides €2,950 for purchasing or leasing a new EV costing between €12,000 and €45,000.<sup>131</sup> France provides up to €5,000 towards the purchase of new EVs up to €47,000 (or 27 per cent of the cost of acquisition, whichever

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121 Gareth Roberts, ‘Plug-in car grant for electric vehicles pulled by Government’, (14 June 2022): <https://www.fleetnews.co.uk/news/latest-fleet-news/electric-fleet-news/2022/06/14/plug-in-car-grant-for-electric-vehicles-pulled-by-government> [accessed 15 December 2023]

122 Written evidence from Energy UK (ELV0103) and the RAC (ELV0078)

123 Written evidence from Auto Trader (ELV0094)

124 Q 15 (James Taylor); written evidence from the RAC (ELV0078), the Advanced Propulsion Centre UK (ELV0107) and Zouk Capital LLP (ELV0044)

125 Written evidence from Transport & Environment UK (ELV0035)

126 Written evidence from The Centre for Climate Change and Social Transformations (ELV0045)

127 Written evidence from Diane Moir (ELV0029)

128 Written evidence from Stellantis (ELV0038), and SMMT (ELV0117)

129 World Economic Forum, ‘This chart shows how Norway is racing ahead on EVs’ (6 January 2023): <https://www.weforum.org/agenda/2023/01/norway-electric-vehicle-energy-transport/> [accessed 25 January 2024]

130 House of Commons Library, *Electric vehicles and infrastructure*, Research Briefing, CBP 7480, 21 February 2023

131 European Alternative Fuels Observatory, ‘Netherlands: Incentives and Legislation’: <https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/netherlands/incentives-legislations> [accessed 25 January 2024]

is lower.)<sup>132</sup> Germany provides €3,000 towards the purchase of EVs under €45,000 until 31 December 2024.<sup>133</sup>

70. Octopus Electric Vehicles argued that these types of intervention, targeting upfront cost, would have the greatest impact on the EV transition:
- “countries where price parity has been created (e.g., Norway) prove that charging and range anxiety are actually a perception, not a barrier (as we have better infrastructure and the same vehicles available) ... the reality is that if customers could access an EV for the price of an equivalent ICE, the majority of drivers would make the switch.”<sup>134</sup>
71. The RAC suggested that a modified version of the grant should apply to vehicles with a list price of less than £30,000 “to stimulate the affordable market, which in turn will feed into the second-hand market where most drivers buy their cars.”<sup>135</sup> Similarly, Zouk Capital recommended a form of grant for lower income drivers to support them with the upfront cost divide which will likely remain for a few years, “but this should be more focused than the previous grants so that the money can go much further.”<sup>136</sup>
72. **There is currently an insufficient range of affordable EVs, and price parity between EVs and ICE vehicles has not yet been reached. The growth in EV uptake, originally driven by early adopters and corporate fleets, is stalling as upfront cost barriers put EVs out of reach of the majority of drivers.**
73. **The Government’s stated aim is to support “mass ownership” of EVs. Yet unlike other major European markets, the Government has removed incentives to support consumers with upfront purchase costs.**
74. *The Government should explore targeted grants to incentivise the purchase of EVs with a view to facilitating a list price under an appropriate threshold. This would stimulate the affordable market, support the move to price parity and help counteract the trend towards SUVs which have broader environmental costs. These incentives should be accompanied by an exit strategy for when and how they should be tapered; this should only be as price parity is reached.*

### Purchasing used EVs

75. The UK used car market is typically 3 to 4 times larger than the new car market,<sup>137</sup> but EVs still only represent a very small proportion of used car sales. EVs grew from 0.7 to 1 per cent of used car sales in 2022.<sup>138</sup> Motors.co.uk told us that used EVs currently make up 3 per cent of their listings

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132 Service-Public.fr, ‘Green bonus, aid for the acquisition of low-emission vehicles: what changes in 2023?’: <https://www.service-public.fr/particuliers/actualites/A14391?lang=en> [accessed 25 January 2024]

133 Autovista24, ‘Will phase-out of incentives threaten EV uptake in Germany?’ (25 January 2023) <https://autovista24.autovistagroup.com/news/will-phase-out-ev-incentives-germany-threaten-uptake/> [accessed 25 January 2024]

134 Written evidence from Octopus Electric Vehicles (ELV0087)

135 Written evidence from the RAC (ELV0078)

136 Written evidence from Zouk Capital LLP (ELV0044)

137 Written evidence from SMMT (ELV0117)

138 Written evidence from the Society of Motor Manufacturers and Traders (SMMT) (ELV0134)

and “it will take seismic movements in new car registrations over time to significantly alter the proportions away from internal combustion engine (ICE) vehicles.”<sup>139</sup> There are some signs of continued growth: SMMT told us their latest figures show the used EV market rose by 4.1 per cent during the second quarter of 2023, representing 1.7 per cent of used sales overall.<sup>140</sup>

**Table 4: Used car transactions: market share by fuel type**

Year	Battery EV	Hybrid	Petrol	Diesel
2018	0.1%	1.2%	56.7%	41.8%
2019	0.2%	1.5%	56.6%	41.6%
2020	0.3 %	1.8%	56.6%	41.1%
2021	0.7%	2.6%	56.1%	40.5%
2022	1.0%	3.0%	56.6%	39.1%

Source: Written evidence from SMMT ([ELV0134](#))

76. Though increases in new EV sales will lead to increased supply to the used EV market, we heard concerns that demand may not keep pace. We were told that the most significant factor holding back used EVs sales was concerns about battery health. 62 per cent of consumers surveyed by the Green Finance Institute who said they would not buy a used EV cited concerns about battery lifespan as a reason.<sup>141</sup> Similarly 64 per cent of drivers surveyed by Electrifying.com said they did not believe the battery would last as long as the engine on a petrol or diesel car, despite the fact that in many cases, EV batteries are guaranteed by the manufacturer for longer than the car itself.<sup>142</sup>
77. Witnesses suggested that these concerns were persistent misconceptions perpetuated by inaccurate media reporting.<sup>143</sup> Toby Poston, Director of Corporate Affairs at the British Vehicle Rental and Leasing Association, told us that there are “myths about batteries that will not work and will rapidly lose their efficiency over a short space of time. The facts just do not bear that out.”<sup>144</sup> Ken Byng, Senior Manager at CarTakeBack.com, noted that when EVs first entered the European market, “the general thinking was that the batteries would be good for about eight years. They have far outlasted that and have proven to be very resilient and to last a lot longer.”<sup>145</sup> This was supported by the RAC.<sup>146</sup> Professor Benjamin Sovacool, Professor of Energy Policy at Sussex Business School, told us that EV batteries can last for up to 20 years.<sup>147</sup>
78. Some witnesses suggested existing evidence about battery longevity and manufacturers’ guarantees needed to be better communicated to consumers as part of a broader information and communication campaign.<sup>148</sup> Many

139 Written evidence from Phill Jones (Chief Operating Officer at Motors.co.uk) ([ELV0109](#))

140 Written evidence from SMMT ([ELV0117](#))

141 Green Finance Institute, *Used EV Market: The Key to Unlocking Net Zero* (June 2023), p 3: <https://www.greenfinanceinstitute.co.uk/wp-content/uploads/2023/06/The-Key-To-Unlocking-Net-Zero.pdf> [accessed 4 January 2024]

142 Written evidence from Electrifying.com ([ELV0075](#))

143 [Q 60](#) (Ken Byng)

144 [Q 9](#)

145 [Q 60](#)

146 Written evidence from the RAC ([ELV0078](#))

147 [Q 53](#)

148 Written evidence from Electrifying.com ([ELV0075](#))

also called for a cross-industry battery health testing standard to provide clear information and reassurance to consumers.<sup>149</sup> This would also help facilitate the reuse of EV batteries at the end of a vehicle's life, as discussed in Chapter 5. Zouk Capital suggested this could be administered by trusted organisations such as the RAC and the AA.<sup>150</sup> We heard that industry is developing tools to increase the speed of battery condition tests, which are currently possible but take a number of hours.<sup>151</sup> The Government told us it was working with industry “to explore options for improving the availability and standardisation of information for consumers on used EVs at the point of sale” and that this may include data on the remaining battery health or range of an EV.<sup>152</sup>

79. Another barrier that risks demand not keeping up with supply is the upfront cost of used EVs. We heard that the majority of EVs entering the second-hand market now are generally the higher value vehicles and SUVs favoured by early adopters and the leasing market.<sup>153</sup> Jonathan Marshall, Senior Economist at the Resolution Foundation, noted that given current EVs are “predominantly premium, there are risks that structurally there may not be enough demand for the product from the usual used buyers.”<sup>154</sup> Even at second-hand prices these higher value vehicles may still be unaffordable for the large majority. A June 2023 study found that only 29 per cent of the used electric vehicle stock was priced under £20,000. Marc Palmer, Brand Director at Auto Trader, told us this meant “the majority of electric cars available” were “well out of the reach of most buyers”.<sup>155</sup> 27 per cent of those surveyed by the Green Finance Institute who said they would not buy a used EV cited cost as a major factor.<sup>156</sup>
80. If supply to the second-hand market continues to increase without a corresponding rise in demand, this may lead to a sudden sharp loss in value, and a corresponding rise in prices charged to new leasing customers.<sup>157</sup> We discuss this in further detail in the section on leasing below.
81. Since 2020, the Scottish Government has offered support for the purchase of second-hand EVs in the form of an interest-free loan for individuals, repayable over five years. The scheme is funded by Transport Scotland and individuals purchasing electric cars costing £30,000 or less are eligible to apply for a maximum £30,000 loan.<sup>158</sup> We heard that the uptake of the loan has increased year on year, with 96 loans paid in 2020/2021 at a value of £1,214,738 up to 1,148 loans in 2023/2024 at a value of £26,384,256.<sup>159</sup> At the time of writing the scheme has been closed to new applicants due to high

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149 Written evidence from Arval UK ([ELV0068](#)), the Association of British Insurers ([ELV0080](#)), Zenith ([ELV0081](#)), ([ELV0105](#)), Zouk Capital LLP ([ELV0044](#)), Transport for West Midlands ([ELV0060](#)), Auto Trader ([ELV0094](#)), the RAC ([ELV0078](#)) and WSP ([ELV0096](#))

150 Written evidence from Zouk Capital LLP ([ELV0044](#))

151 Written evidence from the Warwick Manufacturing Group ([ELV0124](#))

152 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

153 [Q 23](#) (Jonathan Marshall) and written evidence from Professor Tim Schwanen ([ELV0133](#))

154 [Q 23](#)

155 Written evidence from Marc Palmer (Brand Director at AutoTrader) ([ELV0127](#))

156 Green Finance Institute, *Used EV Market: The Key to Unlocking Net Zero* (June 2023), p 4: <https://www.greenfinanceinstitute.co.uk/wp-content/uploads/2023/06/The-Key-To-Unlocking-Net-Zero.pdf> [accessed 4 January 2024]

157 Written evidence from SMMT ([ELV0134](#))

158 Energy Saving Trust, ‘Used Electric Vehicle Loan’: <https://energysavingtrust.org.uk/grants-and-loans/used-electric-vehicle-loan/> [accessed 25 January 2024]

159 Written evidence from Transport Scotland and the Energy Saving Trust ([ELV0149](#))

demand.<sup>160</sup> The Scottish Government is currently evaluating the future of the scheme.<sup>161</sup>

82. There are international examples of incentives for purchasing used vehicles. Ford told us that the UK was unique amongst its major European neighbours in only incentivising new purchases.<sup>162</sup> In the Netherlands, grants of €2,000 are also available for purchasing or leasing a used EV. The grant is only available for cars that originally cost between €12,000 and €45,000 and that have a range of at least 120 km.<sup>163</sup> Other submissions praised Scotland's scheme of interest-free loans for used EVs,<sup>164</sup> and welcomed France's forthcoming social leasing scheme as a positive innovation.<sup>165</sup>
83. **The majority of EVs entering the second-hand market will be the higher value cars and SUVs favoured by corporate fleets and early adopters. As such, even at second-hand prices they are out of reach of most consumers. *The Government should review the schemes that other countries, including Scotland and the Netherlands have implemented to incentivise the purchase of second-hand EVs, evaluate their outcomes and explore whether similar schemes could be offered in England and Wales.***
84. **Consumer confidence in the second-hand market is also currently being undermined by uncertainty and concerns about EV battery health. We welcome industry's work to develop a 'battery health standard' that would give confidence to consumers. *The Government should accelerate its collaboration with industry to develop a 'battery health standard' that is objective and reliable.***

### Leasing

85. Electric car leasing is a type of car finance that serves as long term rental of an EV. Consumers sign a contract to pay a monthly fee in return for access to an EV for a fixed timeframe—normally between two and four years.<sup>166</sup> At the end of the contract the EV is returned to the car leasing company. Leasing requires the payment of an upfront non-refundable fee, in addition to the monthly rental charge, typically equivalent to the first month's rental.<sup>167</sup> Leasing is available to both private and business customers. We heard that leasing can be helpful for consumers in managing the upfront cost of a vehicle.<sup>168</sup>
86. Leasing is structured around funding the car's depreciation in value, and monthly leasing repayments are calculated around the expected used price of a vehicle—the greater the depreciation, the higher the amount to fund and therefore the higher the monthly leasing payment for consumers. If used

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160 Written evidence from Transport Scotland and the Energy Saving Trust (ELV0149)

161 *Ibid.*

162 Written evidence from Ford Motor Company (ELV0086)

163 Climate Change Committee, *Progress in reducing emissions: 2023 Report to Parliament* (June 2023), p 131: <https://www.theccc.org.uk/wp-content/uploads/2023/06/Progress-in-reducing-UK-emissions-2023-Report-to-Parliament-1.pdf> [accessed 8 November 2023]

164 Written evidence from Electrifying.com (ELV0075)

165 Written evidence from Green Alliance (ELV0099)

166 Carwow, 'What is car leasing?', (21 September 2022): <https://www.carwow.co.uk/guides/financing/car-leasing-explained> [accessed 25 January 2024]

167 MoneySuperMarket, 'Electric car leasing': <https://www.moneysupermarket.com/car-leasing/electric-car-lease/> [accessed 25 January 2024]

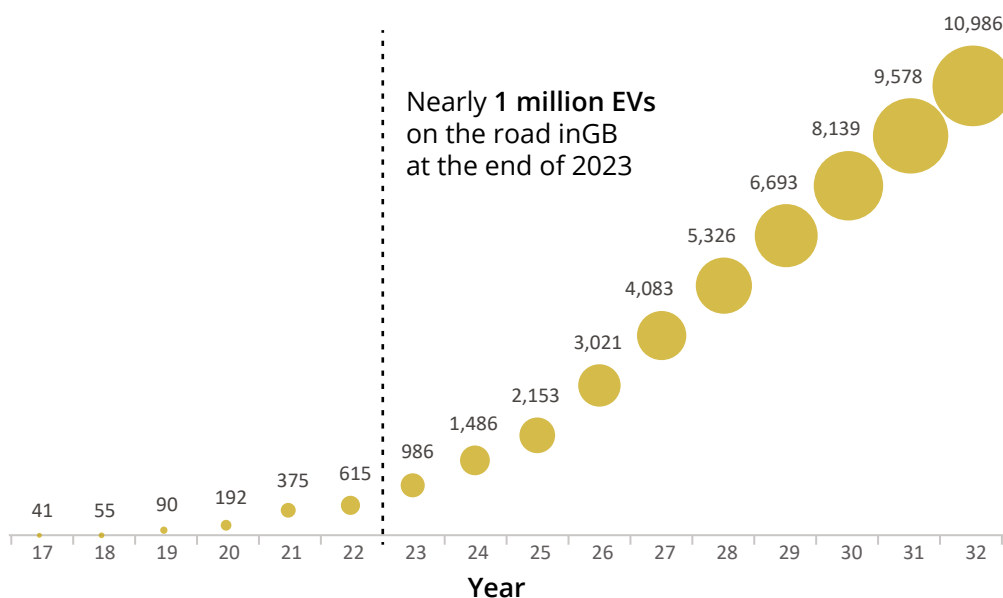
168 Q 10 (Toby Poston)



car prices fall, monthly leasing payments will increase.<sup>169</sup> Toby Poston noted that the low level of used EV sales is a source of concern for fleets,<sup>170</sup> adding that there had been a fall in the value of used EVs of between 20 to 25 per cent on average.<sup>171</sup> Data from the BVRLA shows a reduction in price of 35 per cent for used EVs between November 2022 and June 2023.<sup>172</sup>

87. Falling used car prices may in principle be welcome for consumers. However, as noted in the section on used vehicles above, EVs currently entering the used car market may still not appear attractive if consumers do not have confidence in the car's battery health and the charging infrastructure, or if the used models available are limited to those that do not match their lifestyles. The BVRLA state that “as used [EVs] shift into the hundreds of thousands it will be far harder for supply to be slowed down if demand does not keep pace.”<sup>173</sup> Figure 2 indicates Auto Trader's projections of the number of EVs in thousands that may be registered in Great Britain through 2032:

**Figure 2: Auto Trader projections of cars registered through 2032**



Source: Written evidence from AutoTrader ([ELV0094](#))

88. Auto Trader told us the used EV market is still maturing, and there are signs that the volatility seen in the first half of 2023 has since begun to stabilise and stimulate an increase in consumer demand. However, they also noted that most EVs are “still out of reach for the average used car buyer,” adding that it is “very likely” that there will be further periods of oversupply to the used market, with a possibility of “falling future values and structural weakness which will impact new EV affordability.”<sup>174</sup>
89. Incentives for purchasing used cars may also support the leasing market indirectly. Marc Palmer told us that incentivising used EV purchases “will

169 Written evidence from Auto Trader ([ELV0094](#)) and Marc Palmer (Brand Director at Autotrader) ([ELV0127](#))

170 [Q 1](#)

171 [Q 4](#)

172 BVRLA, *BVRLA Leasing Outlook Report (August 2023)* (22 August 2023): available at: <https://www.bvrla.co.uk/resource/bvrla-leasing-outlook-report-aug-2023.html> [accessed 25 January 2024]

173 Written evidence from the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#))

174 Written evidence from Auto Trader ([ELV0094](#))

bolster new [EV purchases]. It will give the manufacturers confidence and mean that monthly finance payments are within more people's budgets."<sup>175</sup> Lauren Pamma, Programme Director at the Green Finance Institute, told us that incentivising the purchase of used EVs was equally as important as driving down the cost of new cars in supporting the EV transition.<sup>176</sup>

### *Salary sacrifice and benefit in kind schemes*

#### **Box 1: Salary sacrifice and benefit in kind**

**Salary sacrifice** is one method of leasing an EV. Electric car salary sacrifice schemes are offered by employers. Under the scheme, a portion of an employee's earnings before tax is automatically deducted and used to fund leasing repayments on an EV. This reduces the tax paid. The EV is leased from a third-party firm by the employer, who in turn leases it to the employee under the scheme. Servicing and insurance are typically included as part of the scheme.

**Benefit in kind tax**, also known as company car tax, is paid by a consumer who takes a car under a salary sacrifice scheme (whilst making other savings on Income Tax and National Insurance). Drivers of battery EVs pay significantly lower benefit in kind rates at 2 per cent, compared to up to 37 per cent for the most polluting cars.

Source: Carwow, 'Electric car salary sacrifice scheme explained' (26 January 2023): <https://www.carwow.co.uk/guides/buying/electric-car-salary-sacrifice#ref> [accessed 29 January 2024] and Octopus Electric Vehicles, 'How does Benefit in Kind affect electric cars?' (12 December 2023): <https://octopusev.com/ev-hub/how-is-benefit-in-kind-tax-changing-for-electric-cars> [accessed 29 January 2024]

90. We heard the lower benefit in kind rate has been “the single most effective intervention to date” in incentivising the uptake of EVs.<sup>177</sup> The BVRLA state that 91 per cent of new salary sacrifice cars in the first quarter of 2023 were battery EVs, while 43 per cent of all new leased cars in the same period were battery EVs.<sup>178</sup> The Electric Vehicle Association England told us salary sacrifice “remains the one existing government policy that is having a positive impact on the uptake of EVs, and we have seen the increase in popularity of this option.”<sup>179</sup> We heard calls to extend this,<sup>180</sup> for example by mandating companies with over 50 employees to offer the scheme.<sup>181</sup>
91. It must be noted that salary sacrifice schemes are not a panacea to enable affordable EVs for those on lower salaries. Though BVRLA data suggests that over 60 per cent of salary sacrifice users are basic rate taxpayers,<sup>182</sup> we heard that some finance providers recommend that no one with an annual income below £27,000 consider this route.<sup>183</sup>

175 [Q 8](#)

176 [Q 17](#)

177 Written evidence from the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0125](#)), the UK Electric Fleet Coalition (UKEFC) ([ELV0089](#)), Mark Tisshaw (Editor at Autocar Business) ([ELV0091](#)), Electrifying.com ([ELV0075](#)), the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#)), Zouk Capital LLP ([ELV0044](#)), Association for Renewable Energy and Clean Technology (REA) ([ELV0093](#)), Energy UK ([ELV0103](#)), Auto Trader ([ELV0094](#)) and Stellantis ([ELV0038](#)),

178 Written evidence from Transport & Environment UK ([ELV0035](#))

179 Written evidence from the Electric Vehicle Association (EVA) England ([ELV0062](#))

180 Written evidence from Greenpeace UK ([ELV0040](#))

181 Written evidence from the Electric Vehicle Association (EVA) England ([ELV0062](#))

182 Written evidence from Greenpeace UK ([ELV0040](#))

183 Written evidence from the Warwick Manufacturing Group ([ELV0124](#))

92. **The EV leasing market has performed well, and salary sacrifice and benefit in kind incentives have been successful. *Low benefit in kind rates should be retained, though as with all other financial incentives, the Government must plan for how they will be tapered and exited.***
93. **We heard some concerns about price volatility in the second-hand market and particularly the impact this may have on the leasing market. If used electric vehicle prices continue to drop, leasing companies will raise leasing charges for consumers—potentially making them less attractive than leasing ICEs despite the big fiscal incentives for electric vehicle leasing. The second-hand market remains immature and we would not recommend that the Government make any intervention now to prevent used prices dropping further. *However, Government should monitor prices, and assess whether the leasing market continues to work well for consumers.***

### Taxation

94. Fiscal incentives will be crucial drivers of EV uptake until prices of EVs approach parity with ICEs. These must be part of a consistent and holistic approach to taxation, including road taxation. Besides the importance of a responsible approach to public finances, this is also crucial to send a consistent message to consumers. As Mr Kieran Smith, a respondent to the inquiry, told us, “consumers must be incentivised to swap over to [EVs] as they present a clear benefit to them and not because their current method has been made artificially unviable.”<sup>184</sup> The tax system should be aligned with the Government’s overall policy objectives. Yet we heard concern that the current proposals to increase vehicle and road taxation while removing other upfront purchase incentives for EVs is “off-putting and not balanced with the broader policy aims.”<sup>185</sup> Melanie Shufflebotham, co-founder and COO of Zapmap argued that “in the short term we need to use tax to incentivise people to make the shift.”<sup>186</sup>
95. An October 2022 report by Transport & Environment UK examined the extent to which countries across Europe used the tax system to incentivise private and corporate zero emissions vehicles. The figures below show the tax differentials between EV and petrol cars, which Transport & Environment UK found “broadly correlated” with EV uptake.<sup>187</sup> Figure 3 shows that in the UK private owners of small EVs pay approximately €5,000 (approximately £4,300) less tax than small petrol vehicle owners over a ten-year period. Figure 4 shows that in the UK corporate owners of small EVs pay approximately €10,000 (approximately £8,600) less tax than small petrol vehicle owners over just four years:

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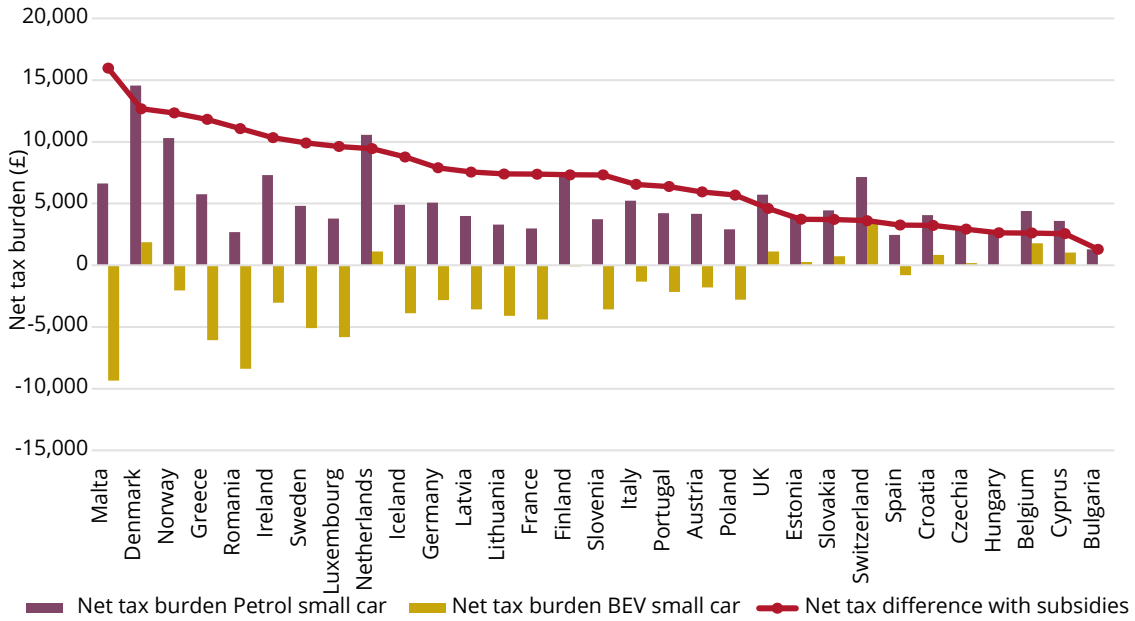
184 Written evidence from Kieran Smith (Rental Manager at Practical Car & Van Hire) ([ELV0032](#))

185 Written evidence from the Electric Vehicle Association (EVA) Scotland ([ELV0039](#))

186 [Q 41](#)

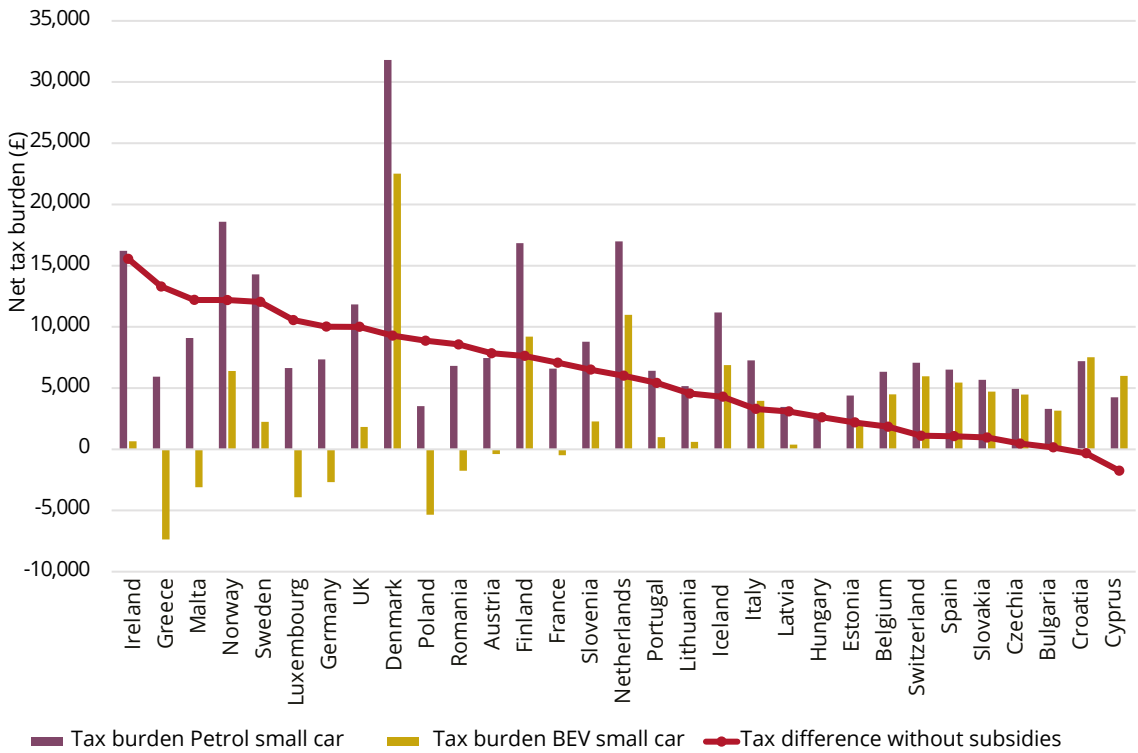
187 Transport & Environment UK, *The good tax guide: A comparison of car taxation in Europe* (October 2022), p 4: [https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide\\_updated\\_07.11.22.pdf](https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide_updated_07.11.22.pdf) [accessed 25 January 2024]

**Figure 3: Comparison of the tax incentivisation of petrol and electric vehicles across Europe (private ownership)**



Source: Transport and Environment UK, *The good tax guide: A comparison of car taxation in Europe (2022)*: [https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide\\_updated\\_07.11.22.pdf](https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide_updated_07.11.22.pdf) [accessed 29 January 2024]

**Figure 4: Comparison of the tax incentivisation of petrol and electric vehicles across Europe (corporate ownership)**



Source: Transport and Environment UK, *The good tax guide: A comparison of car taxation in Europe (2022)*: [https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide\\_updated\\_07.11.22.pdf](https://www.transportenvironment.org/wp-content/uploads/2022/10/The-good-tax-guide_updated_07.11.22.pdf) [accessed 29 January 2024]

96. At present, EVs in the UK are exempt from Vehicle Excise Duty (VED).<sup>188</sup> However, this is set to change with the Government planning to introduce VED for zero emission cars, vans and motorcycles from April 2025 (though zero emission vehicles will still have preferential first year rates of VED in comparison to the most polluting vehicles).<sup>189</sup> SMMT suggest that the exemption should be extended.<sup>190</sup> The Government told us that the existing approach had been successful in encouraging early adoption, but that “given the increase in the number of zero emission vehicles on the roads, it is right to begin to bring EVs into the motoring tax system. This will ensure that all motorists start to pay a fairer tax contribution.”<sup>191</sup> Toby Poston told us that “You will have a situation where literally overnight, or very quickly, someone goes from paying zero annual road tax on an electric vehicle to paying nearly £600. Again, that sends the wrong message or a very scary message to some people who are dipping their toe with a new or used electric vehicle.”<sup>192</sup>
97. The Government noted that favourable benefit in kind rates will continue to drive the uptake of new zero emission vehicles.<sup>193</sup> However, we heard concerns that this is not enough. One former battery EV driver told us:
- “Road tax is being introduced, reduced cost parking has been withdrawn, charging costs have increased, grants have been withdrawn, depreciation is very high, insurance costs more, tyres are more expensive, range is limited, charging away from home is a nightmare—I don’t see much benefit these days, hence my return to a hybrid ICE after 5 years.”<sup>194</sup>
98. New zero emission vehicles are also exempt from the Expensive Car Supplement, but this is likewise set to end in 2025. Cars with a list price above £40,000 pay a surcharge, currently set at £355, for the first five years following the first year of registration. The VED Expensive Car Supplement will only be applied to zero emission vehicles registered on or after 1 April 2025.
99. Overall, road and fuel taxation must be considered holistically, and clarity set out for consumers. We heard that current uncertainty is causing nervousness. Lauren Pamma told us “There has always been a big debate about what will happen if fuel duty disappears and how we will be charged instead. Consumers are thinking, ‘Okay, if I take this now, I understand the costs for the next year, but what if in 12 months something else comes in?’”<sup>195</sup>

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188 Gov.uk, ‘Vehicles exempt from vehicle tax’: <https://www.gov.uk/vehicle-exempt-from-vehicle-tax> [accessed 29 January 2024]

189 HM Revenue & Customs, ‘Introduction of Vehicle Excise Duty for zero emission cars, vans and motorcycles from 2025’ (21 November 2022): <https://www.gov.uk/government/publications/introduction-of-vehicle-excise-duty-for-zero-emission-cars-vans-and-motorcycles-from-2025/introduction-of-vehicle-excise-duty-for-zero-emission-cars-vans-and-motorcycles-from-2025> [accessed 25 January 2024]

190 Written evidence from SMMT (ELV0117)

191 Written evidence from the Office for Zero Emission Vehicles (ELV0110)

192 Q 8

193 Written evidence from the Office for Zero Emission Vehicles (ELV0110)

194 Written evidence from David Willis (ELV0025)

195 Q 22

100. We heard suggestions for a “*bonus-malus*”<sup>196</sup> approach to taxation, whereby grants to incentivise the uptake of EVs are balanced out by a tax applied to the purchase of a petrol or diesel vehicle.<sup>197</sup> In the Netherlands, for example, a purchase tax is applied to new ICE vehicles.<sup>198</sup> We also heard suggestions that the Government unfreeze fuel duty to disincentivise polluting behaviour and raise revenue for EV subsidies.<sup>199</sup>
101. Stellantis also told us there should be “a review of motoring taxes to ensure the transition to EVs is not undermined.”<sup>200</sup> This was highlighted in January 2022 by the Commons Transport Committee, whose report on road pricing found that urgent action was required to reform motoring taxation.<sup>201</sup> However, we recognise that any plan to replace fuel tax by road pricing will diminish the relative attraction of EVs and ICEs. The OBR said that “in 2023–24, we expect fuel duties to raise £24.3 billion” and that this is equivalent to £867 per household.<sup>202</sup> The report concluded that the Government “must ensure that any alternative road charging mechanism incentivises motorists to purchase vehicles with cleaner emissions while contributing tax revenues to support the maintenance of the road network.”<sup>203</sup> The Urban Transport Group told us that Norway, which leads the world in EV adoption, began redesigning its tax structure with the automotive industry over 30 years ago to prepare for the transition, and that “The accumulation of these EV tax breaks, plus the considerable 25 per cent tax on fossil-fuel cars, makes EV models in Norway often more affordable than ICEs.”<sup>204</sup>
102. It is important that the Government plans carefully for the tapering and exiting of any fiscal incentives to promote EV uptake. Andreas Hedum, Senior Advisor in the Environmental Affairs Section in the Ministry of Transport in Norway told us this was “a very relevant question for Norway”, noting that “it is not easy to remove incentives when they are first introduced into politics, so it gets a lot of attention”.<sup>205</sup> Frank Burmeister, Program Manager of Electric Transport, Ministry of Infrastructure and Water Management in the Government of the Netherlands noted that if a *bonus-malus* approach to taxation is successful, the revenue from excess duties on petrol will eventually decline, removing funds available to be targeted at incentivising EVs.<sup>206</sup>
103. The Government must also consider the overall equity impact of fiscal incentives. We heard in Norway that the single tax rebate for a current battery electric vehicle, such as a Tesla Model S, amounted to the equivalent of subsidising 20,000 bus tickets<sup>207</sup>. Professor Benjamin Sovacool noted that

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196 The term *bonus-malus* (Latin for ‘good-bad’) refers to arrangements which alternately reward (bonus) or penalise (malus). France for example applies a *bonus-malus* approach to vehicle taxation, See: ACEA, *CO2 based motor vehicle taxes in the EU* (2018): [https://www.acea.auto/uploads/publications/CO2\\_tax\\_overview\\_2018.pdf](https://www.acea.auto/uploads/publications/CO2_tax_overview_2018.pdf) [accessed 29 January 2024]

197 Written evidence from EDF ([ELV0115](#)) and Pod Point ([ELV0101](#))

198 [Q 44](#) (Frank Burmeister)

199 Written evidence from Pod Point ([ELV0101](#))

200 Written evidence from Stellantis ([ELV0038](#))

201 Transport Committee, *Road pricing* (Fourth Report, Session 2021–22, HC 789), p 3

202 Office for Budget Responsibility, ‘Fuel Duties’ (March 2023): <https://obr.uk/forecasts-in-depth/tax-by-tax-spend-by-spend/fuel-duties/> [accessed 11 January 2024]

203 Transport Committee, *Road pricing* (Fourth Report, Session 2021–22, HC 789), para 15

204 Written evidence from the Urban Transport Group ([ELV0063](#))

205 [Q 50](#) (Andreas Hedum)

206 [Q 50](#)

207 [Q 49](#) (Professor Benjamin Sovacool)

this shows “how certain incentives could benefit private automobile owners rather than others.”<sup>208</sup>

104. **It is crucial that the Government considers road taxation alongside other fiscal measures taken to drive EV uptake, giving consumers a clear and consistent steer on future total motoring costs. As the UK transitions away from petrol and diesel vehicles, road taxation will need to be fundamentally redesigned, including issues like road pricing. We support the conclusions of the House of Commons Transport Committee’s January 2022 report that comprehensive reform of road taxation is needed, to start an honest conversation with the public and work towards a system that is seen as fair and enjoys public acceptance. We note the urgency of this has only increased in the intervening two years. In response to this report, the Government should urgently provide a progress update on work in this area.**

### **Micromobility and L-category vehicles**

105. We heard that private car ownership will likely remain the dominant car use model into the future. However, micromobility and L-category vehicles are likely to play a small but important role and make significant contributions to electrifying the transport network and lowering emissions, particularly in urban areas.<sup>209</sup> In order to realise this potential, we heard that legislative and regulatory changes will be needed.

### **Box 2: Micromobility and L-category vehicles**

Micromobility vehicles are small, lightweight vehicles intended to operate only at low speeds, below 15 miles per hour, including e-bikes, e-scooters and cargo bikes. Shared micromobility refers to services whereby these vehicles can be accessed without the need to own one, enabling flexible, affordable and environmentally friendly transportation.

According to the UK Government website, L-category vehicles include light 2-wheel powered vehicles, 3-wheel mopeds, 2–3 wheel motorcycles, and a range of tricycles. Vehicles are classified into different letter categories based on power and size for regulatory and trade purposes. Motorbikes and scooters currently account for the largest part of the UK market for L-category vehicles. These vehicles, unlike micromobility vehicles, require a driving licence.

Source: Department for Transport, ‘L-category vehicles: ending sales of new non-zero emission models’, (14 July 2022): <https://www.gov.uk/government/consultations/l-category-vehicles-ending-sales-of-new-non-zero-emission-models> [accessed 25 January 2024]

106. These vehicles may have particular use in filling gaps in public transport provision as a “first/last mile” mode to connect to public transport options.<sup>210</sup> We heard that L-category vehicles make more efficient use of resources than passenger cars, produce less greenhouse gas emissions, and could replace a significant proportion of EV passenger trips.<sup>211</sup> According to research cited by the Urban Transport Group an evaluation of e-bike schemes across continental Europe found that typically around half of e-bike trips replaced

208 Q 49

209 Written evidence from Mark Tisshaw (Editor at Autocar Business) (ELV0091), the Electric Vehicle Association (EVA) Scotland (ELV0039), the Urban Transport Group (ELV0063) and WSP (ELV0096)

210 Written evidence from WSP (ELV0096)

211 Written evidence from Mykos Technologies Ltd (ELV0034)

those previously made by car.<sup>212</sup> According to WMG, the energy required to move an e-scooter emits approximately 5 per cent of the carbon that even an electric car does for the same trip, and it produces a “tiny fraction” of the carbon in manufacturing.<sup>213</sup> WSP praised shared micromobility schemes such as that in Bristol, stating that e-scooters and e-bikes have been able to satisfy a latent demand previously constrained by a lack of mass transit or urban rail provision.<sup>214</sup>

107. The EV transition must be considered as part of a broader strategy around modal shift. Marc Palmer told us:

“over time, we would like to see more of a change in the way people move around, rather than just a reliance on the car. They will still have a car, but there are other alternatives for them. However, that will take a lot longer than going towards 2030, and that target is fixed.”<sup>215</sup>

108. Stellantis, which has recently launched the Citroen Ami micromobility vehicle in the UK told us they believe these vehicles have a “valuable role”.<sup>216</sup> Toyota also told us they were committed to developing “new sustainable, micromobility solutions.”<sup>217</sup>

109. We heard that the Government was enthusiastic about the role these vehicles might play in the future. Richard Bruce, Director of Transport Decarbonisation at the Department for Transport told us:

“you are already seeing far greater granularity in the mobility solutions available to people ... You are seeing things that are not quite cars and that are not quite mopeds. That is a good thing, because there are more solutions for people. The question is: is the regulatory structure keeping pace with that change? Sometimes you are trying to regulate mobility solutions with legislation from the 19th century and that does not work. That is a constant challenge.”<sup>218</sup>

110. We heard that concerns around safety are limiting uptake of L-category vehicles. The Association of British Insurers told us that most L-category vehicles underperform in safety metrics compared to regular passenger cars, and that “many may lack safety features that are standard on other passenger cars.”<sup>219</sup> Mark Tisshaw suggested that their uptake may remain limited due to a “lack of refinement and practicality” for the majority of drivers.<sup>220</sup>

111. Several submissions and reports from the sector highlight the need for improved regulation in this area to unlock the benefits of L-category and micromobility vehicles in line with the Government’s ambitions and ensure that they are “safe, appropriately licensed and accessible”<sup>221</sup>. Particularly important is improved regulation regarding the manufacturing of battery packs to reduce the risk of fire, alongside a range of other safety inspections

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212 Written evidence from the Urban Transport Group ([ELV0063](#))

213 Written evidence from the Warwick Manufacturing Group ([ELV0124](#))

214 Written evidence from WSP ([ELV0096](#))

215 [Q 13](#)

216 Written evidence from Stellantis ([ELV0038](#))

217 Written evidence from Toyota ([ELV0048](#))

218 [Q 91](#)

219 Written evidence from the Association of British Insurers ([ELV0080](#))

220 Written evidence from Mark Tisshaw (Editor at Autocar Business) ([ELV0091](#))

221 Written evidence from the Warwick Manufacturing Group ([ELV0124](#)) and Transport for West Midlands ([ELV0060](#))



to reassure industry, insurers and consumers.<sup>222</sup> We also heard calls for standardised e-scooter regulations<sup>223</sup>: WSP told us that “The lack of appropriate legislation around light electric vehicles for personal mobility is resulting in many unrestricted and often unsafe vehicles appearing on our roads, spurred on by the difficulty in enforcing non-compliant and modified vehicles.”<sup>224</sup> This was echoed by individual submissions: Mr David Craik noted that the introduction of electric scooters and bikes had appeared “largely unregulated and unenforced, leading to poor public perceptions.”<sup>225</sup> WSP called for the Government to declare its position on micro-mobility vehicles, particularly on the legality of e-scooters: “whether this is through the adoption of a new vehicle classification or alternative, this would allow more people in dense urban areas to shift away from private car use”.<sup>226</sup>

112. The Government originally announced plans to develop a micromobility regulation system in the Future of Transport Bill, announced in debates on the 2022 Queen’s Speech.<sup>227</sup> However, such a Bill has yet to be brought forward, and did not feature in the 2023 King’s Speech.<sup>228</sup>
113. **L-category and micromobility vehicles (such as e-scooters) may make a small but important contribution to the EV transition, particularly in urban areas. However, uptake is being held back by insufficient safety regulations around both their manufacturing and use. In response to this report, the Government should confirm whether it has abandoned previous plans to legislate in this area, and if so why.**

### Car clubs

114. We also heard that there is a small but important role in the transition for car clubs and renting. Car clubs have increased in popularity in recent years: according to CoMoUK the total fleet size of car clubs across the UK is nearly 6,000 vehicles, and membership of UK car clubs now stands at over 750,000, an increase of 113 per cent compared to 2019.<sup>229</sup> Witnesses identified room for further expansion, noting that the UK’s membership figures represent around 0.5 per cent of the population, compared to 3 per cent in Germany<sup>230</sup>—the UK’s total fleet is 33.6 million passenger cars.<sup>231</sup> According to research commissioned by the Local Government Association, EVs account for 11 per cent of the car club fleet compared to 1 per cent of private vehicles.<sup>232</sup>

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222 Written evidence from the Institute of the Motor Industry (IMI) ([ELV0042](#)) and WSP ([ELV0096](#))

223 Written evidence from the Urban Transport Group ([ELV0063](#))

224 Written evidence from WSP ([ELV0096](#))

225 Written evidence from David Craik ([EVL0066](#))

226 Written evidence from WSP ([ELV0096](#))

227 HL Deb, 11 May 2022, [col 97](#)

228 Prime Minister’s Office, *The King’s Speech 2023* (7 November 2023): [https://assets.publishing.service.gov.uk/media/654a21952f045e001214dcd7/The\\_King\\_s\\_Speech\\_background\\_briefing\\_notes.pdf](https://assets.publishing.service.gov.uk/media/654a21952f045e001214dcd7/The_King_s_Speech_background_briefing_notes.pdf) [accessed 29 January 2024]

229 Written evidence from CoMoUK ([ELV0108](#))

230 Written evidence from the Local Government Association ([ELV0079](#))

231 Total fleet figure from the RAC Foundation, figure for September 2023 <https://professional.ft.com/ip-quiz?emailId=9a5c679b-538b-4f78-b0d9-ca4391b0bfd2&segmentId=2f40f9e8-c8d5-af4c-ecdd-78ad0b93926b> [website accessed on 12 January 2024].

232 Written evidence from the Local Government Association ([ELV0079](#))

**Box 3: Car clubs**

**Car clubs** are short-term car rental services that allow members to access locally parked cars and pay by the minute, hour or day.

Car clubs provide an alternative model to private car ownership for individuals and businesses, offering occasional car travel and reducing the need for private parking and the upfront costs of car purchase.

Source: Transport for London, 'Car clubs': <https://tfl.gov.uk/modes/driving/car-clubs> [accessed 25 January 2024]

115. We heard that car clubs had been successful in providing an opportunity for consumers to try an EV without committing to purchasing one. We heard that around 130,000 members have already driven an EV with car club Zipcar.<sup>233</sup> However, in written evidence the RAC noted that dependency on the private car remains at very high levels with more than eight in ten surveyed by the RAC saying they would struggle to adjust to a lifestyle without private car ownership.<sup>234</sup> Mark Tisshaw, Editor of AutoCar, also told us that “car clubs can play a useful role for people who occasionally require a car, but their comparatively high costs, limited availability and reduced convenience means private ownership will remain the preferred choice for most motorists.”<sup>235</sup>
116. Phill Jones cited research showing that currently only 17 per cent of people would be willing to share their car.<sup>236</sup> However, he suggested that driving behaviour change through wider industry and government incentives was possible but would depend on a range of factors.<sup>237</sup> James Taylor told us that for car clubs to work, “you need other options, be that shared bikes, shared scooters, public transport, segregated walking and cycling places. It is all those kinds of things, and when those packages come together, that can help to change that behaviour and provide the market conditions for operators to come and set up a new service.”<sup>238</sup> Marc Palmer echoed this, noting that while “most people still want to own their car and still want to have it for themselves and have exclusive use” a coherent strategy including L-category vehicles, car clubs and public transportation is necessary “because, over time, we would like to see more of a change in the way people move around, rather than just a reliance on the car.” He added that alongside preparing for the EV transition in the shorter term, the Government should also “start making changes so that people will understand how they can change lifestyles over the longer term.”<sup>239</sup>
117. Witnesses welcomed the credit for car club vehicles included in the ZEV mandate, whereby a manufacturer providing vehicles to the car club market receives one and half credits, rather than one as for a standard vehicle.<sup>240</sup> CoMoUK also welcomed that car club-specific charging infrastructure is now eligible for funding from Government schemes.<sup>241</sup> James Taylor suggested that car club operators and users could also be given preferential

233 Written evidence from Zipcar ([ELV0122](#))

234 Written evidence from the RAC ([ELV0078](#))

235 Written evidence from Mark Tisshaw (Editor of Autocar) ([ELV0091](#))

236 [Q 13](#)

237 *Ibid.*

238 *Ibid.*

239 *Ibid.*

240 [Q 11](#) (Toby Poston), written evidence from Stellantis ([ELV0038](#)) and the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#))

241 Written evidence from CoMoUK ([ELV0108](#))

access at chargepoints as part of a “package of incentives” to promote shared car use.<sup>242</sup> However, we note that the root issue is the need to rapidly expand the charging infrastructure, and while the EV transition remains immature, creating less preferential access to private EV owners could create disincentives for consumers who have made or are looking to make the switch to EVs. Transport & Environment UK told us that ensuring there is sufficient and suitable charging infrastructure for these and all EVs is crucial.<sup>243</sup> We discuss this further in Chapter 4.

118. **Car clubs may make a limited but important contribution to the EV transition, and constitute an important part of a broader modal shift in transport use. While private car ownership will likely remain the default mode of car use for some time, for those who require occasional car use they present a more cost-effective and environmentally-friendly alternative. Car sharing will likely become increasingly significant as the Government looks to legislate for the future of autonomous vehicles. We welcome the credit for car club vehicles included in the ZEV mandate. To support car clubs further, the rollout of chargepoints must be accelerated. We discuss this further in Chapter 4.**

#### Upfront versus lifetime costs

119. We heard that the higher upfront costs of EVs may partly be balanced out by lower running costs, and this should be highlighted to consumers. Professor Benjamin Sovacool told us: “The total cost of ownership of an EV is already cheaper over 30 years than it is for a conventional car ... if we only thought about fuel savings into the future, everyone would already be adopting EVs.”<sup>244</sup> Lauren Pamma also noted that maintenance costs for EVs are typically lower, and EV drivers do not currently have to pay vehicle excise duty or emissions standard based charges such as London’s Ultra Low Emission Zone.<sup>245</sup> However, future changes to road taxation and the removal of exemptions for EVs may significantly affect the total cost of ownership assessment.
120. Despite recent volatility in energy prices, the Climate Change Committee’s most recent Progress Report indicates that all types of EV charging except rapid/ultra-rapid charging is cheaper than both petrol and diesel:

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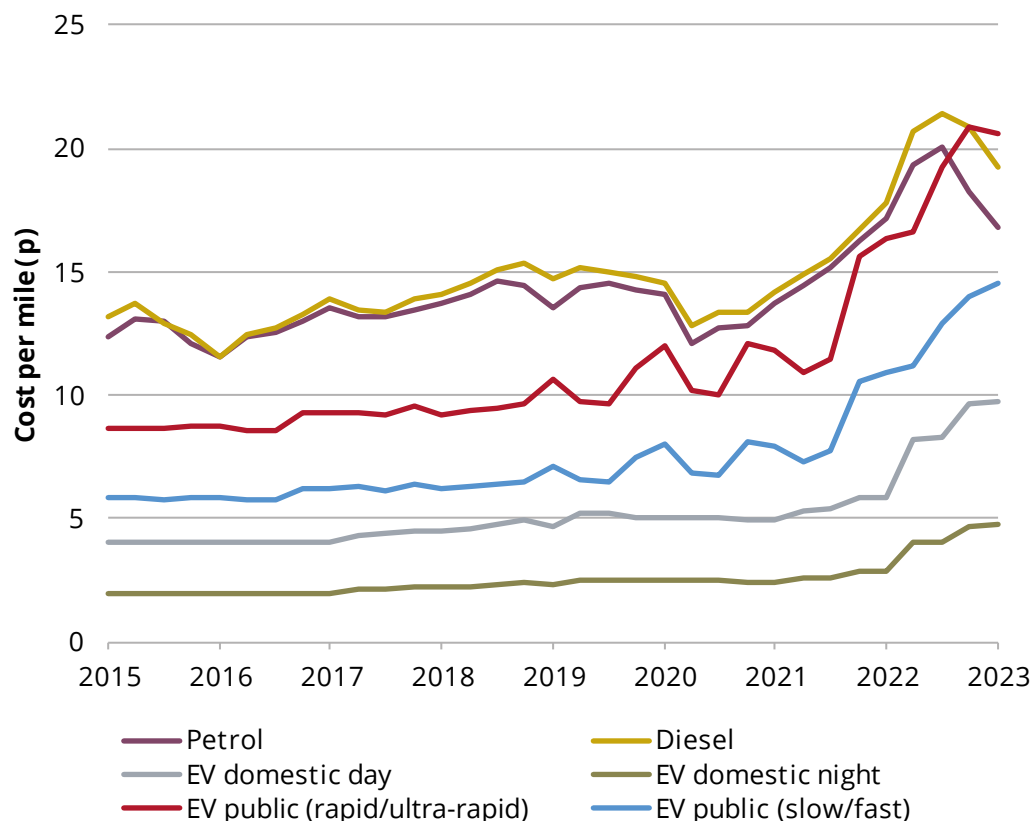
242 [Q 14](#)

243 Written evidence from Transport & Environment UK ([ELV0035](#))

244 [Q 48](#)

245 [Q 15](#)

**Figure 5: Changes in per-mile cost of driving, for a typical fossil-fuelled and electric car**



Source: Climate Change Committee, 2023 Progress Report to Parliament (June 2023): <https://www.theccc.org.uk/wp-content/uploads/2023/06/Progress-in-reducing-UK-emissions-2023-Report-to-Parliament-1.pdf> [accessed 29 January 2024]

121. Nevertheless, we heard that following recent energy price volatility, consumer confidence in the long-term fuel savings of EVs may have been weakened.<sup>246</sup> We also heard that upfront cost remained an easier measure of expense and value for customers to understand, and that longer-term savings are “really hard for consumers to work through.”<sup>247</sup>
122. Maintenance is a key component of lifetime costs. We heard that though EV drivers are likely to face lower maintenance costs overall<sup>248</sup>, individual repairs may be more costly.<sup>249</sup>
123. According to HEVRA, upskilling for car mechanics is progressing at a good rate. However, some submissions raised concerns that recent policy uncertainty and uneven messaging from Government have been unhelpful. Mechanics were reportedly taking advanced EV courses in light of the 2030 phase-out date; submissions raised concerns that this might now slow due to the Government pushing back the target date and perceptions of doubt being cast on the transition. This may result in greater skills gaps and ultimately more expensive services for consumers.<sup>250</sup> However, as the ZEV mandate is

246 Q 2 (James Taylor)

247 Q 9 (Phill Jones)

248 Q 15 (Lauren Pamma)

249 Written evidence from the Association of British Insurers (ELV0080)

250 Written evidence from Carbon Copy (ELV0041), Transport for West Midlands (ELV0060), and the Association of British Insurers (ELV0080)

unchanged and will increase the number of EVs on the road, car mechanics will have to learn how to maintain EVs long before 2030.

### *Safety and insurance*

124. Some written submissions to our inquiry raised concerns about the fire risks of EVs, citing their higher insurance rates.<sup>251</sup> Others, including the Association of British Insurers, told us that the fire risk does not exceed that of traditional ICE vehicles.<sup>252</sup> The reasons cited for higher insurance rates varied in the evidence we received, but were mostly attributed to regulatory uncertainty around handling EVs and writing off their components in the event of a crash. Mike Hawes told us that “Insurance companies do not have all the data about the cost of repairs and they tend to write off EVs much more readily than they would another vehicle. They would argue that the cost of repair, because it is a more expensive vehicle, is likely to be higher, so it is a higher degree of risk and uncertainty.”<sup>253</sup> Introduction of a cross-industry battery health testing standard as discussed in paragraph 78 could help to provide clarity around the condition of an old or damaged battery.
125. **Even at current upfront prices, the lifetime costs of an EV (to the driver) are likely to be lower than ICE equivalents overall (with present road and fuel taxes). Nevertheless, there are several factors Government should address to reduce these lifetime costs further.**
126. **To ensure maintenance costs remain reasonable, there must be a sufficient number of skilled mechanics trained to maintain EVs. While EVs generally have lower maintenance costs, any skills shortages among mechanics may mean more expensive services for consumers. *In line with the communications campaign we call for, the Government must now provide policy certainty and consistent messaging to give car maintenance workers the confidence to invest in upskilling.***
127. **We expect data on EV safety and the cost of repairs to improve as the EV market matures, and help lower insurance premiums. However, consumers understandably need clarity and reassurance about the safety of new technologies in order to confidently choose EVs. As we set out in Chapter 5, greater regulatory certainty over batteries is needed to support industry and waste management facilities—this should also provide added certainty for consumers and the insurance industry.**

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251 Written evidence from Mrs Joyce Hulls ([ELV0017](#)) and Urban Transport group ([ELV0063](#))

252 Written evidence from the Association of British Insurers ([ELV0080](#))

253 [Q 22](#)

## CHAPTER 4: EV CHARGING

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128. Insufficient access to reliable charging is one of the main barriers to drivers considering an EV. 56 per cent of What Car? readers surveyed cited the chargepoint network as a reason for not going electric<sup>254</sup>; those surveyed by Zouk Capital named limited range and the challenges of charging away from home as the two worst aspects of the EV experience.<sup>255</sup> Without a reliable and well-distributed network, range anxiety and charge anxiety will persist.<sup>256</sup> James Taylor, Managing Director at Vauxhall Motors, described charge anxiety as “the biggest barrier to consumer demand today.”<sup>257</sup>
129. While the total number of public chargepoints is increasing, we heard concerns that this is not keeping pace with the number of EVs projected to be on the road in future, and in some areas with those already on the road.<sup>258</sup> Witnesses stressed that greater focus is needed on both the geographical distribution of chargepoints and the provision of an appropriate range of chargepoint types at different locations.<sup>259</sup> We also heard concern that charging infrastructure is not being equitably distributed across regions and socioeconomic groups.<sup>260</sup> As the Society of Motor Manufacturers and Traders (SMMT) noted, “no socioeconomic groups or communities ... should be disadvantaged or left behind” in the transition.<sup>261</sup>

### Targets, Government action and progress

130. The Government’s March 2022 Electric Vehicle Infrastructure Strategy identified the charging infrastructure as “the single biggest challenge” of the EV transition.<sup>262</sup> The Government’s ambition is for there to be at least 300,000 public chargepoints by 2030.<sup>263</sup>
131. The Office for Zero Emission Vehicles (OZEV) stated that the Government’s aim is for the majority of public chargepoints to be delivered by the private sector.<sup>264</sup> In November 2020, then Prime Minister Boris Johnson announced £1.3 billion in funding to accelerate the chargepoint rollout in line with the 2030 targets.<sup>265</sup> Ian Johnston, Chair of charging industry trade association Charge UK, told us that the private sector has committed over £6 billion of investment in charging infrastructure to date.<sup>266</sup>

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254 Written evidence from Steve Huntingford (Editor at What Car? Magazine) (ELV0106)

255 Written evidence from Zouk Capital LLP (ELV0044)

256 Written evidence from Zouk Capital LLP (ELV0044), Carbon Copy (ELV0041), Dr Suresh Renukappa (Senior Lecturer at University of Wolverhampton), Miss Wahiba Erriadi (Researcher at University of Wolverhampton), Dr Subashini Suresh (Reader at University of Wolverhampton), and Professor Panagiotis Georgakis (Professor at University of Wolverhampton) (ELV0037)

257 Q 18

258 Written evidence from Society of Motor Manufacturers and Traders (SMMT) (ELV0117)

259 Written evidence from Connected Kerb (ELV0064) and Transport and Environment (ELV0035)

260 Written evidence from WSP (ELV0096), SMMT (ELV0117) and BMW (ELV0120)

261 Written evidence from the SMMT (ELV0117)

262 Department for Transport, *Taking Charge: the electric vehicle infrastructure strategy* (March 2022), p 9 <https://assets.publishing.service.gov.uk/media/6245ba40e90e075f15381cf0/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf> [accessed 18 January 2024]

263 *Ibid.*, p 38

264 Written evidence from the Office for Zero Emission Vehicles (OZEV) (ELV0110)

265 HM Government, *The Ten Point Plan for a Green Industrial Revolution* (November 2020), p 14: [https://assets.publishing.service.gov.uk/media/5fb5513de90e0720978b1a6f/10\\_POINT\\_PLAN\\_BOOKLET.pdf](https://assets.publishing.service.gov.uk/media/5fb5513de90e0720978b1a6f/10_POINT_PLAN_BOOKLET.pdf) [accessed 18 January 2024]

266 Q 23

132. We heard evidence that the UK is broadly on track to achieve its target of 300,000 working chargepoints by 2030.<sup>267</sup> Anthony Browne MP, Parliamentary Under Secretary of State in the Department for Transport, told the Committee in November 2023 that the number of public chargepoints installed had reached 50,000.<sup>268</sup> According to Transport & Environment UK and Energy UK, the UK's charging network expanded at an average growth rate of 35 per cent between 2020 and 2023.<sup>269</sup> If this rate is maintained, the UK will meet its target by 2030.<sup>270</sup>
133. Nevertheless, we heard concerns that 300,000 chargepoints may be insufficient, and that the current trajectory may not deliver success. SMMT told us that the ratio of cars to chargepoints has been worsening every year for the last 4 years for both slow and rapid infrastructure.<sup>271</sup> In 2021, SMMT stated that at least 2.3 million charging points would be needed nationwide by 2030.<sup>272</sup> By comparison, we heard that the Netherlands aims to reach 1.7 million chargepoints by 2030, and has already reached 500,000.<sup>273</sup> While the Government's own Strategy set an advisory target of 300,000, it noted that up to 700,000 could be necessary.<sup>274</sup>
134. **A lack of confidence in the charging infrastructure is commonly cited as the most or second most significant obstacle for consumers alongside the upfront cost of EVs. Infrastructure must be rolled out ahead of demand to give consumers the confidence to make the switch to EVs, but the UK's chargepoint infrastructure is lagging behind need, and is contributing to consumer anxiety. The Government's target is an advisory ambition, and we are concerned there is currently an insufficient sense of urgency to meet the scale of the challenge.**

*Regional, urban and rural distribution*

135. Figure 6, based on SMMT analysis of Department for Transport (DfT) data, indicates the ratio of EVs to public chargepoints across the UK as of 2022:

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267 Written evidence from Transport & Environment UK ([ELV0035](#)), Greenpeace UK ([ELV0040](#)), Energy UK ([ELV0103](#))

268 [Q 86](#)

269 Written evidence from Transport & Environment UK ([ELV0035](#)) and Energy UK ([ELV0103](#))

270 Written evidence from Energy UK ([ELV0103](#)), Transport & Environment UK ([ELV0035](#)) and Greenpeace UK ([ELV0040](#))

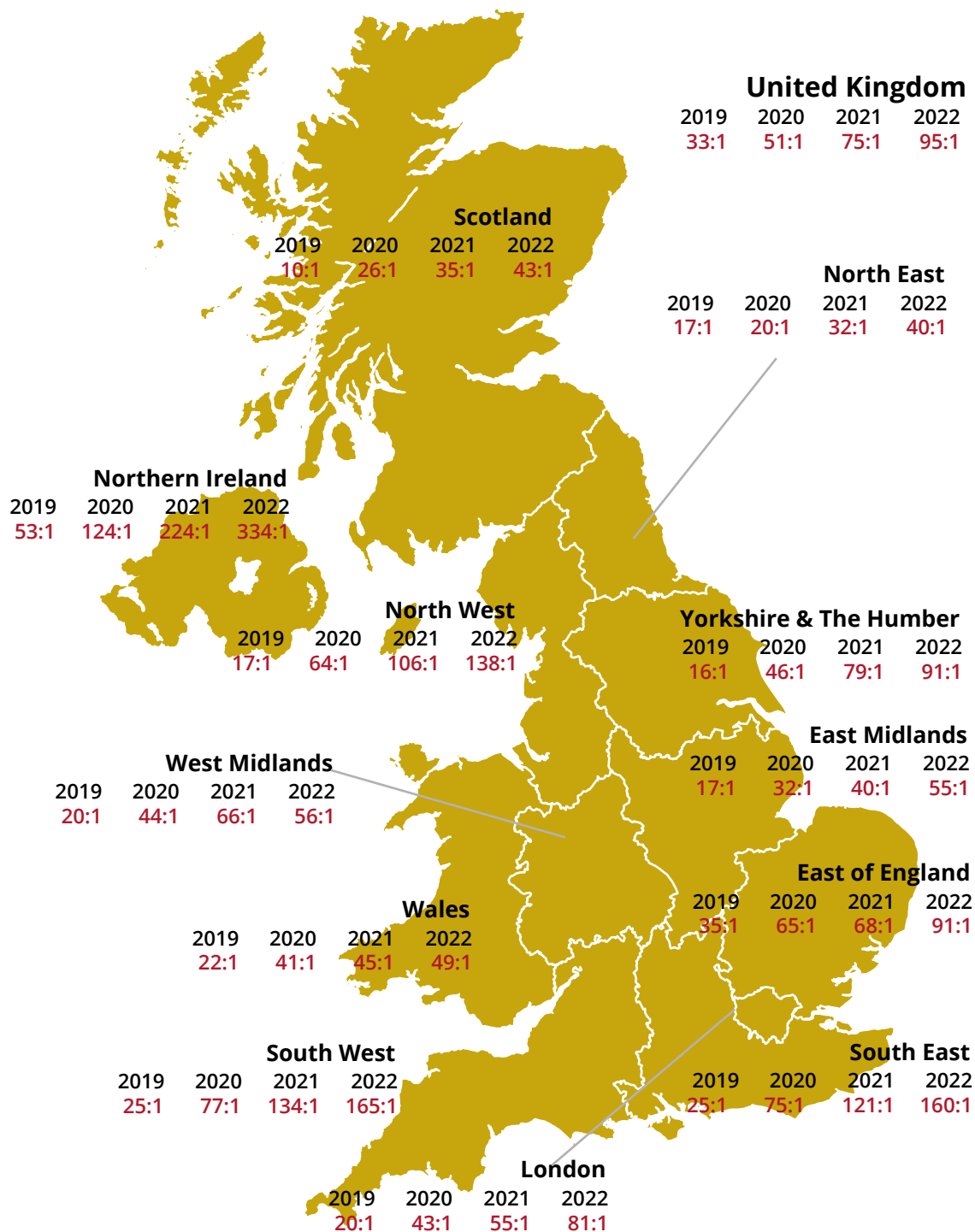
271 Written evidence from SMMT ([ELV0117](#))

272 SMMT, *Full throttle needed for UK automotive success* (June 2021): <https://www.smmt.co.uk/2021/06/full-throttle-needed-for-uk-automotive-success/> [accessed 12 January 2024]

273 [Q 42](#) (Burmeister)

274 Department for Transport, *Taking Charge: the electric vehicle infrastructure strategy* (March 2022), p 38: <https://assets.publishing.service.gov.uk/media/6245ba40e90e075f15381cf0/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf> [accessed 18 January 2024]

**Figure 6: Change in ratio of cars to public chargepoints across the UK 2019–2022**



Source: Written evidence from SMMT ([ELV0117](#))

136. The figure shows that the ratio of chargepoints to EVs worsened over the period 2019–2022 in every region across the UK. The worsening ratio of public chargepoints to EV numbers is most pronounced in Northern Ireland, the South West, the South East and the North West where the ratio of chargepoints to EV ownership numbers is more than 100:1.<sup>275</sup> Electrifying.

<sup>275</sup> Written evidence from SMMT ([ELV0117](#))



com told us that there are more public chargers in Westminster than there are in Liverpool, Leeds and Manchester combined.<sup>276</sup>

137. We heard particular concern about charging in rural areas. While rural residents may often have more space to install their own home chargepoints, we heard that a significant minority of rural residents, for example in historic villages, have limited off-street parking and thus must rely on public charging infrastructure.<sup>277</sup> The Competition and Markets Authority identified risks “that rural areas may be left behind with too few chargepoints due to lack of investment.”<sup>278</sup> Several submissions noted that lower relative demand for chargepoints makes the commercial case for installation in rural areas more challenging.<sup>279</sup>
138. However, Dr Chris Pateman-Jones, CEO of Connected Kerb EV Charging Solutions, noted that rural chargepoints were not always less commercially viable, stating that; “There is no reason why you cannot go off to rural areas; it is just about proportionally putting the right number of charging points in those locations.”<sup>280</sup> Richard Bruce, Director of Transport Decarbonisation at the Department for Transport, told us the Government was: “ quite confident that the [chargepoint operator] businesses will be looking to the next 20 or 30 years and putting the charge points where they are going to be used.”<sup>281</sup>
139. Rolling out urban infrastructure poses different but still significant challenges. The Petrol Retailers Association noted that while rural residents may experience greater range anxiety, urban areas may suffer from higher demand for charging that is still not matched by infrastructure sufficient to accommodate it.<sup>282</sup>
140. Shamala Evans-Gadgil, EV Infrastructure Programme Manager working on behalf of Coventry City Council, noted that there is currently no requirement and minimal guidance for local authorities to ensure that chargepoint infrastructure is well distributed across both urban and rural areas.<sup>283</sup> We heard praise for local authorities including Kent County Council and West Sussex County Council for making urban-rural balance central to their local strategies, and calls for better sharing of best practice.<sup>284</sup>
141. The Department for Transport, using data from ZapMap, maintains a map of the number of public chargepoints per 100,000 people across local authority areas. The top 10 and bottom 10 local authority areas of devices per 100,000 people are set out below.

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276 Written evidence from Electrifying.com ([ELV0075](#))

277 Written evidence from UK Power Networks ([ELV0070](#)) and Hertfordshire County Council ([ELV0090](#))

278 Written evidence from the Competition and Markets Authority ([ELV0072](#))

279 Written evidence from SMMT ([ELV0117](#)), Midlands Connect ([ELV0085](#)), Lancashire Enterprise Partnership ([ELV0073](#)) and West of England Combined Authority ([ELV0130](#))

280 [Q 70](#)

281 [Q 85](#)

282 Written evidence from the Petrol Retailers Association ([ELV0082](#))

283 [Q 74](#)

284 [Q 74](#) (Dr Chris Pateman-Jones) and written evidence from London Councils ([ELV0119](#))

**Table 5: The top 10 areas with the highest number of devices per 100,000 people by Local Authority and the bottom 10 areas with the lowest number of devices per 100,000 people by local authority**

<b>Top 10 Local Authority Area</b>	<b>Number of devices/100,000 people</b>
Hammersmith and Fulham	1372.7
Westminster	1262.4
City of London	731
Southwark	575.1
Kensington and Chelsea	557.9
Merton	385.9
Coventry	383.9
Brent	277.6
Watford	246
Wandsworth	234.8
<b>Bottom 10 Local Authority Areas</b>	
Castle Point	3.3
Wirral	9.7
Fenland	10.7
Staffordshire Moorlands	12.5
Bury	13.9
Sandwell	14.0
Walsall	14.1
Sefton	14.3
Tameside	14.3
North Kesteven	14.3

Source: Data taken from the Department for Transport's map of density of charging devices by local authority area. See: Department for Transport, 'Electric charging devices by local authority', (October 2023): <https://maps.dft.gov.uk/ev-charging-map/index.html> [accessed 18 January 2024]

Though some local authorities have made significant progress, according to the Renewable Energy Association as many as 70 per cent of local authorities currently do not have plans to develop EV charging infrastructure.<sup>285</sup>

142. To address the inconsistent progress made by authorities across the regions of the UK, some respondents recommended that a statutory duty be placed on local authorities to deliver EV infrastructure.<sup>286</sup> However, others suggested this may be heavy-handed. Dr Chris Pateman-Jones said "I do not think you need to have a centralised plan, but I do think you need to have centralised guidance and clarity around that, so you can have consistency."<sup>287</sup>

285 Written evidence from the Association for Renewable Energy and Clean Technology (REA) (ELV0093)

286 Written evidence from SMMT (ELV0117), EDF (ELV0115), myenegi Ltd (ELV0095) and UK Power Networks (ELV0070)

287 Q 70

143. The Minister told us that the Government was considering introducing powers to issue instructions to local authorities to ensure that there is on-street charging in different areas.<sup>288</sup> He added that a statutory duty was in the Government's view "a bit blunt, because a lot of local authorities already have that in place and are doing very well, and a statutory duty would create quite an administrative burden on local authorities without any real benefit."<sup>289</sup> Richard Bruce added that in time, the public and chargepoint operators would likely exert their own pressure onto local authorities which were seen to be lagging behind.<sup>290</sup>
144. **Progress in rolling out public charging infrastructure is highly variable across the UK, with rural areas particularly at risk of having insufficient infrastructure. The Government told us it was considering new powers to issue instructions to local authorities in areas without enough chargepoints. We recommend that the Government introduce these new powers urgently and use them to direct local authorities in areas where there are fewer than 50 public chargepoints per 100,000 people to prepare EV strategies. This will help to ensure a more evenly distributed chargepoint rollout.**

*Different types of chargepoints*

145. The speed and power of chargepoints can be broken down into four power ratings which also divide into AC and DC chargers.<sup>291</sup>
- The AC charging range encompasses 'Slow' (up to 7kW) and 'Fast' (8kW–25kW) chargepoints. Slow chargers are typically used for home chargepoints, workplace charging and some public chargepoints. Fast chargers are typically found at supermarkets, leisure centres and other similar car parks. Slow and fast chargers will recharge an EV in anywhere between 1–12 hours depending on the battery capacity and charger speed.<sup>292</sup>
  - The DC range encompasses 'rapid' (25/50 kW–99kW) and 'ultra rapid' (100kW plus) chargepoints.<sup>293</sup> These are typically found at motorway service areas, or locations close to main routes. Rapid chargers typically charge an EV to 80 per cent in 20 minutes to an hour depending on battery capacity and starting state of charge. Ultra-rapid chargers typically charge an EV in between 20 to 30 minutes.<sup>294</sup>
146. Table 6 shows the growth rates of chargepoints by power ratings from August 2022 to August 2023.

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288 Q 84

289 *Ibid.*

290 Q 84

291 Written evidence from Zapmap Ltd (ELV0102)

292 Zapmap, *EV charging connector types*, (November 2023) <https://www.zap-map.com/ev-guides/connector-types> [accessed 18 January 2024]

293 Written evidence from Zapmap Ltd (ELV0102)

294 Zapmap, *EV charging connector types*, (November 2023) <https://www.zap-map.com/ev-guides/connector-types> [accessed 18 January 2024]

**Table 6 Change in number of public chargepoints from August 2022–August 2023**

	August 2022	December 2022	August 2023	Year on year growth
Slow	8,389	8,932	13,868	65%
Fast	19,362	21,427	22,554	32%
Rapid	4,277	4,602	5,249	24%
Ultra Rapid	1,959	2,296	3,721	90%
<b>Total</b>	<b>33,996</b>	<b>37,261</b>	<b>48,437</b>	<b>42%</b>

Source: Written evidence from Zapmap Limited ([ELV0102](#))

There are an estimated 680,000 home chargers installed across the country, corresponding to around 80 per cent of the 850,000 EVs currently on the road. However, home charging is not available to households without off-street parking—many of those in flats or in terraced housing, for example. These households are often less affluent. Drivers in such homes are always going to need public, workplace or destination charging. There is therefore a social justice issue involved in the transition.

147. Moreover, all drivers—irrespective of their access to home charging—need access to a range of locations and speeds of charging that fits their timing needs and route preferences. We heard that the rollout of rapid chargepoints is progressing well through commercial partnerships (with the exception of motorway service areas, which are discussed in more detail later in this chapter).<sup>295</sup> We heard greater concern about on-street charging, essential for those without access to off-street parking and home chargers.<sup>296</sup>
148. Estimates suggest that between 25–40 per cent of UK households do not have access to off-street parking and must rely on public chargepoints.<sup>297</sup> We heard that this disparity is most acute for those in multi-occupancy buildings and lower-income households. The Urban Transport Group told us that housing with no access to off-street parking tends to correlate with areas of economic deprivation.<sup>298</sup> Electrifying.com argued that “those who don’t have access to a private driveway are being discriminated against in the switch and that often is lower income drivers and those who live in cities and built-up places.”<sup>299</sup>
149. **Lower-powered, on-street AC charging involves cheaper installation for operators, less demand on the grid, and cheaper prices for consumers. Ensuring that the rollout of on-street charging proceeds rapidly, while taking account of broader issues such as pavement access and safety, is essential to provide fair and equitable access to charging across the UK.**

295 Written evidence from Zouk Capital LLP ([ELV0044](#)) and [Q 84](#) (Richard Bruce)

296 Written evidence from Zouk Capital LLP ([ELV0044](#))

297 Written evidence from Stellantis ([ELV0038](#)), Energy UK ([ELV0103](#)), the UK Electric Fleet Coalition (UKEFC) ([ELV0089](#)) and Citizens Advice Bureau ([ELV0116](#))

298 Written evidence from the Urban Transport Group ([ELV0063](#))

299 Written evidence from Electrifying.com ([ELV0075](#))

## The rollout of charging infrastructure

### *The role of local authorities*

150. Though the delivery of EV infrastructure is not a statutory duty for local authorities, some are already playing a significant role.<sup>300</sup> Coventry, for example, has the largest public chargepoint network outside London with over 1,250 chargepoints—the majority of which are on-street chargepoints, in a city where more than 46 per cent of properties have no off-street parking.<sup>301</sup> Stakeholders agreed that local authorities are well placed to play a central role in overseeing EV infrastructure delivery with their understanding of local needs.<sup>302</sup> They are also responsible for balancing the need to support EV infrastructure against a range of other priorities, including the management of pavement space.<sup>303</sup> They are the responsible bodies for parking and street alterations and owners of highways and key land.<sup>304</sup>
151. We heard that local authorities encounter a range of opportunities and challenges in developing charging infrastructure. Support is available from central Government through the On-street Residential Chargepoint Scheme and Local Electric Vehicle Infrastructure Fund, though as we set out below these have limitations in scope and have seen significant delays in their rollout. We also heard that the Government could facilitate greater sharing of best practice among local authorities, and that targeted amendments to planning regulations could have a significant impact on the speed of the rollout.

### *On-street Residential Chargepoint Scheme*

152. The On-street Residential Chargepoint Scheme (ORCS) is open to local authorities and part funds the cost of installing chargepoints up to speeds of 22kW.<sup>305</sup>
153. OZEV told us that the scheme had funded the installation of over 14,000 chargepoints.<sup>306</sup> However, some witnesses raised concern about restrictions and delays to the scheme holding back progress.<sup>307</sup> Applications for the 2022–23 funding round took up to 8 months to be approved, with some projects still awaiting approval in September 2023. The 2023–2024 funding round was announced in March 2023 but application forms and guidance were made available only in October.<sup>308</sup> Connected Kerb called for urgent Government action to accelerate these processes, and clear any backlog.<sup>309</sup>

300 Written evidence from the Local Government Association ([ELV0079](#))

301 [Q 68](#) (Shamala Evans-Gadgil)

302 Written evidence from Transport & Environment UK ([ELV0035](#)), Carbon Copy ([ELV0041](#)), SSE ([ELV0057](#)), Transport for West Midlands ([ELV0060](#)), UK Power Networks ([ELV0070](#)), myenegi Ltd ([ELV0095](#)) and [Q 67](#) (Peter Ollivere)

303 Written evidence from the Local Government Association ([ELV0079](#))

304 Department for Transport, *Taking Charge: the electric vehicle infrastructure strategy* (March 2022), p 48; <https://assets.publishing.service.gov.uk/media/6245ba40e90e075f15381cf0/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf> [accessed 29 January 2024], Department for Transport, ‘Electric vehicle charging infrastructure: help for local authorities’, (March 2022): <https://www.gov.uk/guidance/electric-vehicle-charging-infrastructure-help-for-local-authorities> [accessed 29 January 2024], written evidence from WSP ([ELV0096](#)) and [Q 67](#) (Peter Ollivere)

305 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

306 *Ibid.*

307 [Q 67](#) (Shamala Evans-Gadgil), written evidence from Connected Kerb ([ELV0064](#)), and the Local Government Association ([ELV0079](#))

308 [Q 67](#) (Shamala Evans Gadgil) and written evidence from Connected Kerb ([ELV0064](#))

309 Written evidence from Connected Kerb ([ELV0064](#))

154. These delays notwithstanding, we heard that the ORCS has a valuable role in supporting smaller discrete projects, and calls for it to be continued to complement the Local Electric Vehicle Infrastructure Fund (LEVI) which takes a more large-scale approach across a local authority area (see below).<sup>310</sup> Shamala Evans-Gadgil told us that the ORCS had enabled the installation of over 1,000 chargepoints in Coventry.<sup>311</sup> Connected Kerb added that it was “supportive, in principle, of well-designed subsidy schemes” that work with industry “to unlock and maximise the impact of private investment”, provided that processes move at the pace of the market and are clearly communicated.<sup>312</sup>
155. **The ORCS continues to enable a number of small-scale but important installation projects. However, considerable delays to the application process have risked limiting wider success. The Government should continue the ORCS alongside the LEVI Fund enabling targeted support for smaller discrete projects. In response to this report, the Government should set out what actions it has taken and will take to ensure that application and implementation processes are not undermined by delays in future.**

*Local Electric Vehicle Infrastructure (LEVI) Funding*

156. The LEVI Fund was launched in 2022 and expanded in February 2023 to support local authorities in delivering the Government’s EV Infrastructure Strategy.<sup>313</sup> Whereas the earlier ORCS provides only direct subsidies for each chargepoint installed, the LEVI Fund also provides £37.8 million in “capability funding.” This is intended to support local authorities which may lack resources and capacity to deliver chargepoint infrastructure.<sup>314</sup> There is also a local government knowledge hub, the LEVI Support Body, which includes guidance in areas where councils may lack specialised knowledge such as developing contracts with chargepoint operating companies.<sup>315</sup>
157. The LEVI Fund has been broadly welcomed by councils and chargepoint operators.<sup>316</sup> Midlands Connect described the fund as a “step-change” in the delivery of public charging infrastructure.<sup>317</sup> The Local Government Association (LGA) described the LEVI Fund as a “significant improvement” upon the ORCS.<sup>318</sup> We heard that the LEVI Fund has been highly successful at “galvanising action in local authorities”, including among authorities that had been hesitant about engaging with the ORCS.<sup>319</sup> However, witnesses highlighted a need for improvement in some areas, including reducing delays

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310 Written evidence from London Councils ([ELV0119](#))

311 [Q 68](#)

312 Written evidence from Connected Kerb ([ELV0064](#))

313 Written evidence from Transport & Environment UK ([ELV0035](#)) and the Office for Zero Emission Vehicles ([ELV0110](#))

314 [Q 89](#) (Anthony Browne MP), written evidence from Transport & Environment UK ([ELV0035](#)), Energy Saving Trust, *Local Electric Vehicle Infrastructure (LEVI) Capability Fund* (February 2023) p 3: <https://energysavingtrust.org.uk/wp-content/uploads/2023/02/LEVI-Capability-Fund-Info-Pack.pdf>. [accessed 26 January 2024]

315 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#)), [Q 84](#) (Anthony Browne MP) and [Q 69](#) (Pateman-Jones)

316 Written evidence from London Councils ([ELV0119](#)), Midlands Connect ([ELV0085](#)), Connected Kerb ([ELV0064](#)) and [Q 73](#) (Shamala Evans-Gadgil)

317 Written evidence from Midlands Connect ([ELV0085](#))

318 Written evidence from the Local Government Association ([ELV0079](#))

319 Written evidence from WSP ([ELV0096](#))

in funding rollout, expanding eligibility for capability funding within local authorities and extending support beyond the existing life of the scheme.

158. Stakeholders raised concerns about delays to the LEVI rollout. The LEVI Fund was due to be opened for applications in 2022 but this was then delayed to 2023, impacting both authorities and chargepoint operators.<sup>320</sup> London Councils noted that delays led to condensed workplans and rushed applications which could limit strategic objectives.<sup>321</sup> Connected Kerb stated that clear and consistent communication about timelines would be welcomed.<sup>322</sup> Dr Chris Pateman-Jones also noted that otherwise commercially viable projects were held back while local authorities awaited announcements from the scheme.<sup>323</sup>
159. Local authorities are not obliged to apply for LEVI funding, which some stakeholders said was problematic.<sup>324</sup> Dr Chris Pateman-Jones noted a concern that central Government had devolved its responsibilities for chargepoint deployment to local authorities, which did not have the necessary capability and capacity.<sup>325</sup> The LGA questioned whether funding chargepoints via competitive bidding for short-term schemes was an efficient approach to such crucial infrastructure.<sup>326</sup> Similarly, the Urban Transport Group argued that local authorities need to be supported in developing and delivering strategic investment opportunities rather than bidding into pots of competitive funding.<sup>327</sup> The LGA called for Local Transport Plans to be linked to longer-term funding so that Plans function cohesively across a range of longer-term transport initiatives, rather than serving only as bidding documents for more short term LEVI funding.<sup>328</sup>
160. However, Richard Bruce suggested that the role of local and national Government in the charging rollout was and should be limited. He told us:
- “This is not a government-led rollout. This is led by a very dynamic, vibrant charge point sector that has lots of capital to invest and is looking at the best places to put those charge points. It is not a big state intervention, with local authorities or central government planning where things should go, because that would be entirely wrong.”<sup>329</sup>
161. While local authorities welcomed the introduction of capability funding, they expressed concerns that the constraints surrounding it may limit its ability to achieve its aims.<sup>330</sup> Council planning and legal teams are key to infrastructure delivery but not covered by the funding.<sup>331</sup> The funding available to a council through the LEVI Fund equates to one full-time appointment, but we heard that finding a sole individual with the broad range of necessary skills is very

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320 [Q 67](#) (Shamala Evans-Gadgil)

321 Written from London Councils ([ELV0119](#))

322 Written evidence from Connected Kerb ([ELV0064](#))

323 [Q 71](#)

324 Written evidence from Ford Motor Company ([ELV0086](#))

325 [Q 69](#) (Chris Pateman-Jones)

326 Written evidence from the Local Government Association ([ELV0079](#))

327 Written evidence from the Urban Transport Group ([ELV0063](#))

328 Written evidence from the Local Government Association ([ELV0079](#))

329 [Q 84](#)

330 [Q 69](#) (Evans Gadgil), written evidence from Greenpeace UK ([ELV0040](#)) and the Local Government Association ([ELV0079](#))

331 [Q 67](#) (Shamala Evans-Gadgil)

difficult.<sup>332</sup> Instead, local authorities may be forced to rely on consultants, which can mean experience and expertise is lost at the end of the projects.<sup>333</sup>

162. Support through the LEVI Fund is due to end in 2025.<sup>334</sup> Stakeholders noted that local authorities' work in chargepoint rollout needs to be self-sustaining over time and that at present there is minimal budget to carry out this work without Government subsidy.<sup>335</sup> Several submissions recommended an extension of the scheme beyond 2024–25 to support the design of business models that can deliver infrastructure sustainably in the long term.<sup>336</sup> We heard that authorities which have made significant early progress, such as Durham County Council, have developed business models that will be sustainable in the long term, but many councils have not got this far.<sup>337</sup>
163. WSP consultancy told us that many local authorities have benefited from the technical and commercial training and guidance through the LEVI Support Body and that continuing this throughout and beyond the length of the projects would be valuable, reducing duplication of effort and facilitating the sharing of best practice.<sup>338</sup> We heard that support such as standardised templates for contracts between local authorities and chargepoint operators would help remove divergence and delay in the application system.<sup>339</sup>
164. We heard that guidance about how the funding should be spent could benefit from clarification.<sup>340</sup> We heard recommendations to target LEVI funding in areas which are less commercially viable to maximise the value of public investment.<sup>341</sup> However, sites with high and low commercial viability are currently equally eligible for LEVI funding.<sup>342</sup>
165. Carwow suggested the creation of charging incentives which specifically target social equity, for example targeting subsidies at lower-income areas based on postcodes.<sup>343</sup> The Competition and Markets Authority welcomed that the LEVI Fund considers the level of rurality alongside other factors in allocating funding, but encouraged the Government to consider specifically targeting funding at gaps in remote areas which may otherwise not be served.<sup>344</sup>
166. **The LEVI fund is welcome, but the slow pace of the rollout has significantly undermined progress and frustrated investment. The Government should set and communicate clear timelines and deadlines for the scheme and provide sufficient time for application preparation.**
167. **We heard from a range of stakeholders that current guidance for applications to the LEVI Fund is not sufficient, particularly around the best approach to expenditure at a given site. We also heard that the**

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332 [Q 67](#) (Shamala Evans-Gadgil) and [Q 70](#) (Dr Chris Pateman-Jones)

333 [Q 69](#) (Shamala Evans-Gadgil)

334 Written evidence from WSP ([ELV0096](#))

335 Written evidence from the Urban Transport Group ([ELV0063](#)) and Midlands Connect ([ELV0085](#))

336 Written evidence from WSP ([ELV0096](#)), London Councils ([ELV0119](#)), Midlands Connect ([ELV0085](#))

337 [Q 69](#) (Peter Ollivere)

338 Written evidence from WSP ([ELV0096](#))

339 Written evidence from Connected Kerb ([ELV0064](#))

340 [Q 69](#) (Dr Chris Pateman-Jones), [Q 69](#) (Shamala Evans-Gadgil), [Q 68](#) (Shamala Evans-Gadgil) and written evidence from Transport for West Midlands ([ELV0060](#))

341 Written evidence from Energy UK ([ELV0103](#)) and [Q 69](#) (Dr Chris Pateman-Jones)

342 [Q 69](#) (Dr Chris Pateman-Jones)

343 Written evidence from Carwow ([ELV0084](#))

344 Written evidence from the Competition and Markets Authority ([ELV0072](#))



**guidance and training provided through the LEVI Support Body has been useful and that it should be continued throughout the lifetime of the project.**

168. **The capability funding as part of the LEVI Fund is welcome, but we heard that it does not cover the additional functions and resources that local government needs in order to deliver EV infrastructure projects. *The Government should consider widening the scope of the capability funding to cover other essential functions, such as legal and planning teams.***
169. ***The Government should also investigate options for building on the LEVI Support Body to address skills shortages. The Government should consult local authorities about what guidance and training they need as part of the LEVI scheme and seek to adjust the offer accordingly.***
170. **The scheme is due to end in 2025, but we heard that an extension would allow local authorities to plan more strategically and adopt self-sustaining approaches. *We recommend that the scheme is extended for a further three years and that the Government refine its focus to target areas that are falling behind with chargepoint infrastructure delivery.***

#### *Destination charging*

171. Though the widespread rollout of on-street charging is essential to the transition, it is not a panacea. The Urban Transport Group noted that in busy areas, the allocation of parking spaces to EV charging could cause tensions as non-EV drivers will find they have fewer parking options.<sup>345</sup> Focus groups conducted by Energy Systems Catapult highlight that other solutions such as neighbourhood charging hubs may be equally if not more popular. Participants raised concerns that on-street charging would make “parking wars” worse, whereas networks of fast “charging hubs” at supermarkets, petrol stations or neighbourhood shops under a 10-minute drive away would do more to encourage uptake of EVs.<sup>346</sup>
172. For these reasons, several witnesses recommended a simultaneous focus on destination charging, usually described as anywhere a driver stops for 20 minutes or more such as supermarkets, hotels or other longer-stay locations.<sup>347</sup> We heard from one local authority that as the charging network grows and consumer behaviour evolves, EV drivers increasingly appear to prefer charging at these destinations.<sup>348</sup> Frank Burmeister suggested that destination charging was the “dominant” public charging type drivers tended to prefer in the Netherlands.<sup>349</sup> We heard that the successful expansion of destination charging could offer a more convenient driver experience than ICE vehicles.<sup>350</sup> As Ian Johnston noted, the “ubiquity of electricity” could mean “that you no

345 Written evidence from the Urban Transport Group ([ELV0063](#))

346 Energy Systems Catapult, *Electric Vehicles: What will persuade the 30% of households without off-street parking to adopt electric vehicles?* (April 2021): <https://esc-production-2021.s3.eu-west-2.amazonaws.com/2021/07/What-will-persuade-households-without-off-street-parking-to-adopt-EVs-ESC-Report.docx.pdf> [accessed 18 January 2024]

347 Written evidence from Zapmap Limited ([ELV0102](#)), Connected Kerb ([ELV0064](#)) and WSP ([ELV0096](#))

348 [Q 20](#) (Mike Hawes) and written evidence from Hertfordshire County Council ([ELV0090](#))

349 [Q 51](#) (Frank Burmeister)

350 Written evidence from Pod Point ([ELV0101](#))

longer need to make a defined route to a gas station to refuel your vehicle; you can charge at the supermarket, at the train station, at your workplace.”<sup>351</sup>

173. Most destination charging is installed on private land, and therefore not included in the Government’s public infrastructure targets. Hertfordshire County Council noted that this poses challenges for monitoring, and “There is a particular gap in knowledge about what the private sector (e.g., supermarket chains, fuel forecourt providers, hotel chains) are planning to do in relation to the installation of EV chargers.”<sup>352</sup>
174. We heard that private providers have broad confidence that they can continue to deliver destination charging with minimal intervention.<sup>353</sup> However, we also heard a range of suggestions for how Government could further encourage and support businesses and organisations that have not yet done so to roll out destination charging. For example, London Councils noted that commercially run public car parks, such as those at train stations, present an opportunity.<sup>354</sup> They suggested that the Government engage with organisations such as National Car Parks and Network Rail to encourage the development of charging infrastructure.<sup>355</sup> Mykos Technologies said that there is a role for local authorities in enabling the conversion of existing petrol station forecourts in towns to community charging stations as the demand for petrol eventually subsides.<sup>356</sup> The LGA told us that “Public space has many uses ... Councils are happy to support public chargepoints on private land where this fits into local plans.”<sup>357</sup>

#### *Workplace charging*

175. We heard that workplace charging also offers a good alternative for drivers without home charging access.<sup>358</sup> Pod Point suggest that as much as 30 per cent of all charging could take place at work (though we note this could be affected by increased working from home).<sup>359</sup>
176. The Government’s EV Infrastructure Strategy assumes that EV owners without off-street parking will source approximately 40 per cent of their energy at workplaces.<sup>360</sup> It also notes that the Government’s advisory targets of 300,000 public chargepoints by 2030 is based on an assumption that there is “a high proportion of charging at workplaces”.<sup>361</sup> However, the Strategy’s modelling assumptions are based on studies of existing charging behaviour.<sup>362</sup> The access to workplace charging that early adopters enjoyed may not be available to all drivers—21 per cent of respondents to a recent Auto Trader survey stated that they would not switch to an EV because there is no charging

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351 [Q 32](#)

352 Written evidence from Hertfordshire County Council ([ELV0090](#))

353 Written evidence from Zapmap Limited ([ELV0102](#)), [Q 69](#) (Peter Ollivere) and [Q 84](#) (Richard Bruce)

354 Written evidence from London Councils ([ELV0119](#))

355 *Ibid.*

356 Written evidence from Mykos Technologies Ltd ([ELV0034](#))

357 Written evidence from the Local Government Association ([ELV0079](#))

358 Written evidence from Ford Motor Company ([ELV0086](#)), Connected Kerb ([ELV0064](#)), Nodum ([ELV0036](#)) and Auto Trader ([ELV0094](#))

359 Written evidence from Pod Point ([ELV0101](#))

360 Department for Transport, *Taking Charge: the electric vehicle infrastructure strategy* (March 2022), p 129: <https://assets.publishing.service.gov.uk/media/6245ba40e90e075f15381cf0/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf> [accessed 18 January 2024]

361 *Ibid.*, p 38

362 *Ibid.*, p 129, footnote 112

option at their workplace.<sup>363</sup> AutoTrader also noted that greater emphasis on workplace charging could “solve local infrastructure problems”; if employees charge at work during the day, they will likely be far less reliant on on-street charging infrastructure. The local community near the workplace may then also be able to charge there at the weekends or evenings.

177. The Workplace Charging Scheme offers charities and businesses grants of up to £350 per socket for up to 40 sockets for employees and commercial fleets.<sup>364</sup> The Office for Zero Emission Vehicles told us that 42,000 chargepoints had been installed under this scheme up to 1 April 2023.<sup>365</sup> There are also grants of up to £15,000 for small to medium sized businesses and public sector organisations, including campsites, B&Bs and small hotels, to install chargepoint infrastructure.<sup>366</sup>
178. We heard a range of views on whether the scheme should be extended. UK Power Networks supported the Government’s approach in the EV Infrastructure Strategy to end direct subsidy for workplace charging “at the earliest appropriate time” to enable public funding to be targeted to less commercially viable areas.<sup>367</sup> Pod Point, however, told us that uptake had been more limited than expected, partly due to low awareness, and called for the Workplace Charging Scheme to be extended beyond April 2024.<sup>368</sup> AutoTrader called for the Government to play a more “significant role in encouraging the growth of at-work charging points,” given the centrality of workplace charging to a successful EV rollout.<sup>369</sup>
179. **Destination charging, including at supermarkets, hotels and workplaces, is convenient for consumers and can reduce reliance on but not replace on-street residential charging.**
180. **The Government’s advisory targets for the public chargepoint rollout depend on a high proportion of workplace charging. However, the number of workplace and other forms of destination chargepoints is currently not monitored. This means that nobody knows if a crucial pillar of the Government’s EV Infrastructure Strategy is keeping pace with expectations. We recommend that the Government monitor this important element of the charging rollout.**
181. **We welcome the Government’s scheme to support workplace chargepoint installation but heard that the scheme is not well utilised and uptake is slow, suggesting it is not adequately publicised. Additionally, the growth in privately funded workplace charging infrastructure is not monitored and so the overall picture is unclear.**
182. *In response to this report, the Government should set out its assessment of how the market-led rollout of workplace charging is progressing, and on what basis it is confident that this is sufficient*

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363 Written evidence from Auto Trader ([ELV0094](#))

364 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

365 *Ibid.*

366 *Ibid.*

367 Written evidence from UK Power Networks ([ELV0070](#)), Department for Transport, *Taking Charge: the electric vehicle infrastructure strategy* (March 2022), p 8: <https://assets.publishing.service.gov.uk/media/6245ba40e90e075f15381cf0/taking-charge-the-electric-vehicle-infrastructure-strategy.pdf> [accessed 18 January 2024]

368 Written evidence from Pod Point ([ELV0101](#))

369 Written evidence from Auto Trader ([ELV0094](#))

*to end direct subsidy through the Workplace Charging Scheme in April 2024. The Government should also set out its assessment of how the market-led rollout of other forms of destination charging is progressing.*

183. *The Government should gather comprehensive data on the availability of workplace chargepoints and consult on mandating workplaces with designated car parking spaces and more than a certain number of employees to install chargepoints using the grant.*

*Multi-occupancy buildings*

184. EV drivers in multi-occupancy buildings, rented or owned, face additional barriers to installing chargepoints. Renters are particularly less likely to seek permission for a chargepoint at a property they do not own due to the costs involved.<sup>370</sup> This will increase reliance on on-street charging.<sup>371</sup>
185. Under the EV Chargepoint Grant, payments of up to £350 per chargepoint are available for those in rented accommodation, flats and multi-occupancy buildings.<sup>372</sup> Grants are also available for both private and social housing landlords.<sup>373</sup> Grants worth up to £30,000 are also available for the cost of wider building work related to the installation of multiple chargepoints in residential car parks and apartment blocks.<sup>374</sup>
186. Individual grants do not cover the total costs of chargepoints.<sup>375</sup> Respondents reported difficulty in getting permission for chargepoint installation, with one respondent saying that the process had taken two years so far and they were yet to have a chargepoint installed.<sup>376</sup> WSP noted that tenants typically lack bargaining power to influence potentially reluctant landlords to take action and struggle to access impartial guidance on how to go about seeking a chargepoint.<sup>377</sup>
187. Carbon Copy told us that polling suggests most consumers are unaware of the ongoing provision of chargepoint funding and grants for renters and flat owners, and that more needs to be done to raise awareness with residents.<sup>378</sup> This lack of awareness is hampering rollout in these settings. We heard that incentives for landlords to participate in the process, or greater rights for tenants, could help to boost chargepoint installation in these properties.<sup>379</sup>
188. Planning reforms will also be necessary to increase chargepoint installations in multi-occupancy buildings. We discuss these in the section on planning later in this chapter.
189. **We welcome the targeting of private chargepoint grants to drivers and residents in situations where securing chargepoint installation is more challenging and where the private sector is unlikely to deliver chargepoint provision. However, we heard that awareness of these**

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370 Written evidence from Peter Newson ([ELV0008](#)) and WSP ([ELV0096](#))

371 Written evidence from Peter Newsom ([ELV0008](#))

372 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

373 *Ibid.*

374 *Ibid.*

375 Written evidence from WSP ([ELV0096](#))

376 Written evidence from Randal Lancelyn Green ([ELV0019](#))

377 Written evidence from WSP ([ELV0096](#))

378 Written evidence from Carbon Copy ([ELV0041](#))

379 Written evidence from WSP ([ELV0096](#)) and Salvage Wire Limited ([ELV0011](#))

schemes is low. *The Government should explore ways to publicise and raise awareness of available schemes through the public information campaign we call for in Chapter 2 of this report.*

190. **Some tenants and leaseholders experience significant delays in obtaining a chargepoint. They often have limited bargaining power to request chargepoint installation in their residences where landlords are reluctant. The Government should consult on offering a ‘right to charge’ for tenants and leaseholders in multi-occupancy buildings to address landlord reluctance. Given the delays experienced by tenants seeking permission to install a chargepoint, the Government should extend the deadline for the grant scheme for landlords and tenants.**

### *Motorway charging*

191. Installing rapid chargers along the strategic road network<sup>380</sup> will be critical to give consumers confidence in driving an EV.<sup>381</sup> Transport & Environment UK noted that many drivers make car ownership decisions based not on their day-to-day use but on the longest journey they might make; if they do not have confidence an EV will enable them to make this journey, they will likely purchase an ICE vehicle instead.<sup>382</sup>
192. The Government aimed to have “at least 6 high powered [rapid], open access chargepoints (15–350 kilowatt capable) at each motorway service area in England” by the end of 2023.<sup>383</sup> During our inquiry, we heard that the Government was not on track to hit this target—and in January 2024 the RAC reported that by the end of 2023 only 39 per cent of English motorway service areas had the target number of chargepoints.<sup>384</sup> The Government also aims to have around 6,000 high-powered, open-access rapid chargepoints across England’s motorways and major A roads by 2035.<sup>385</sup>

### *Rapid Charging Fund*

193. The Rapid Charging Fund was announced in March 2020 to support upgrading and future-proofing electrical capacity by installing additional transformers along the strategic road network, including motorway service areas.<sup>386</sup> £950 million was allocated to the Fund.<sup>387</sup>

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380 The Strategic Road Network refers to the UK’s motorways and major A roads, equating to roughly 4,500 miles. For further information see National Highways, ‘Roads we manage’: <https://nationalhighways.co.uk/our-roads/roads-we-manage/> [accessed 18 January 2024].

381 Written evidence from Transport & Environment UK (ELV0035), Electrifying.com (ELV0075) and Q 93 (Anthony Browne MP)

382 Written evidence from Transport & Environment UK (ELV0035)

383 HM Government, ‘Government vision for the rapid chargepoint network in England’ (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> [accessed 18 January 2024]

384 BBC News, ‘Motorway electric charge point target missed, says RAC’ (2 January 2024): <https://www.bbc.co.uk/news/business-67858961> [accessed 2 January 2024]

385 Office for Zero Emission Vehicles and Department for Transport, ‘Rapid Charging Fund’ (September 2021): <https://www.gov.uk/guidance/rapid-charging-fund> [accessed 18 January 2024]

386 Written evidence from the Finance and Leasing Association (ELV0111), Office for Zero Emission Vehicles and Department for Transport, ‘Rapid Charging Fund’ (September 2021): <https://www.gov.uk/guidance/rapid-charging-fund> [accessed 18 January 2024]

387 House of Commons Library, ‘Going the distance: Are motorways ready for more electric vehicles?’, June 2023 <https://commonslibrary.parliament.uk/going-the-distance-are-motorways-ready-for-more-electric-vehicles/> [accessed 18 January 2024]

194. The Minister, Anthony Browne MP, told us that the Fund is intended to support the installation of rapid charging points at motorway service areas where they would not otherwise be commercially viable.<sup>388</sup> We heard that the costs of grid and electrical infrastructure upgrades at motorway service areas are significant and that, were chargepoint operators to shoulder these, the resulting price for consumers would be punitive.<sup>389</sup> Richard Bruce added that waiting for these sites to become commercially viable would mean waiting a long time for chargepoints to be installed, possibly well past the 2035 phase-out date.<sup>390</sup>
195. The Fund however, had not yet opened for applications at the outset of our inquiry.<sup>391</sup> The Finance and Leasing Association noted a “sense of drift in this important element of the delivery programme”.<sup>392</sup> We heard strong support for the Rapid Charging Fund and witnesses urged the Government to accelerate its delivery.<sup>393</sup>
196. We asked the Government to explain the delay. The Minister noted that several issues had delayed the launch of the scheme and Richard Bruce added that developing regulatory terms around who pays for the electricity had been particularly complicated.<sup>394</sup> On 6 December 2023, after our inquiry had finished taking evidence, the Government announced a £70 million pilot scheme of the Rapid Charging Fund<sup>395</sup> (less than 10 per cent of the £950 million originally earmarked for the scheme) and opened a consultation on the design of the Fund.<sup>396</sup>
197. Evidence we received emphasised ways in which the Fund could be designed to maximise impact. SSE argued that the Government must take an explicitly regional approach to allocating funds, targeted at less commercially viable areas across the entire strategic road network, rather than just defaulting to motorway service areas.<sup>397</sup> The National Grid called for an expansion of the Fund’s initial remit in order to futureproof the grid for all future electric road transport, including zero-emission HGVs.<sup>398</sup> SMMT called for a minimum number of rapid chargepoints per motorway service area, depending on the size of the site and expected traffic, with reviews every two years to ensure that installation is keeping pace with uptake.<sup>399</sup>
198. **Consumers need confidence that they will be able to charge their electric vehicle, no matter how long their journey. Yet the Government has missed its target to have at least 6 high powered chargepoints at**

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388 [Q 93](#)

389 [Q 93](#) (Anthony Browne MP and Richard Bruce)

390 [Q 93](#) (Richard Bruce)

391 Office for Zero Emission Vehicles and Department for Transport, ‘Rapid Charging Fund’ (September 2021): <https://www.gov.uk/guidance/rapid-charging-fund> [accessed 18 January 2024]

392 Written evidence from the Finance and Leasing Association ([ELV0111](#))

393 Written evidence from the National Grid ([ELV0118](#)), Roadchef ([ELV0100](#)), EDF ([ELV0115](#)) and Pod Point ([ELV0101](#))

394 [Q 84](#) (Anthony Browne MP) and [Q 93](#) (Bruce)

395 Office for Zero Emissions Vehicles and Department for Transport, ‘Transport Secretary announces £70 million boost for more rapid electric vehicle chargers at COP28’, (December 2023): <https://www.gov.uk/government/news/transport-secretary-announces-70-million-boost-for-more-rapid-electric-vehicle-chargers-at-cop28> [accessed 18 January 2024]

396 Office for Zero Emissions Vehicles and Department for Transport, ‘Rapid charging fund: scheme design’, (December 2023): <https://www.gov.uk/government/consultations/rapid-charging-fund-scheme-design> [accessed 18 January 2024]

397 Written evidence from SSE ([ELV0057](#))

398 Written evidence from the National Grid ([ELV0118](#))

399 Written evidence from SMMT ([ELV0117](#))

each motorway service area in England by the end of 2023. The Rapid Charging Fund is designed to support the delivery of rapid and ultra-rapid chargepoints at motorway service areas at a reasonable cost to consumers but has experienced significant delays. While we welcome the recent announcement of a pilot fund and consultation on the design of the scheme, there has been a concerning lack of progress nearly four years after the Fund was announced.

199. *Progress in this area must be accelerated urgently. In response to this report, the Government should confirm its revised deadline for meeting its motorway service area chargepoint target. The Government should also periodically review this target and publish its findings to ensure it keeps pace with the number and category of electric vehicles on the roads.*
200. *In allocating funds from the Rapid Charging Fund, the Government must ensure that these are distributed according to need across the Strategic Road Network. There is a risk that motorway services areas are prioritised over the wider strategic road network which includes important A roads, especially now the Government is behind on its motorway service area target. When opening applications to the Rapid Charging Fund, the Government must make clear its criteria on how funds will be allocated.*

*Planning regulation and barriers to delivery*

201. Several stakeholders highlighted the need to review and streamline planning processes associated with chargepoint installation.<sup>400</sup> OZEV told us the Government wants to make these processes as smooth as possible.<sup>401</sup> However, we heard that significant change would be necessary to achieve this aim. ChargeUK noted that charging infrastructure is often granted permission, but that the process is time-consuming, costly and unpredictable.<sup>402</sup>
202. We also heard that the interpretation of planning rules varies significantly across different local authorities, which must be taken into account by prospective chargepoint operators.<sup>403</sup> Stakeholders noted that this divergence is hampering progress.<sup>404</sup> Some stakeholders recommended that Government produce guidance to support greater consistency, while Shell suggested that processes should be centralised.<sup>405</sup> Given their important role in strategic delivery of EV infrastructure, some called for enhanced priority for rapid and ultra-rapid charging hubs, similar to Nationally Significant Infrastructure Projects, to help to simplify the planning process.<sup>406</sup>
203. Richard Bruce told the Committee that the Government was aware of a number of bottlenecks at the local level caused by planning permissions.<sup>407</sup> He added that the Department was working with the Department for

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400 [Q 18](#) (Mike Hawes), [Q 38](#) (Melanie Shufflebotham), [Q 74](#) (Shamala Evans-Gadgil) and written evidence from Pod Point ([ELV0101](#))

401 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

402 Written evidence from ChargeUK ([ELV0135](#))

403 Written evidence from SMMT ([ELV0117](#)), Allen Gilbey ([ELV0027](#)) and SSE ([ELV0057](#))

404 Written evidence from SMMT ([ELV0117](#))

405 Written evidence from SMMT ([ELV0117](#)), Shell UK ([ELV0055](#)), and Hertfordshire County Council ([ELV0090](#))

406 Written evidence from WSP ([ELV0096](#))

407 [Q 86](#)

Levelling Up, Housing and Communities to resolve issues case-by-case.<sup>408</sup> He explained that the planning framework was not designed for EV installation and so it was taking time to make the changes needed.<sup>409</sup>

204. OZEV noted in evidence that the Government was exploring options for a unified consent process for installing EV chargepoints.<sup>410</sup> In October 2023, the Department for Transport also published the Plan for Drivers which noted the Government's intention to consult on making it easier for chargepoint operators to install chargepoint infrastructure on public highways, and on the expansion of permitted development rights to make private chargepoint installation easier and cheaper.<sup>411</sup> In December 2023, the Prime Minister committed to consulting on amending the National Planning Policy Framework to ensure it "prioritises" the rollout of EV chargepoints.<sup>412</sup>
205. **The installation of chargepoints is a national priority. But planning and other associated regulations are holding back progress. Simplified and standardised planning processes are needed, whereby these overlapping regulatory processes can be satisfied in a single step. We are pleased to hear that OZEV is considering the development of unified consent processes to streamline the various consents required for planning and permitting. We recommend that the Government publish its plans as early as possible to support infrastructure rollout. We set out in further detail below the aspects of planning regulation that should be reviewed as part of this process.**

*Pavement gullies*

206. We heard that, owing to the lower prices associated with home charging, some EV owners attempt to trail cables across pavements or out of windows to charge their vehicles, creating trip hazards and rendering the pavement unsafe for wheelchair users and push chairs.<sup>413</sup>
207. We were told that cable pavement gullies, covered channels cut into the pavement, may offer a solution, and have been piloted by some councils.<sup>414</sup> Peter Ollivere, Spatial Policy Team Leader at Durham County Council, told us that Durham County Council are trialling pavement gullies following calls from local residents.<sup>415</sup> He added that clarification from the Government about what planning permission is necessary for gully installation would be valuable.<sup>416</sup> Shamala Evans-Gadgil and WSP noted that there is a lack of clarity over liability for potential trip hazards.<sup>417</sup>
208. The Department for Transport's Plan for Drivers, published in October 2023, noted that the Government would be seeking to provide guidance

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408 Q 86 (Richard Bruce)

409 *Ibid.*

410 Written evidence from the Office for Zero Emission Vehicles (ELV0110)

411 Department for Transport, *The plan for drivers* (October 2023), p 24: <https://assets.publishing.service.gov.uk/media/651fe3022548ca000dddec82/the-plan-for-drivers.pdf> [accessed 18 January 2024]

412 HC Deb, 13 December 2023, col 742

413 Written evidence from WSP (ELV0096) and the Urban Transport Group (ELV0063)

414 Written evidence from myenegi Ltd (ELV0095), T Salmon (ELV0006) Q 74 (Peter Ollivere and Shamala Evans-Gadgil)

415 Q 74 and written evidence from Hertfordshire County Council (ELV0090)

416 Q 74

417 Q 74 and written evidence from WSP (ELV0096)



on the use of safe cross-pavement solutions to local authorities.<sup>418</sup> The Plan added that the Government would build on these measures by expanding the Electric Vehicle Chargepoint Grant to support cross-pavement solutions.<sup>419</sup>

209. **Pavement cable gullies may be a solution for a limited number of households, offering access to charging immediately outside the home and at domestic energy prices—which are currently cheaper than public charging and are already being explored in some areas of the country. However, it is essential that these do not threaten the accessibility or safety of the pavement. Some local authorities may understandably be hesitant about granting permission due to a lack of clarity about the necessary planning permissions and liability for hazards. The laying of cables across the pavement, in addition to confusion around who has the right to use the adjoining parking space, could create tension in local communities and careful communication and management by local authorities will be required. We welcome the Government’s stated intention to provide guidance on the use of cross-pavement solutions and urge this to be published as soon as possible.**

*Permitted Development Rights*

210. Permitted development rights allow for specific works to take place without the requirement to submit a planning application.<sup>420</sup> They are a devolved matter, allowing for different approaches across the nations of the UK.<sup>421</sup>
211. The installation of an EV chargepoint is a permitted development under planning law<sup>422</sup> subject to certain restrictions.<sup>423</sup> For example, chargepoints cannot exceed a height of 2 metres.<sup>424</sup> We heard that this height stipulation poses an issue for chargepoint operators, for example when installing on a kerb.<sup>425</sup> In Scotland, permitted development rights were recently extended to taller chargepoints up to 2.7 metres, to allow for installation in National Parks or conservation areas and to allow permitted development rights for solar canopies and lighting of EV chargepoints.<sup>426</sup> Permitted development rights do not allow for works to take place on public pavements, where separate permissions are required.<sup>427</sup>
212. Ian Johnston suggested that following the Scottish example would “without exaggeration, take between six to nine months off the average deployment.”<sup>428</sup> The Department for Levelling Up, Housing and Communities (DLUHC) also consulted in 2023 on allowing permitted development rights for solar canopies, but did not proceed. ChargeUK advocated for permitted

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418 Department for Transport, *The plan for drivers* (October 2023), pp 24–25 <https://www.gov.uk/government/publications/plan-for-drivers/the-plan-for-drivers> [accessed 18 January 2024]

419 *Ibid.*, p 25

420 Written evidence from DLUHC ([ELV0142](#))

421 Written evidence from DLUHC ([ELV0142](#))

422 This was updated in July 2023 after consultation to clarify that this permitted development rights also applies to bodies working on behalf of the local authority, such as CPOs.

423 [Q 72](#) (Shamala Evans-Gadgil)

424 *Ibid.*

425 [Q 30](#) (Ian Johnston)

426 Written evidence from ChargeUK ([ELV0076](#)) and The Town and Country Planning (General Permitted Development and Use Classes) (Scotland) Miscellaneous Amendment Order 2023 ([SI2021/35](#))

427 Written evidence from DLUHC ([ELV0142](#))

428 [Q 33](#)

development rights for battery storage, lighting and housing for equipment as in Scotland, but these were not included in the UK Government's consultation. The group also expressed concern that the changes implemented by DLUHC are limited in impact and do not go far enough to support infrastructure deployment.<sup>429</sup>

213. **We welcome recent updates to the Permitted Development Rights (PDR) for chargepoint installation in England and Wales. However, we note that restrictions remain around chargepoint height which are inhibiting deployment. We heard that the Scottish government's relaxation of the height restriction in its updates to Permitted Development Rights in Scotland has had a significant impact on accelerating the rollout.**
214. *The Government should review permitted development rights as they relate to chargepoint installation and launch a consultation that considers additional PDR for taller chargepoint installations and the installation of solar canopies.*

*Traffic Regulation Orders*

215. We heard that the intersection between parking regulations and charging needs to be addressed.<sup>430</sup> At many sites, it is necessary to label a parking bay with a chargepoint as "EV-only" which requires a Traffic Regulation Order (TRO). We heard that currently it can take up to five months to clear this statutory process, and that there is scope to shorten and modernise the process to support infrastructure delivery.<sup>431</sup>
216. In March 2022, the Government launched a consultation to explore proposed changes to TROs. It was specified that these changes would apply to designating "EV-only" parking bays.<sup>432</sup> Proposed changes included creating TROs that could be applied for and published online to simplify and accelerate the process.<sup>433</sup> At the time of publication, the Government had only published a partial response to the consultation which covered so-called 'digital TROs' that can be viewed online, but did not cover questions as they relate to EV chargepoints.<sup>434</sup> The Department for Transport has decided to proceed with digitising TROs and to "amend primary legislation in England to include a requirement for traffic authorities to share all data about the TROs they make".<sup>435</sup> The Government has said it will publish part 2 of the response in due course.<sup>436</sup>

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429 Written evidence from ChargeUK ([ELV0135](#))

430 Written evidence from Hertfordshire County Council ([ELV0090](#))

431 Written evidence from the Association for Renewable Energy and Clean Technology (REA) ([ELV0093](#)) and ChargeUK ([ELV0135](#))

432 Department for Transport, *Reform of Traffic Regulation Orders* (March 2022), p 5: <https://assets.publishing.service.gov.uk/media/6225f74c8fa8f54910242291/consultation-on-reform-of-traffic-regulation-orders.pdf> [accessed 18 January 2024]

433 Department for Transport, *Reform of Traffic Regulation Orders* (March 2022): <https://assets.publishing.service.gov.uk/media/6225f74c8fa8f54910242291/consultation-on-reform-of-traffic-regulation-orders.pdf> [accessed 18 January 2024]

434 Department for Transport, "Traffic regulation orders: government response part 1", (January 2024): <https://www.gov.uk/government/consultations/traffic-regulation-orders-changes-to-publishing-requirements-and-special-events-order-approvals/outcome/traffic-regulation-orders-government-response-part-1> [accessed 18 January 2024]

435 *Ibid.*

436 *Ibid.*

217. **We heard that the Traffic Regulation Orders required to label parking bays as “EV-only” are causing significant delays in the delivery of chargepoint infrastructure. Though the Government launched a consultation into simplifying and streamlining the process for acquiring a Traffic Regulation Order in March 2022, it has yet to publish a complete response. *The Government should publish its full response to the consultation on Traffic Regulation Orders as soon as possible.***

*The Highways Act 1980*

218. We heard that parts of the Highways Act 1980 are creating challenges for local authorities delivering charging infrastructure.<sup>437</sup> Section 115B of the Act, originally intended to manage how and where advertising is displayed on highways, states that before installing an asset that generates revenue, consent must be sought from the adjoining landowner.<sup>438</sup> This now applies to the installation of chargepoints, including lamppost chargepoint installations. We heard this is causing significant delays to chargepoint operators who aim to install thousands of chargepoints—requiring consent for each installation amounts to thousands of consents that must be obtained.<sup>439</sup> Connected Kerb noted that when seeking approval for chargepoints on streets, the rejection rate can be 50 per cent which makes it a very time-consuming and expensive process.<sup>440</sup> Dr Chris Pateman-Jones noted that more needs to be done to communicate to residents the benefits of EV installation on their area and to push back sometimes against rejection by residents.<sup>441</sup>
219. Several stakeholders also raised the issue of non-standardised processes for resident consultation across different councils and local authorities and the delays that these can create.<sup>442</sup> Some called for relevant regulations and legislation to be reviewed to maintain the consultation process but review the consenting process to ensure that it remains proportionate to a rollout of such high national priority.<sup>443</sup> To address the delays caused by a range of consenting and permission processes, Charge UK suggested the development of a unified consent system in England to manage the multiple permissions needed from authorities.<sup>444</sup> Ian Johnston noted that standardising planning processes would be a “quick win” that would make a significant difference to chargepoint operators.<sup>445</sup> Steve Gooding, Director of the RAC Foundation, suggested that a Ministerial Task Force would be well placed to achieve this.<sup>446</sup>
220. **We heard that application of Section 115B of the Highways Act 1980 to chargepoint installation is a major barrier to local authorities keen to progress with the rollout of infrastructure. It is time-consuming and establishes a disproportionately high threshold of consent relative to standard consultation processes. The concerns of residents and**

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437 [Q 67](#) (Shamala Evans-Gadgil)

438 Highways Act 1980, [Section 115B](#)

439 [Q 67](#) (Shamala Evans-Gadgil), written evidence from Connected Kerb ([ELV0064](#)) and ChargeUK ([ELV0135](#))

440 [Q 67](#) (Dr Chris Pateman-Jones)

441 [Q 67](#)

442 [Q 32](#) (Ian Johnston and Steve Gooding), written evidence from WSP ([ELV0096](#)) SSE ([ELV0057](#)), and ChargeUK ([ELV0135](#))

443 [Q 67](#) (Shamala Evans-Gadgil)

444 Written evidence from ChargeUK ([ELV0135](#))

445 [Q 40](#)

446 *Ibid.*

**businesses must be heard and taken into account, but too many otherwise viable projects risk being stopped entirely where sensible mitigations achieved through consultation could provide a solution. This Section was not designed to apply to chargepoints and should be reviewed.**

221. *We recommend that the Government review Section 115B to determine whether it is fit for purpose as it applies to chargepoint installation and, if necessary, use the earliest legislative opportunity to amend the legislation to prevent further delays.*

*Multi-occupancy buildings*

222. In December 2021, the Government updated the building regulations to include ‘Approved Document S: Infrastructure for charging electric vehicles’.<sup>447</sup> This stated that from June 2022, all new housing in England that includes parking must install EV charging infrastructure during development.<sup>448</sup> The Minister told the committee that this will lead to approximately 150,000 chargepoints being installed per year.<sup>449</sup> This also includes housing undergoing major renovation, where there is a change of use in a building and new non-residential properties.<sup>450</sup>
223. However, Pod Point highlighted that previous uncertainties around fire risk liabilities of charging infrastructure installed in covered car parks had led to it being exempted from the Part S Building Regulations.<sup>451</sup> We heard that a recent study commissioned by the Office for Zero Emission Vehicles demonstrated that EV charging presented no elevated fire risk, yet the exemption remains in place.<sup>452</sup> The Association of British Insurers also cited research indicating that more broadly, “the risk of fire for an EV and ICE are not significantly different”.<sup>453</sup> However, we heard from Robin Brundle, Executive Chairman at Technology Minerals Plc, that when EVs do catch fire, they are harder to put out due containing more chemical energy compared to petrol and diesel vehicles.<sup>454</sup>
224. Besides new developments, there are currently no regulations requiring existing residential multi-occupancy buildings to have charging installed, only those undergoing major renovation.<sup>455</sup> London Councils and Green Alliance called for existing flat blocks and communal buildings to have chargepoints retrofitted.<sup>456</sup> However, we note that retrofitting multi-occupancy blocks poses significant challenges including space limitations, a lack of dedicated parking, complex installation processes and disputes about cost sharing.<sup>457</sup>

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447 HM Government, *The Building Regulations 2010: Approved Document S: Infrastructure for the charging of electric vehicles* (December 2021): [https://assets.publishing.service.gov.uk/media/6218c5d38fa8f54911e22263/AD\\_S.pdf](https://assets.publishing.service.gov.uk/media/6218c5d38fa8f54911e22263/AD_S.pdf) [accessed 29 January 2024]

448 Written evidence from the Local Government Association (ELV0079)

449 Q 78 (Anthony Browne MP)

450 Written evidence from the Local Government Association (ELV0079)

451 Written evidence from Pod Point (ELV0101)

452 *Ibid.*

453 Written evidence from the Association of British Insurers (ELV0080)

454 Written evidence from Robin Brundle (Executive Chairman at Technology Minerals Plc) (ELV0139)

455 Written evidence from Greenpeace UK (ELV0040)

456 Written evidence from Green Alliance (ELV0099) and London Councils (ELV0119)

457 Written evidence from Transport for West Midlands (TfWM) (ELV0060)

225. We welcome the Government's updates to the building regulations which require all new developments with parking, and existing developments that are undergoing major renovation, to be fitted with chargepoints. However, these updates do not address obstacles to installing chargepoints in multi-occupancy buildings or buildings with designated parking for which chargepoint installation has been slow and difficult. While mandating retrofitting of these buildings with chargepoints may not be a proportionate step now due to associated costs, the Government should keep the potential for retrofitting multi-occupancy buildings under review. *The Government should consider amendments to the Part S regulations following OZEV's review of fire risks from chargepoints, to allow for installation in covered parking areas in new buildings.*

### **The cost of charging**

226. Alongside the rollout of a suitable number and range of chargepoints, consumers need access to charging that is affordable if they are to make the switch to EVs.

### *Charging costs relative to petrol refuelling*

227. In many cases, EV charging costs less than petrol refuelling. We received extensive analysis on the relative prices of petrol refuelling versus EV charging. Electrifying.com told us that the threshold at which EV charging becomes more expensive than filling an average family car with petrol or diesel is approximately 70p per kWh.<sup>458</sup>

228. Analysis by Zouk Capital indicated that charging an EV at home or on the public low-powered infrastructure was cheaper than petrol refuelling costs at all indicative petrol prices listed.<sup>459</sup> However, the cost benefits decrease or disappear when higher-speed public charging is used.<sup>460</sup> In particular, owners reliant on rapid or ultra-rapid chargepoints will face increased costs relative to petrol cars at current prices.<sup>461</sup>

229. Figure 7 shows the relative prices of charging versus petrol, at a range of indicative prices. Positive numbers indicate where EV charging was found to be cheaper than petrol, and negative numbers where EV charging is more expensive.<sup>462</sup>

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458 Written evidence from Electrifying.com ([ELV0075](#))

459 Written evidence from Zouk Capital LLP ([ELV0044](#))

460 *Ibid.*

461 *Ibid.*

462 *Ibid.*

**Figure 7: The cost of EV charging versus petrol fuelling for an 8,000-mile driver of both vehicles**

p/litre (inc. VAT)	p/kWh (inc. VAT)							
	Home		Public - slow				Public - rapid	
	7	25	30	40	50	60	75	90
125	816	404	290	61	-167	-396	-739	-1,082
135	894	482	368	139	-89	-318	-661	-1,004
145	912	560	446	217	-11	-240	-583	-926
155	1,050	638	524	295	67	-162	-505	-848
165	1,128	716	602	373	145	-84	-427	-769
175	1,206	794	680	451	223	-6	-349	-691
185	1,284	872	758	529	301	72	-271	-613
195	1,362	950	836	608	379	150	-192	-535

Source: Written evidence from Zouk Capital LLP ([ELV0044](#))<sup>463</sup>

This indicates that:

- all forms of home EV charging are comfortably cheaper than petrol refuelling;
- most forms of slow public EV charging are cheaper than petrol refuelling;
- all rapid charging is more expensive than petrol refuelling.

230. According to research by SMMT, 90 per cent of the electric car drivers they polled would not go back to an ICE vehicle and 57 per cent of these cited spending less on fuel as a benefit—although overwhelmingly these drivers had access to cheaper home charging (84 per cent).<sup>464</sup> We heard that the higher costs at rapid and ultra-rapid chargepoints may pose a particular issue for higher-mileage drivers who are more dependent on these types of chargepoints and this may dissuade them from switching until later.<sup>465</sup>

231. Auto Trader also noted the variation in charging costs depending on the chargepoint used.<sup>466</sup> Their data indicated that home charging, particularly on smart charging tariffs, offers significant savings that are lost when using rapid and ultra-rapid chargepoints.<sup>467</sup> Home charging is the cheapest option, and could be made cheaper still through utilisation of smart charging and vehicle-to-grid technology, as we discuss in further detail below.<sup>468</sup>

463 Because a gallon of petrol is not the same as a kWh of electricity, Zouk Capital LLP converted all figures to pence per mile for comparison using efficiencies of 36 miles per gallon and 3.5 miles per kWh. The figures of 7p/kWh and 25p/kWh are defined as “home” which is a typical range of figures from suppliers such as Octopus, EDF and EON. “Public – slow” are 7-22kw chargers found on-street and at long duration stops i.e., train stations, supermarkets and shopping centres, whilst “public – rapid” are 50kw+ EV chargers typically found on busy A-roads, drive-thru coffee shops and motorway services areas. At the time of submission the Government’s own data indicated petrol was almost 152p/litre. For further information, see: written evidence from Zouk Capital LLP ([ELV0044](#)).

464 Written evidence from SMMT ([ELV0117](#)). The sample size of the research quoted was 2,375 adults online in the UK who were filtered by those who have access to a car. Interviews conducted between 1–8 September 2023.

465 Written evidence from Transport & Environment UK ([ELV0035](#))

466 Written evidence from Auto Trader ([ELV0094](#))

467 *Ibid.*

468 Written evidence from Octopus Electric Vehicles ([ELV0087](#))

232. **Home charging at all speeds currently offers significant cost benefits over petrol refuelling, and much of the slower public charging infrastructure is also cheaper. The Government should make this clear to consumers as part of the public information campaign that we are calling for. However, there is more that can be done to further bring costs down to incentivise consumers to make the switch including changes to energy pricing and VAT rates as discussed in paragraphs 236 and 243. This will be particularly significant for rapid and ultra-rapid charging, where the cost of charging remains high relative to petrol.**

*Electricity costs*

233. Pod Point told us that the unusually high electricity prices recently have “weakened the economic case of EVs” and called for the Government to address this.<sup>469</sup> According to surveys by What Car? magazine, 41 per cent of drivers cite electricity costs as a reason not to purchase an EV.<sup>470</sup> Transport for London and the Greater London Authority told us that drivers have noted that rising electricity prices are increasing the cost of charging, particularly when compared to fossil fuels.<sup>471</sup> Figure 7 sets out the price of charging as compared to petrol and diesel prices.
234. In February 2023, following our inquiry into the Boiler Upgrade Scheme, we wrote to the Government recommending that the link between the price of wholesale gas and electricity be weakened through electricity market reform in order to bring down the cost of electricity for consumers.<sup>472</sup>
235. We also note that recent years have seen high and volatile petrol and diesel prices: the Competition and Markets Authority found that 2022 was “the most volatile year for fuel prices since reliable records began.”<sup>473</sup>
236. **Recent electricity price fluctuations have affected consumer confidence in the cost benefits of EVs. As EV uptake increases, EV owners will be more exposed to the cost of electricity. We reiterate our recommendation following our inquiry into the Boiler Upgrade Scheme that the Government review options for weakening the link between the price of wholesale gas and electricity through electricity market reform in order to reduce the cost of electricity for EV owners.**

*Charging costs: home versus rapid*

237. Public charging attracts higher costs than home charging. In 2021, analysis by the National Audit Office of public data suggested that charging at home could be between 59 and 78 per cent cheaper than charging on the public

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469 Written evidence from Pod Point ([ELV0101](#))

470 Written evidence from Steve Huntingford (Editor at What Car? Magazine) ([ELV0106](#))

471 Written evidence from the Mayor of London (joint response from Transport for London and the Greater London Authority) ([ELV0121](#))

472 Letter from the Chair to Lord Callanan, Parliamentary Under Secretary of State for Energy Security and Net Zero, 22 February 2023: <https://committees.parliament.uk/publications/34006/documents/187196/default/>

473 Competition and Markets Authority, ‘CMA publishes emerging analysis from Road Fuel Market Study’, (December 2022): <https://www.gov.uk/government/news/cma-publishes-emerging-analysis-from-road-fuel-market-study> [accessed 29 January 2024]

network (depending on the wide variation in domestic electricity and on-street charging tariffs).<sup>474</sup>

238. We heard concerns that the impact of this is inequitable.<sup>475</sup> As noted earlier in this chapter, those who are more reliant on public charging are often those on lower incomes. Respondents noted that the cost of charging varies quite significantly across chargepoint types and locations.<sup>476</sup> Some individual members of the public called for a price cap for consumers, preferably at a lower cost than petrol and diesel.<sup>477</sup>
239. Different VAT rates apply to home charging (5 per cent) and public charging (20 per cent). Pod Point raised concerns that this exacerbates existing inequalities by penalising those unable to access home charging who may be typically less affluent.<sup>478</sup> We received near unanimous evidence in support of equalising the VAT rates for home and public charging.<sup>479</sup> Furthermore, in multi-occupancy dwellings, 20 per cent VAT is charged for what is effectively domestic charging.<sup>480</sup> Pod Point suggested that this should attract the domestic 5 per cent rate instead. According to Shamala Evans-Gadgil, residents are raising the issue of the VAT disparity face-to-face and in written consultations and want to know what local authorities and the Government are doing to address it.<sup>481</sup>
240. The Minister, Anthony Browne MP, noted that the difference between the two VAT rates “is only a very small part of the difference in price”, noting that chargepoint operators also pay higher prices for electricity than domestic consumers, but accepted that the discrepancy was a valid concern.<sup>482</sup> The LGA was supportive of aligning VAT for domestic and non-residential charging and the role it could play in incentivising the switch to EVs, but noted that it would raise the question for the Treasury of recovering lost revenue.<sup>483</sup> OZEV stated in their response that any expansion of VAT relief beyond what is already available would put additional pressure on public finances but that the Government keeps all taxes under review.<sup>484</sup>
241. Using the ZapMap price index figures for October 2023 it is possible to calculate the cost of charging if VAT rates were equalised.<sup>485</sup> If VAT for public charging were reduced to 5 per cent, the price would drop from 55p per kWh to 48.1p for slow/fast charging, and from 79p per kWh to 70p for rapid

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474 National Audit Office, *Reducing carbon emissions from cars* (February 2021), p 38: <https://www.nao.org.uk/wp-content/uploads/2021/02/Reducing-Carbon-Emissions-from-cars.pdf>, cited in written evidence from UK Power Networks (ELV0070)

475 Written evidence from Urban Transport Group (ELV0063)

476 Written evidence from Auto Trader (ELV0094)

477 Written evidence from Anonymous (ELV0003), David Willis (ELV0025)

478 Written evidence from Pod Point (ELV0101)

479 Written evidence from T Salmon (ELV0006), the Urban Transport Group (ELV0063), Green Alliance (ELV0099), Lancashire Enterprise Partnership (ELV0073), Douglas Robertson (ELV0015), Zouk Capital LLP (ELV0044), Connected Kerb (ELV0064), Pod Point (ELV0101) and London Councils (ELV0119)

480 Written evidence from Pod Point (ELV0101)

481 Q 69

482 Q 90

483 Written evidence from the Local Government Association (ELV0079)

484 Written evidence from the Office for Zero Emission Vehicles (ELV0110)

485 Zapmap, ‘Zapmap Price Index’: <https://www.zap-map.com/ev-stats/charging-price-index> [accessed 18 December 2023]



charging.<sup>486</sup> 70p/kWh is the approximate threshold at which EV charging becomes more expensive than petrol fuels.<sup>487</sup> An equalisation of VAT based on October 2023 prices would bring the price of public charging down to substantially below 70p/kWh for slow/fast charging and roughly equalise the costs of rapid/ultra-rapid chargepoints with those of petrol fuels.<sup>488</sup>

242. **We received near-unanimous support for the equalisation of VAT rates between domestic and public charging. While VAT is not the only component affecting the difference in electricity pricing between domestic and public chargepoints, it is a lever that is available to the Government to address the price disparity. Our analysis suggests that VAT equalisation could improve the affordability of public chargepoints by bringing prices down to (a) roughly the same as petrol and diesel prices for rapid and ultra-rapid chargepoints, and (b) significantly below petrol and diesel prices for on-street slow-to-fast chargepoints.**
243. *We recommend that the Government explore options for equalising the VAT differential between public and domestic charging by reducing the 20 per cent VAT rate applied to public charging to 5 per cent in line with domestic electricity. As part of this, the Government should model the amount of revenue that would be lost by the Treasury, and explore options for recovering this in line with the holistic bonus-malus approach to taxation we call for in Chapter 3.*

### *Smart charging and Vehicle-to-grid technology*

#### *Smart charging*

244. Smart charging involves charging an EV when there is less demand on the grid, overnight for example, or when there is ample renewable energy, such as during periods of high wind. Smart charging may involve chargepoints with an interface or app that enables the consumer to set when an EV charges based on off-peak times, or via a smart tariff with an energy provider.<sup>489</sup>
245. The resulting energy used is cheaper for consumers. EDF estimates that charging via its ‘Go Electric Overnight’ tariff costs an average of 2.3 pence per mile.<sup>490</sup> This is significantly less than the cost of home charging on a standard tariff, which EDF states costs an average of 8 pence per mile. According to the RAC, refuelling a petrol car costs an average of 16 pence per mile.<sup>491</sup> Octopus Energy estimated that their ‘Intelligent Octopus’ tariff costs the average consumer £49 a month, compared to £165 for refuelling an ICE vehicle.<sup>492</sup>

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486 The initial prices used for the calculation are from the ‘Zapmap Price Index’: <https://www.zap-map.com/ev-stats/charging-price-index>: 55p/kWh for Slow/Fast charging and 80p/kWh for Rapid charging (correct as of 12 December 2023). Calculations to amend the VAT were to first remove 20% VAT from the cost: 80/1.2=66.6p for rapid charging and 55/1.2=45.8p. The figures were then multiplied by 1.05 to calculate 5% VAT 66.6\*1.05=70p and 45.8\*1.05=48.1p.

487 Written evidence from Electrifying.com (ELV0075)

488 Written evidence from Zouk Capital LLP (ELV0044) and Electrifying.com (ELV0075)

489 Energy Saving Trust, ‘Smart charging for electric vehicles’ (Updated 15 January 2024): <https://energysavingtrust.org.uk/advice/smart-charging-electric-vehicles/> [accessed 18 January 2024]

490 Written evidence from EDF (ELV0115)

491 *Ibid.*

492 *Ibid.*

246. Smart charging also reduces peak demand on the grid.<sup>493</sup> Dr Russell Fowler, Senior Manager, Decarbonisation at the National Grid, stated that EV smart charging can reduce peak use of the grid by up to 20 per cent, and reduces the need for energy storage.<sup>494</sup> He suggested that if implemented widely, this would reduce the need to upgrade the grid amounting to a £1.4 billion reduction in investment required.<sup>495</sup> We also heard that smart charging allows consumers to charge not only when electricity is cheapest, but also when the supply of renewable energy is most abundant and therefore further improving the environmental footprint of EVs.<sup>496</sup>
247. The Government's January 2023 Electric Vehicle Smart Charging Action Plan set out actions the Government would take to enable widespread smart charging. Commitments included:
- working with Ofgem to understand the relative costs and benefits of smart charging, and using this evidence to inform policy in 2023;
  - ensuring all EV private charge points are equipped to offer a range of smart tariffs;
  - monitoring and evaluating the impact of the Electric Vehicles (Smart Charge Points) Regulations 2021, with interim findings in 2025.<sup>497</sup> These regulations came into force in 2022, and require new private chargepoints to have the functionality to provide smart charging.<sup>498</sup>
248. However, we heard concerns that regulatory uncertainty is hindering smart charging.<sup>499</sup> Both Octopus Electric Vehicles and the Association for Decentralised Energy suggested that the metering standards and technology requirements in the Measuring Instrument Regulations 2016 are outdated and in tension with more recent legislation including the EV (Smart Charge Point) Regulations 2021 and the Energy Act 2023.<sup>500</sup> Octopus noted that a lack of regulatory clarity now could lead to manufacturers following incorrect or inadequate requirements in the production of home chargepoints, which could mean expensive retrofitting at a later date.<sup>501</sup> Both suggested that amending the Measurement Instrument Regulations would help enable providers to roll out smart charging at scale.<sup>502</sup> The Minister told us that the Government has laid the groundwork to ensure that new private chargepoints are equipped for smart charging, though this “has not come in yet.”<sup>503</sup>

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493 Department for Transport, *Electric Vehicle Smart Charging: Government Response to the 2019 Consultation on Electric Vehicle Smart Charging* (July 2021): <https://assets.publishing.service.gov.uk/media/61324b3ce90e070447ef61ce/electric-vehicle-smart-charging-government-response.pdf> [accessed 18 January 2024]

494 Q 44

495 *Ibid.*

496 Written evidence from Shell (ELV0055)

497 Department for Business, Energy and Industrial Strategy, *Electric Vehicle Smart Charging Plan* (January 2023), p 46: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1129728/electric-vehicle-smart-charging-action-plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1129728/electric-vehicle-smart-charging-action-plan.pdf) [accessed 18 January 2024]

498 Written evidence from Energy UK (ELV0103)

499 Written evidence from the Association for Decentralised Energy (ELV0053) and Octopus Electric Vehicles (ELV0087)

500 *Ibid.*

501 Written evidence from Octopus Electric Vehicles (ELV0087)

502 Written evidence from the Association for Decentralised Energy (ELV0053) and Octopus Electric Vehicles (ELV0087)

503 Q 94

249. **We heard concerns about a lack of regulatory clarity holding back the widespread deployment of smart charging. We recommend that the Government’s interim review of the EV Smart Chargepoint Regulations 2021 is brought forward to 2024, and takes into account their interaction with the Measurement Instrument Regulations 2016 to ensure any potential conflicts are resolved as soon as possible. This is essential to give industry confidence and ensure any need for expensive retrofitting of outdated chargepoints in future is avoided.**

*Vehicle-to-grid technology*

250. Vehicle-to-grid technology is a more advanced form of smart charging. Through vehicle-to-grid charging, a customer agrees to use the battery in their vehicle as a source of distributed energy storage, allowing the car to ‘sell’ power to the grid when the car is fully charged and electricity prices are high.<sup>504</sup> The benefits to both consumers and the grid were highlighted in a wide range of submissions.<sup>505</sup> We heard that EVs, operating as hundreds of thousands of small-scale batteries directly connected to the grid, have significant potential to reduce peak demand on the grid by as much as 65 per cent.<sup>506</sup> National Grid modelling suggested that a combination of smart charging and vehicle-to-grid use at peak times could increase grid capacity by 27GW by 2035 (the total capacity of the grid in 2021 was 112 GW).<sup>507</sup> This would reduce reliance on rapid-access, carbon-intensive electricity generation.<sup>508</sup>
251. Vehicle-to-grid also offers cost benefits to consumers in the form of lower electricity bills.<sup>509</sup> A recent study of over 300 EV vehicle-to-grid customers found that the average annual energy bill saving was £420.<sup>510</sup> The Government estimates that this could reach up to £1,000 annually.<sup>511</sup>
252. We heard about several vehicle-to-grid pilots already taking place across the UK.<sup>512</sup> However, witnesses noted several barriers to wider rollout, including high hardware costs, a lack of standardisation for connections and the lack of a vehicle-to-grid tariff.<sup>513</sup> Richard Bruce told us that widespread vehicle-to-grid charging would “ultimately” be a reality in the UK.<sup>514</sup> The Department for Energy Security and Net Zero’s V2X Innovation Programme was

504 Written evidence from the Association for Decentralised Energy ([ELV0053](#)), the RAC ([ELV0078](#)) and Mykos Technologies Ltd ([ELV0034](#))

505 Written evidence from EDF ([ELV0115](#)), Citizens Advice Bureau ([ELV0116](#)), Zouk Capital LLP ([ELV0044](#)), SMMT ([ELV0117](#)), Transport for West Midlands ([ELV0060](#)), the Urban Transport Group ([ELV0063](#)) and Lancashire Enterprise Partnership ([ELV0073](#))

506 Written evidence from Energy UK ([ELV0103](#)) and the Association for Decentralised Energy ([ELV0053](#))

507 Written evidence from the Association for Decentralised Energy ([ELV0053](#)) and Statista, ‘Electricity generation capacity of major power producers in the United Kingdom in 2021’: <https://www.statista.com/statistics/496283/total-electricity-generation-capacity-uk/> [accessed 29 January 2024]

508 Written evidence from Energy UK ([ELV0103](#))

509 Written evidence from Association of Decentralised Energy ([ELV0053](#)) and EDF ([ELV0115](#))

510 Cited in written evidence from the Association for Decentralised Energy ([ELV0053](#))

511 Department for Business, Energy and Industrial Strategy and Ofgem, ‘New plan for smart electric vehicle (EV) charging could save consumers up to £1000 a year’, (17 January 2023): <https://www.gov.uk/government/news/new-plan-for-smart-electric-vehicle-ev-charging-could-save-consumers-up-to-1000-a-year> [accessed 18 January 2024]

512 Written evidence from SSE ([ELV0057](#)), Octopus Electric Vehicles ([ELV0087](#)) and the Urban Transport Group ([ELV0063](#))

513 Octopus Electric Vehicles ([ELV0087](#)), UK Power Networks ([ELV0070](#)) and the Association for Renewable Energy and Clean Technology (REA) ([ELV0093](#))

514 [Q 90](#)

launched in 2022 to address technological barriers to wide-scale deployment of vehicle-to-grid technologies.<sup>515</sup> The Government has committed to delivering this programme by 2025.<sup>516</sup>

253. **The Committee heard that smart charging and vehicle-to-grid technologies are very promising, nascent technologies that could both reduce costs for consumers and balance demand on the grid as more low-carbon technologies such as heat pumps are connected to the grid. We recommend that the Government explore what more can be done to integrate these technologies into EV infrastructure rollout and to ensure consumers have access to these cost-saving measures.**

### Consumer issues and public chargepoint regulations

254. Alongside a well-distributed charging infrastructure and affordable charging, the consumer experience of charging must be user-friendly and reliable to facilitate a successful EV transition. However, in a 2023 survey of RAC members, over a third of EV drivers said that public chargepoints were not easy to use while 79 per cent said that chargepoints were not always working.<sup>517</sup>
255. We also received evidence on the following consumer concerns:
- Queueing at charging stations;
  - Chargepoints often located in quiet areas with potential safety threats for users at night;
  - The array of apps, memberships cards and passwords is poorly designed from a user's perspective;
  - The need for Wi-Fi or data to use some payment systems where coverage can be patchy;
  - Limited clear pricing and signage at some locations.<sup>518</sup>
256. A number of respondents compared the experience of EV chargepoints unfavourably to using petrol stations.<sup>519</sup> Some suggested that unlike chargepoints, petrol pumps are well lit, accessible to vehicles of all sizes, rarely involve queueing, have good signage, clear pricing and a cashier on site.<sup>520</sup> The Government has recently made changes to regulations governing chargepoint standards. These were broadly well received by our witnesses. However, as we set out below, many stressed that their success would be contingent on enforcement, and identified a number of areas where the regulations could go further to deliver their aims.

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515 Department for Energy Security and Net Zero, 'V2X Innovation Programme', (Updated 21 March 2023) <https://www.gov.uk/government/publications/v2x-innovation-programme> [accessed 18 January 2024]

516 Department for Business, Energy and Industrial Strategy, *Electric Vehicle Smart Charging Plan* (January 2023), p 9: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1129728/electric-vehicle-smart-charging-action-plan.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1129728/electric-vehicle-smart-charging-action-plan.pdf) [accessed 18 January 2024]

517 Written evidence from the RAC (ELV0078)

518 Written evidence from Andy Wilson (ELV0013), Mark Garnett (ELV0016), Allen Gilbey (ELV0027) and Robin Roberts (ELV0031)

519 Written evidence from Allen Gilbey (ELV0027) and Kieran Smith (ELV0032)

520 Written evidence from Allen Gilbey (ELV0027)

*The Public Charge Point Regulations 2023*

257. The Public Charge Point Regulations 2023 introduced new rules concerning reliability, roaming, contactless payment, pricing transparency, accessible data and the provision of helplines for chargepoint users.<sup>521</sup>
258. Prior to publication of the Regulations in November 2023, we received written evidence that regulations to support standardisation and improvement of the consumer experience at public chargepoints would be very welcome.<sup>522</sup> We also heard that the Regulations would assist local authorities in procuring charging infrastructure and in developing rigorous Key Performance Indicators in their procurement.<sup>523</sup> Industry stakeholders were broadly supportive of the Regulations, with some noting that they underpin initiatives that have already been taken by industry.<sup>524</sup>
259. The RAC called for the Government to go further and to consider the Public Charging Charter they published in September 2023 along with the FairCharge campaign which includes targets such as a 48-hour repair target for non-working chargers, clear signage on motorways and other major roads to show the location and number of rapid and ultra-rapid chargers, and penalties for non-electric cars that park in charging bays.<sup>525</sup> In France, motorway services carry signs that flag to drivers that there are chargepoints available and whether or not they are full—we heard calls to replicate this in the UK.<sup>526</sup>
260. Stakeholders called for the new standards and regulations to be implemented as quickly as possible.<sup>527</sup> Given that the draft Regulations were first consulted on in 2021, and this is an evolving area, stakeholders noted that they should be kept under review.<sup>528</sup>
261. Though the 2023 Regulations themselves were welcomed, we heard some concerns about whether there would be sufficient resource for enforcement. The Office for Product Safety and Standards (OPSS) is the named enforcement authority responsible for ensuring compliance with the chargepoint regulations: SMMT expressed concern that the OPSS would be suitably resourced for the task.<sup>529</sup> Stakeholders suggested that the regulations should be kept under review, and stressed that monitoring and enforcement would be crucial to their success.<sup>530</sup>
- 262. We welcome the Public Charge Point Regulations 2023, which recognise the centrality of chargepoints being accessible and user-friendly to a successful rollout. However, we encourage the Government to explore how these Regulations could go further to**

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521 The Public Charge Point Regulations 2023 ([SI 2023/1168](#))

522 Written evidence from Citizens Advice Bureau ([ELV0116](#)) and SMMT ([ELV0117](#))

523 Written evidence from WSP ([ELV0096](#))

524 [Q 36](#) (Johnston, Shufflebotham, Gooding), the Electric Vehicle Association (EVA) Scotland ([ELV0039](#)), the UK Electric Fleet Coalition (UKEFC) ([ELV0089](#)), ELV0096 WSP, EDF ([ELV0115](#)), the Mayor of London (joint response from Transport for London and the Greater London Authority) ([ELV0121](#)) and the Association of British Insurers ([ELV0080](#))

525 Written evidence from the RAC ([ELV0078](#))

526 Written evidence from Carwow ([ELV0084](#))

527 Written evidence from SMMT ([ELV0117](#))

528 Written evidence from Transport & Environment UK ([ELV0035](#)) and the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#))

529 Written evidence from SMMT ([ELV0117](#))

530 Written evidence from Transport & Environment UK ([ELV0035](#)), the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#)) and SMMT ([ELV0117](#))

**support consumers, especially as the transition and chargepoint technology continue to evolve. *The Regulations should be reviewed by Summer 2025 at the latest. As part of this review, the Government should consider incorporating the Public Charging Charter and the targets of the FairCharge campaign into regulations.***

263. **Effective communication with drivers about the location and availability of chargepoints will be essential to reducing range anxiety. *We recommend that in the next review of the Regulations the Government consider mandating ‘totem signs’ on motorways at the approach to service stations with EV charging facilities.***
264. **The success of the Public Charge Point Regulations 2023 will be contingent on enforcement. *We recommend that the Government ensure the Office for Product Safety and Security is sufficiently resourced, or considers moving oversight of these important Regulations to a body or Department working more closely on EV uptake, to ensure that there is effective enforcement and that the Regulations deliver improved consumer confidence.***

*Contactless payment*

265. The Regulations require all new public chargepoints with power of 8kW or above to ensure that contactless payment is available.<sup>531</sup> Chargepoints below 8kW may continue to rely on alternative payment methods, including mobile apps, for usage. We heard calls from consumers to resolve the complex range of payment apps and processes.<sup>532</sup> A recent survey by the Electric Vehicle Association England found that 67 per cent strongly preferred and 18 per cent somewhat preferred to use a contactless credit or debit card for payment at a chargepoint.<sup>533</sup>
266. Some witnesses including SMMT argued that omitting chargepoints below 8 kilowatts (estimated at around 90 per cent of all chargepoints) from requirements to offer contactless payment means that charging remains harder and more complex than refuelling ICE vehicles and puts the onus on consumers to use multiple apps and networks cards to access these chargepoints.<sup>534</sup>
267. However, a number of stakeholders noted significant challenges around adding contactless payment to the lower powered network.<sup>535</sup> Ian Johnston stated that installing a contactless reader can double the cost of installing a slow chargepoint.<sup>536</sup> Zouk Capital echoed this, noting that this would likely result either in fewer chargers being installed or costs passed on to the consumer to recoup the loss.<sup>537</sup> Zouk Capital added that people tend to use the same slow chargepoints regularly in place of home charging, meaning that the continued use of apps will be less of an issue as they will most likely be using the same one repeatedly.<sup>538</sup> We also heard that industry is developing

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531 The Public Charge Point Regulations 2023 ([SI2023/1168](#))

532 Written evidence from Anonymous ([ELV0003](#)), and Andy Wilson ([ELV0013](#))

533 Written evidence from Mykos Technologies Ltd ([ELV0034](#))

534 Written evidence from SMMT ([ELV0117](#))

535 Written evidence from Shell UK ([ELV0055](#)) and [Q 26](#) (Melanie Shufflebotham)

536 [Q 37](#)

537 Written evidence from Zouk Capital LLP ([ELV0044](#))

538 Written evidence from Zouk Capital LLP ([ELV0044](#)) and [Q 37](#) (Ian Johnston)

solutions, including platforms that support a range of payment methods, and a fully automated method for charging and payment.<sup>539</sup>

268. **Wider availability of contactless payment on the low powered chargepoint network could simplify and support chargepoint access for consumers. However, witnesses suggested the costs of installing contactless payment modules on the low powered network are significant compared to the cost of the installation and mandating this may risk either fewer chargepoints being installed, or costs being passed on to the consumer. We note that as technology continues to evolve and the industry matures, the costs of installing contactless payments may decrease. At a moment of opportunity for the UK's charging network, we must avoid installing technology that becomes obsolete and must be retrofitted.**
269. *We recommend that the Government ensure contactless payment provisions of the 2023 Regulations are re-examined as part of the regular wider review of the Regulations we are calling for.*

#### *Accessibility of chargepoints*

270. We received significant evidence in support of ensuring that chargepoints and chargepoint bays are accessible for disabled drivers.<sup>540</sup> Disabled Motoring UK raised their concern that most chargepoints being installed to date are not accessible, with many being installed on plinths or high kerbs surrounded by bollards.<sup>541</sup> As a result there are a limited number of chargepoints that disabled motorists can use independently and this presents a major barrier for them in transitioning to EVs.<sup>542</sup> Additionally, many chargepoints have no system for managing cables to assist disabled drivers when connecting cables to vehicle charging sockets.<sup>543</sup> The Motability Foundation also noted that at present, there are no clear design standards for accessible charging.<sup>544</sup>
271. Guidance has been provided by the British Standards Institute (BSI) in the form of PAS1899, published in October 2022.<sup>545</sup> It sets out the specification for accessible charging but at present its application is not mandatory.<sup>546</sup> It covers both the physical aspects of the environment surrounding fixed chargepoints, the location and spacing as well as the information provided to users at the chargepoint.<sup>547</sup> The Government is encouraging adoption of

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539 Written evidence from Zapmap Limited ([ELV0102](#)) and [Q 37](#) (Ian Johnston)

540 Written evidence from the Motability Foundation ([ELV0077](#)), Disabled Motoring UK ([ELV0018](#)), SSE ([ELV0057](#)), UK Power Networks ([ELV0070](#)), and the Electric Vehicle Association (EVA) England ([ELV0062](#))

541 Written evidence from Disabled Motoring UK ([ELV0018](#))

542 Written evidence from Disabled Motoring UK ([ELV0018](#))

543 *Ibid.*

544 Written evidence from the Motability Foundation ([ELV0077](#))

545 British Standards Institute, *PAS1899: 2022 - Electric Vehicles - Accessible charging - Specification*, (2022) [https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/cpin/s20282\\_bsi\\_ev-charge-points-002.pdf](https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/cpin/s20282_bsi_ev-charge-points-002.pdf) [accessed 18 January 2024]

546 British Standards Institute, *PAS1899: 2022 - Electric Vehicles - Accessible charging - Specification*, (2022) [https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/cpin/s20282\\_bsi\\_ev-charge-points-002.pdf](https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/cpin/s20282_bsi_ev-charge-points-002.pdf) [accessed 18 January 2024] and written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

547 British Standards Institute, *PAS1899: 2022 - Electric Vehicles - Accessible charging - Specification*, (2022) [https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/cpin/s20282\\_bsi\\_ev-charge-points-002.pdf](https://www.bsigroup.com/globalassets/documents/about-bsi/nsb/cpin/s20282_bsi_ev-charge-points-002.pdf) [accessed 18 January 2024]

its specifications and urging local authorities to incorporate accessibility into procurement processes and applications for OZEV grant schemes.<sup>548</sup>

272. Some stakeholders called for compliance with the PAS1899 guidance to be made mandatory for all new chargepoints.<sup>549</sup> Some proposed a cross-industry approach to implementing the guidance for local authorities and other landowners, particularly as to where responsibility for accessibility lies.<sup>550</sup> The chargepoint operator Pod Point welcomed the PAS1899 guidelines but said that in their current form of a binary pass or fail and lengthy requirements, they would be very challenging to mandate across all chargepoints.<sup>551</sup>
273. **We heard that the British Standards Institute Guidance on accessible charging (PAS 1899) provides good standards for making chargepoints accessible. It is crucial that those with disabilities can use public chargepoints. However, it may not be practicable for all chargepoints at every site to meet these standards, and imposing this would risk jeopardising the rollout. Instead, we recommend that chargepoint hubs over a certain size should be required to have a proportion of accessible chargers available that meet these standards.**

### The role of the Grid and Distribution Network Operators

274. The electricity grid is composed of the transmission and the distribution networks. Both play an important role in ensuring adequate power for the charging network. The transmission network delivers high voltage electricity to substations across the country, and is owned and maintained by the National Grid.<sup>552</sup> The distribution network then delivers lower-voltage electricity from substations to homes and businesses via smaller pylons and underground cables.<sup>553</sup> The distribution network is managed by Distribution Network Operators (DNOs).<sup>554</sup>
275. As the UK progresses towards net zero, increased demand for electricity from EVs, heat pumps and other devices will put additional demands on both the transmission and the distribution networks.<sup>555</sup>

### The transmission network

276. We heard that the transition to EVs will have a limited impact on the overall amount of electricity needed in the grid. In 2021, the Climate Change Committee found that expected uptake of EVs could increase electricity demand by an estimated 30 Terawatt-hours (TWh) a year by 2030 and 65-100 TWh by 2050. This is compared to 300 TWh of electricity used today across the system.<sup>556</sup> On an average cold spell in winter, when demand is at its peak, SMMT report that all plug-in vehicles charging at the same time during the evening peak would result in a power demand of 10.0GW

548 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

549 Written evidence from Transport & Environment UK ([ELV0035](#)), SMMT ([ELV0117](#)) and Greenpeace UK ([ELV0040](#))

550 Written evidence from WSP ([ELV0096](#)) and SSE ([ELV0057](#))

551 Written evidence from Pod Point ([ELV0101](#))

552 National Grid, 'What's the difference between electricity transmission and distribution?' <https://www.nationalgrid.com/stories/energy-explained/electricity-transmission-vs-electricity-distribution> [accessed 29 January 2024], written evidence from the National Grid ([ELV0118](#))

553 *Ibid.*

554 *Ibid.*

555 Written evidence from the Urban Transport Group ([ELV0063](#))

556 House of Commons Library, *Electric vehicles and infrastructure*, Research Briefing, [CBP 7480](#), 21 February 2023



(0.01TW) by 2030 and 21.2GW (0.02TW) by 2035.<sup>557</sup> Richard Bruce told us that the transition to EVs would not impose significant additional demand on the grid, in part because many people will be incentivised by lower tariffs to charge their cars overnight when demand is much lower—so-called smart charging.<sup>558</sup>

277. Richard Bruce added that some increased electricity generation would be necessary, but would be far less for transport than it will be for other sectors.<sup>559</sup> The EV transition is one of a broader range of policies to transition to low-carbon technology such as the electrification of heat through the deployment of heat pumps and the electrification of industrial processes.<sup>560</sup> The National Grid and Government have repeatedly stated that the UK’s grid will be able to handle the overall demand expected from increased EV adoption, provided upgrades proceed as planned.<sup>561</sup>
278. However, we heard some concern around the pace of these upgrades.<sup>562</sup> We were told that while smart charging and vehicle-to-grid technology would reduce the need for grid upgrades, it will not eradicate it.<sup>563</sup> Energy UK argued that a short-term focus on cost-efficiency in electricity regulation and policy has caused underspend relative to what is required to deliver on the Government’s ambitions.<sup>564</sup> Several witnesses reiterated recommendations from the August 2023 Winsor Report, that identified possible solutions to accelerate the deployment of electricity transmission including improving strategic planning, streamlining planning consent and speeding up approval of key projects.<sup>565</sup>
279. There has been some recent progress in this area. In November 2023, the Government published revised National Policy Statements and Ofgem set out a new policy to clear ‘zombie projects’ from the connection queue for energy generation projects.<sup>566</sup> The Government and Ofgem also released a joint Connections Action Plan aiming to tackle queue delays.<sup>567</sup> The Plan raises the entry requirements to enter the queue, removes stalled projects, frees up current network capacity, moves away from the first-come, first-served approach to queue management for both transmission and distribution

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557 Written evidence from SMMT ([ELV0117](#))

558 [Q 95](#)

559 *Ibid.*

560 Written evidence from EDF ([ELV0115](#)), BMW ([ELV0120](#)), Energy UK ([ELV0103](#)), Greenpeace UK ([ELV0040](#)), the Energy Networks Association ([ELV0049](#)) and the Association for Renewable Energy and Clean Technology (REA) ([ELV0093](#))

561 Written evidence from Transport & Environment UK ([ELV0035](#)), the Electric Vehicle Association (EVA) Scotland ([ELV0039](#)), Energy UK ([ELV0103](#)) and [Q 95](#) (Richard Bruce)

562 Written evidence from WSP ([ELV0096](#)), Evri ([ELV0067](#)) and the Petrol Retailers Association ([ELV0082](#))

563 Written evidence from EDF ([ELV0115](#))

564 Written evidence from Energy UK ([ELV0103](#))

565 Department for Energy Security and Net Zero, ‘Accelerating electricity transmission network deployment: Electricity Networks Commissioner’s recommendations’, (August 2023): <https://www.gov.uk/government/publications/accelerating-electricity-transmission-network-deployment-electricity-network-commissioners-recommendations> [accessed 18 January 2024]

566 Ofgem, ‘Ofgem announces tough new policy to clear ‘zombie projects’, and cut waiting time for energy grid connection’, (November 2023): <https://www.ofgem.gov.uk/publications/ofgem-announces-tough-new-policy-clear-zombie-projects-and-cut-waiting-time-energy-grid-connection> [accessed 18 January 2024]

567 Ofgem, ‘Ofgem welcomes focus on grid connections and transmission network build in Autumn Statement’, (November 2023): <https://www.ofgem.gov.uk/publications/ofgem-welcomes-focus-grid-connections-and-transmission-network-build-autumn-statement> [accessed 18 January 2024]

projects, and builds longer-term connection demand into strategic planning.<sup>568</sup> The Government has also stated it is developing a Strategic Spatial Energy Plan as recommended by the Winser review.<sup>569</sup> However, Government announcements to date have not delivered any prioritisation measures for low-carbon projects.

280. Increasing the grid's transmission capacity and connecting more energy generation projects is only part of the challenge. Ensuring that EVs are genuinely low-carbon depends on the electricity they use for charging being decarbonised.
281. In 2021, the then Department for Business, Energy and Industrial Strategy published plans to decarbonise the UK's electricity system by 2035.<sup>570</sup> Delivering a decarbonised grid requires considerable infrastructure deployment at pace.<sup>571</sup> For example, we heard that delivering the Government's ambition for 50GW of offshore wind by 2030—a key component of the drive towards decarbonising the UK's electricity system—will require the building of five times more transmission lines before 2030, more than have been built in the last 30 years.<sup>572</sup> The Climate Change Committee stated in their report on 'Delivering a reliable decarbonised power system' that deployment needs to happen at a much greater pace than the present regulatory, planning and consenting regimes can achieve.<sup>573</sup>
282. The National Grid called for a "collective shift in mindset around how we do things to meet those demands".<sup>574</sup> They set out five priority actions to achieve the 2035 target: reforming the planning system; ensuring that the regulatory and governance framework is set up for delivery; changing how clean energy connects to the grid; accelerating net zero projects; and developing both supply chain capacity and the skills pipeline across the country.<sup>575</sup>
283. We heard calls for the Government's recent reforms to the transmission network to go further by explicitly prioritising net zero connection projects over other electricity generation projects. The National Grid called for "a fast-track connection route for critical and strategically important net zero projects, prioritising projects where the economic value could be greatest."<sup>576</sup>

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568 Ofgem, 'Ofgem welcomes focus on grid connections and transmission network build in Autumn Statement', (November 2023): <https://www.ofgem.gov.uk/publications/ofgem-welcomes-focus-grid-connections-and-transmission-network-build-autumn-statement> [accessed 18 January 2024]

569 Written evidence from the National Grid (ELV0118)

570 Department for Business, Energy and Industrial Strategy, 'Plans unveiled to decarbonise UK power system by 2035', (October 2021): <https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035> [accessed 18 January 2024]

571 Climate Change Committee, 'A reliable, secure and decarbonised power system by 2035 is possible, but not at this pace of delivery', (9 March 2023): <https://www.theccc.org.uk/2023/03/09/a-reliable-secure-and-decarbonised-power-system-by-2035-is-possible-but-not-at-this-pace-of-delivery/> [accessed 18 January 2024]

572 Written evidence from the National Grid (ELV0118)

573 Climate Change Committee, 'A reliable, secure and decarbonised power system by 2035 is possible, but not at this pace of delivery', (9 March 2023): <https://www.theccc.org.uk/2023/03/09/a-reliable-secure-and-decarbonised-power-system-by-2035-is-possible-but-not-at-this-pace-of-delivery/> [accessed 18 January 2024]

574 Written evidence from the National Grid (ELV0118)

575 National Grid, 'National Grid sets out case for urgent reform to drive the energy transition', (15 May 2023): <https://www.nationalgrid.com/national-grid-sets-out-urgent-reform-energy-transition> [accessed 18 January 2024]

576 Written evidence from the National Grid (ELV0118)

284. **We welcome recent announcements to improve queue management for transmission projects and to speed up the time needed to build new transmission infrastructure. However, these still do not allow for strategic prioritisation of low-carbon or renewable energy projects ahead of other energy generation. In order for the positive environmental impact of EVs to be maximised, they need to be powered by low-carbon energy generation on the grid. The UK should be seeking to decarbonise the grid as quickly as possible, and prioritisation of low-carbon projects would assist in that process. This would also underpin the decarbonisation impacts of a wide range of other policy changes including the transition to heat pumps and the electrification of industrial processes.**
285. *We recommend that the Government designate low-carbon and renewable energy generation projects as strategically important net zero projects and fast track their progress through permitting and grid connection to achieve a decarbonised electricity grid as soon as possible and to support consumer confidence in EVs as a low-carbon technology.*

*The distribution network*

286. Distribution Network Operators (DNOs) play a critical role in the delivery of EV charging infrastructure.<sup>577</sup> They are responsible for maintaining and upgrading the local grid to support customer demand.<sup>578</sup> The uptick in EV ownership presents a greater demand for power in a local area and so is managed by DNOs.<sup>579</sup> When a customer such as a Chargepoint Operator develops plans to install chargepoints, they notify the DNO and are placed into a queue for a new grid connection.
287. We heard about two main challenges around DNOs and EV chargepoints: queue management for grid connections and available capacity in the local distribution networks.

*Connection queue management*

288. DNOs have seen significant growth in low-carbon technology connection applications which is placing existing processes under pressure.<sup>580</sup> The Minister stated that there is currently a bottleneck around installations because of the huge volume of connections that DNOs are working on, which has created a backlog.<sup>581</sup> By mid-2023, DNOs had connected around 29,000 customer EV infrastructure projects, representing around 2GW of capacity, but this is expected to increase rapidly as the Zero Emissions Vehicle mandate progresses.<sup>582</sup>
289. We heard that for grid connections, delays can reportedly last years depending on the complexity of the network and the permissions required.<sup>583</sup> National Grid told us that the requirements for entry into the queue for grid connections are low, leading to so-called ‘zombie projects’ not ready for

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577 Written evidence from WSP ([ELV0096](#))

578 Written evidence from Transport for West Midlands ([ELV0060](#))

579 Written evidence from UK Power Networks ([ELV0070](#))

580 Written evidence from Energy UK ([ELV0103](#)), the Urban Transport Group ([ELV0063](#)) and the National Grid ([ELV0118](#))

581 [Q 86](#) (Anthony Browne MP)

582 Written evidence from the Energy Networks Association ([ELV0049](#))

583 Written evidence from SSE ([ELV0057](#)) and Lancashire Enterprise Partnership ([ELV0073](#))

implementation taking up space in the queue.<sup>584</sup> Delays are particularly acute in parts of Central and West London where the demand and competition for grid connections is significant.<sup>585</sup> London and Borough Councils told us this could severely limit and delay their ability to deliver EV infrastructure.<sup>586</sup> Shell stated that at present, around 600 projects at a combined capacity of 176GW are currently awaiting connection to the grid in England and Wales.<sup>587</sup> This compares to 64GW of currently connected capacity.<sup>588</sup>

290. At present there are no contractual obligations on developers to demonstrate the progress of their projects which means they can act as ‘blockers’ in the pipeline of connections.<sup>589</sup> We heard this may lead to some developers submitting applications simply to hold a place in the queue, regardless of the readiness of the project.<sup>590</sup>
291. The Office for Zero Emission Vehicles stated that it is aware of these delays, and is working with the Department for Energy Security and Net Zero and DNOs to address them.<sup>591</sup> During the course of this inquiry, Ofgem and the Government have made a number of announcements that address the connection queue issues set out above. Their joint Connections Action Plan, which applies to both the transmission and distribution networks, sets out that from 2024 DNOs will be responsible for strengthening entry requirements to the queue, monitoring application of queue management principles from the plan, as well as bringing forward recommendations to optimise existing network capacity and effective allocation of network capacity among other measures.<sup>592</sup>
292. **We welcome the recently announced Connections Action Plan and urge the Government to move quickly to implement the crucial changes to address the delays currently experienced in the queue for grid connections. We recommend that the Government considers how best to prioritise EV chargepoints in the queue as projects of strategic and national importance.**

*Distribution network upgrades*

293. DNOs manage how the overall capacity of the national electricity grid is divided up at a local level. In some areas, available capacity is limited or already allocated, meaning that upgrades are required to create additional local provision such as installing additional transformers. Ian Cameron, Director of Customer Service and Innovation at UK Power Networks told us that it is on-street and en-route charging that posed the greater challenge to DNOs building capacity.<sup>593</sup>

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584 Written evidence from the National Grid ([ELV0118](#))

585 Written evidence from London Councils ([ELV0119](#))

586 *Ibid.*

587 Written evidence from Shell UK ([ELV0055](#)) and the Association for Renewable Energy and Clean Technology (REA) ([ELV0093](#))

588 Written evidence from Shell UK ([ELV0055](#))

589 Written evidence from the National Grid ([ELV0118](#))

590 *Ibid.*

591 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

592 Department for Energy Security and Net Zero and Ofgem, *Connections Action Plan: Speeding up connections to the electricity network across Great Britain* (November 2023): <https://assets.publishing.service.gov.uk/media/655dd873d03a8d001207fe56/connections-action-plan.pdf> [accessed 18 January 2024]

593 [Q 75](#) (Cameron)

294. Stakeholders told us about issues and concerns around the current processes for and delays in upgrading distribution networks to support customer demand.<sup>594</sup> We heard that where a grid connection requires an upgrade on the local network, this can be a time consuming, costly and administratively burdensome process for chargepoint operators.<sup>595</sup>
295. Witnesses said that these issues can be addressed through investing in grid upgrades ahead of demand.<sup>596</sup> We heard from Richard Bruce that DNOs are now able to invest ahead of demand for technologies such as electric vehicles and heat pumps.<sup>597</sup> In 2023, Ofgem made changes to the distribution network RIIO price control<sup>598</sup> to incentivise networks to make investments in the network ahead of connection requests.<sup>599</sup> The RIIO price controls set the revenues that the network operators can recover, the performance they must deliver and the investment they can make.<sup>600</sup> It also provides incentives for DNOs to invest proactively where necessary.<sup>601</sup> Under the current RIIO-ED2 price control (2023–2028), transmission and distribution network operators are investing a total of £31 billion across the transmission and distribution network infrastructure, an increase from the previous RIIO-ED1 period of £900 million a year.<sup>602</sup> DNOs can plan proactive reinforcements to networks ahead of need by monitoring and modelling of their networks.<sup>603</sup> As an example, RIIO-ED2 allows for National Grid Energy Distribution (the DNO for East and West Midlands, South West and Wales) to deliver £95 million of reinforcement works throughout the price control period of 2023–2028.<sup>604</sup>
296. Notwithstanding the investment allowed for by RIIO-ED2, we heard that it is insufficient to support investment in the reinforcements needed for EV charging and other local demands on the distribution network. Energy UK and SMMT told us that reformed regulatory frameworks from Ofgem are needed to commit to and enable justified anticipatory investments in local networks.<sup>605</sup> SMMT said that investments should be focussed on strategic aims such as future-proofing charging for heavy duty vehicles and addressing locations where local networks are most constrained.<sup>606</sup> Energy UK told us that “to our knowledge there is no requirement that DNOs utilise the net zero reopener process [part of the RIIO-ED2 price control], it is simply an additional tool for them to utilise if their existing funding is not sufficient to deliver for the local area”.<sup>607</sup> Octopus told us that many DNOs are taking

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594 Written evidence from Anthony McClennon (ELV0012), WSP (ELV0096), Ford Motor Company (ELV0086) and Transport & Environment UK (ELV0035)

595 Written evidence from Transport & Environment UK (ELV0035) and SSE (ELV0057)

596 Written evidence from Energy UK (ELV0103), EDF (ELV0115) and SMMT (ELV0117)

597 Q 94

598 RIIO (which stands for Revenue=Incentives+Innovation+Outputs) is Ofgem’s framework for setting price controls. In the electricity market, this price control relates to DNOs. RIIO is intended to encourage companies to invest efficiently and innovate to reduce network costs. For further information see: Ofgem, *Price controls explained* (March 2013): [https://www.ofgem.gov.uk/sites/default/files/docs/2013/03/price\\_control\\_explained\\_march13\\_web.pdf](https://www.ofgem.gov.uk/sites/default/files/docs/2013/03/price_control_explained_march13_web.pdf) [accessed 18 January 2024]

599 Written evidence from the Office for Zero Emission Vehicles (ELV0110)

600 *Ibid.*

601 Written evidence from UK Power Networks (ELV0070)

602 Written evidence from the Energy Networks Association (ELV0049) and the Office for Zero Emission Vehicles (ELV0110)

603 Written evidence from the Office for Zero Emission Vehicles (ELV0110)

604 Written evidence from the National Grid (ELV0118)

605 Written evidence from Energy UK (ELV0103), SMMT (ELV0117) and further supplementary written evidence from Energy UK (ELV0148)

606 Written evidence from SMMT (ELV0117)

607 Further supplementary written evidence from Energy UK (ELV0148)

a ‘flex first’ approach to the RIIO-ED2 price control period which enables them to make best use of current network infrastructure and to defer investment where possible; UK Power Networks noted that building out and reinforcing all networks ahead of demand would be very expensive.<sup>608</sup> Octopus also added that the growth in EV adoption is exponential, with the pressure on DNOs to meet connection requests likely to continue rising in the coming years and existing headroom running out around 2035.<sup>609</sup>

297. Beyond local networks to support EV chargepoints for residents, there are also issues with the grid upgrades required at high power sites such as motorway service areas and depots. As discussed in the earlier section on motorway charging, there is a significant gap to address with regards to upgrading grid connections at motorway service areas to support rapid and ultra rapid chargepoints. These locations are often remote with poor access to the grid and the costs to upgrade the local network to the required level such that they are no longer commercially viable for chargepoint operators.<sup>610</sup>
298. Roadchef, a motorway service operator managing 30 sites in Britain, stated that insufficient grid connections and power capacity along the strategic road network is holding up EV infrastructure rollout at motorway service areas.<sup>611</sup> Roadchef reported that some of their sites have been told they are unable to gain additional power until after 2026, with one working on a current timeframe of 2032.<sup>612</sup>
299. Evri also noted that at present there are too few sites available with a high power allocation meaning that it is very difficult for businesses to shift to EVs as they require depots with high capacity grid connections and this is hindering the switch for business fleets.<sup>613</sup> This also applies to large public charging hubs where the grid connectivity is unavailable and upgrades come with significant costs.<sup>614</sup>
300. We heard that developing strategic, fast-access routes to connection for critical projects of national importance such as EV infrastructure or those that are of significant economic value could address many of the delays currently experienced.<sup>615</sup> This would allow DNOs to deliver sufficient anticipatory investments, a clear recommendation from stakeholders.<sup>616</sup> Labelling critical infrastructure projects, such as EV infrastructure, as ‘Nationally Critical Infrastructure’ or similar with powers to fast-track projects of that type, could also help to prioritise charging infrastructure as an area of strategic importance.<sup>617</sup>
301. **We note the changes made to the RIIO price control to allow for more anticipatory investment and emphasise that this additional investment is essential to support chargepoint deployment at pace. However, we heard concern that this may still be insufficient.**

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608 Written evidence from Octopus Electric Vehicles ([ELV0087](#))

609 *Ibid.*

610 [Q 93](#) (Anthony Browne MP)

611 Written evidence from Roadchef ([ELV0100](#))

612 *Ibid.*

613 Written evidence from Evri ([ELV0067](#))

614 Written evidence from Ford Motor Company ([ELV0086](#))

615 Written evidence from the National Grid ([ELV0118](#)) and Transport for West Midlands ([ELV0060](#))

616 Written evidence from SMMT ([ELV0117](#)), EDF ([ELV0115](#)) and Energy UK ([ELV0103](#))

617 Written evidence from the Association for Renewable Energy and Clean Technology (REA) ([ELV0093](#))

302. *We recommend that the Government consult Ofgem and industry to identify opportunities to increase anticipatory investment in grid upgrades for the distribution network to future-proof local grids for the EV transition.*
303. *We recommend that the Government define and label grid upgrades to support chargepoint installations as ‘Nationally Critical Infrastructure’ projects and prioritise the grid upgrades needed to deliver EV infrastructure.*

*Further improvements to grid connection processes*

304. Stakeholders noted that the current process to obtain grid connections and grid upgrades is both too costly and too complex, calling for the process to be standardised and streamlined.<sup>618</sup> At present, some DNOs allow bulk applications to be made for several sites in one area but others do not. Allowing this across all DNOs would be useful.<sup>619</sup> We heard that improved communication between DNOs, customers and other stakeholders in the planning process could have a significant impact. Informing a DNO early of chargepoint proposals can be a crucial step in minimising delays, and it is important that local authorities engage with DNOs at an early stage in the project planning process.<sup>620</sup> Others noted that improvements are needed in how DNOs liaise and interact with landowners and local authorities to ensure connections proceed at pace.<sup>621</sup>
305. We also heard that planning reform could aid DNOs.<sup>622</sup> The increase in connection applications requires a major uptick in cabling: we heard that 460,000km of additional cabling could be required by 2050.<sup>623</sup> The Energy Networks Association also noted that the planning system as it relates to the building of electricity networks can be expensive and slow.<sup>624</sup> At present, to facilitate grid connections in some rural locations, DNOs need to upgrade overhead powerlines to support local capacity.<sup>625</sup> This may require increasing the number of powerlines from two to three. We heard that even when this solely involves laying additional cables over already existing pylons, this triggers the full planning and land rights process for the powerline.<sup>626</sup> This can reportedly take up to five years when managing consenting across multiple landowners.<sup>627</sup> This can be extended by a further 2-3 years if landowners do not reach a negotiated settlement for the land rights for the infrastructure.<sup>628</sup>
306. **The Committee heard that under current planning regulations, the full planning and land rights process is triggered even for small amounts of upgrade work. This process can be further delayed if**

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618 Written evidence from Evri ([ELV0067](#)), the UK Electric Fleet Coalition (UKEFC) ([ELV0089](#)), the British Vehicle Rental & Leasing Association (BVRLA) ([ELV0054](#)) and [Q 40](#) (Dr Russell Fowler)

619 BVRLA ([ELV0054](#)), WSP ([ELV0096](#))

620 [Q 75](#) (Ian Cameron)

621 Written evidence from WSP ([ELV0096](#))

622 [Q 25](#) (Dr Russell Fowler) and written evidence from the Energy Networks Association ([ELV0049](#))

623 Written evidence from the Energy Networks Association ([ELV0049](#))

624 Written evidence from the Energy Networks Association ([ELV0049](#)) and [Q 25](#) (Dr Russell Fowler)

625 Written evidence from Ian Cameron (Director of Innovation and Customer Service at UK Power Networks) ([ELV0138](#))

626 Written evidence from the Energy Networks Association ([ELV0049](#))

627 Written evidence from the Energy Networks Association ([ELV0049](#)) and Ian Cameron (Director of Innovation and Customer Service at UK Power Networks) ([ELV0138](#))

628 Written evidence from the Energy Networks Association ([ELV0049](#))

**landowners do not reach a negotiated settlement. All of this can add significant delays to relatively straightforward upgrade work.**

307. *We recommend that the Government review the planning regulations for the upgrade of power lines and simplify the process where possible to speed up upgrades, particularly in rural communities while still ensuring proper protection of the environment and heritage.*

*Accessible data*

308. We heard from stakeholders that at present, the process of obtaining grid connections is not transparent enough, nor is there sufficient data available across the network to support DNOs and chargepoint operators.
309. Stakeholders said that the Government should ensure that the right metrics were in place for Ofgem to monitor DNO progress effectively across the UK.<sup>629</sup> We heard that establishing standards for open data, network monitoring and network connection processes would help in this regard.<sup>630</sup>
310. Self-service online tools provided by DNOs to allow and support indicative quotes during the planning phase would help customers to understand project viability.<sup>631</sup> Some DNOs are pro-actively engaging with some of these issues by developing open data portals and more streamlined processes, but progress is patchy.<sup>632</sup>
311. The Energy Networks Association noted that DNOs often face challenges accessing necessary information on chargepoint installation.<sup>633</sup> Simultaneously, we heard that many DNO customers do not fully understand the information being requested by DNOs or why it is needed.<sup>634</sup> The British Vehicle Renting and Leasing Association suggested that harmonising administrative requirements, and explaining what information is needed and for what purpose, could resolve this issue.<sup>635</sup>
312. Greater powers for DNOs to plan the overall local system and to work more proactively with local authorities, rather than only responding to customer demand, could help to balance demand on infrastructure.<sup>636</sup>
313. **We heard that DNOs and other stakeholders such as local authorities and chargepoint operators could benefit from improved data sharing, online tools to support the planning and permitting process and more pro-active engagement between DNOs and customers. The Government should explore what more it can do to facilitate this, for example by expanding on the support and guidance currently available through the LEVI support body.**

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629 Written evidence from Citizens Advice Bureau ([ELV0116](#))

630 Written evidence from Citizens Advice Bureau ([ELV0116](#)), Energy UK ([ELV0103](#)), the Urban Transport Group ([ELV0063](#)) and [Q 75](#) (Ian Cameron)

631 Written evidence from WSP ([ELV0096](#))

632 Written evidence from UK Power Networks ([ELV0070](#))

633 Written evidence from the Energy Networks Association ([ELV0049](#))

634 Written evidence from the BVRLA ([ELV0054](#)) and WSP ([ELV0096](#))

635 Written evidence from the BVRLA ([ELV0054](#))

636 Written evidence from the Urban Transport Group ([ELV0063](#))



## CHAPTER 5: EV END-OF-LIFE MANAGEMENT AND RECYCLING

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314. The end-of-life management and recycling of electric vehicles (EVs) and their batteries is key to the EV transition. First, recycling and reusing EV batteries is critical to maximising the positive environmental impact of the transition. Second, recovering the critical minerals in EV batteries will promote a circular economy in domestic production and reduce reliance on imports in vulnerable global supply chains. Where virgin materials are required, consideration must be given to the environmental footprint of extracting and transporting the required critical minerals over time when weighing up the positive environmental benefits of EVs, as noted in the Foreign Affairs Committee's December 2023 report on critical minerals.<sup>637</sup> Third, regulatory clarity on the safe handling of EV batteries will support the insurance industry in lowering premiums, facilitate a sustainable flow of EVs through to the used car market and enhance consumer confidence. This will be crucial if consumers are to be convinced to make the switch. We heard that media reports suggesting EVs are not recyclable and lead to stockpiling of waste may significantly deter some consumers.<sup>638</sup>
315. We took evidence on three key aspects of end-of-life EV management and recycling: dismantling EVs, reusing EV batteries and recycling EV batteries. Across these areas, witnesses highlighted a regulatory framework that has not kept pace with the opportunities and challenges offered by EVs and identified targeted beneficial changes to existing regulations. Additionally, in the area of EV battery recycling, witnesses emphasised the importance of continued investment in domestic technology and facilities to support the UK recycling industry—and by extension the domestic production of EVs.

### Readiness of the UK waste management industry for EV dismantling and recycling

316. The first stage of managing an EV at end-of-life is dismantling the vehicle itself. We heard that the readiness of the UK waste management and recycling industries for the EV transition was variable, and that there are currently considerable barriers to developing UK recycling networks,<sup>639</sup> with some witnesses suggesting that the UK is lagging behind particularly compared to China, Korea and Japan where the majority of the UK's black mass is shipped.<sup>640</sup>
317. We heard that there is sufficient UK capacity now to manage the dismantling of EVs at end-of-life (predominantly vehicles written off prematurely or damaged in an accident).<sup>641</sup> However, we heard that this capacity is likely to be exceeded in 2–3 years as EV numbers are expected to rise significantly.<sup>642</sup> Witnesses noted that current projections are for 350,000 tonnes of material to be processed by 2040 but at present, there is not enough capacity in

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637 Foreign Affairs Committee, *A rock and a hard place: building critical mineral resilience* (First Report, Session 2023–2024, HC 371)

638 Q 60 (Ken Byng), written evidence from Transport for West Midlands (ELV0060) and Association of British Insurers (ELV0080)

639 Q 55 (Byng)

640 Written evidence from Ken Byng (Senior Manager at CarTakeBack.com Limited) (ELV0136) and Q 55 (Robin Brundle)

641 Q 55 (Ken Byng)

642 *Ibid.*

the UK to process that material.<sup>643</sup> Dr Gavin Harper, Faraday Institution Research Fellow at the University of Birmingham, raised concerns that if EV volumes increase without a corresponding increase in recycling capacity, disposal of EVs will likely become costly and inaccessible, increasing the risk of fly-tipping.<sup>644</sup>

318. At present, only a small number of Authorised Treatment Facilities (ATFs) are equipped to dismantle EVs.<sup>645</sup> Dr Gavin Harper emphasised that the UK's EV recycling industry is at an early stage of development, and it is important that waste facilities develop in lockstep with supply.<sup>646</sup> We heard that increasing the number of ATFs will require better enforcement of existing end-of-life vehicle (ELV) Regulations to create a more level playing field for businesses in the sector and to support confidence and investment.<sup>647</sup>
319. More efficient planning and permitting processes will also be needed to accelerate the development of these facilities.<sup>648</sup> The Department for Environment, Food and Rural Affairs (Defra) told us that the Environment Agency was working closely with the sector to improve (and speed up) permitting processes and that these have improved over time with the development of Key Performance Indicators.<sup>649</sup>
320. We also heard that at present lithium-ion batteries have a non-hazardous List of Wastes code which is the same classification as other non-hazardous batteries, meaning that at present lithium-ion batteries are mixed in with other waste streams.<sup>650</sup> We heard recommendations for lithium-ion batteries to have their own hazardous List of Wastes code to support the reporting and management of fire risks and to make sure recycling is undertaken by responsible operators.<sup>651</sup> We heard concerns that the lack of a separate code may currently be leading to significant volumes of EVs being illegally dismantled.<sup>652</sup>
321. **While the UK's capacity for EV dismantling is currently sufficient, this is expected to change rapidly as EV numbers rise with predictions that capacity could be exceeded within 2–3 years. We recommend that the Government continue working with the Environment Agency and the recycling sector to explore options for speeding up planning and permitting processes for new treatment facilities.**
322. **The Committee heard that at present, despite the unique handling that lithium-ion batteries require in terms of waste management and recycling, they do not have their own waste code and currently sit under a non-hazardous waste code with other batteries. Lithium-ion batteries ending up in general waste streams are a problem for the recycling industry and can lead to increased risk of fire. We recommend that the Government works with the EU to agree that**

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643 [Q 55](#) (Cory Reynolds)

644 [Q 63](#) (Dr Gavin Harper)

645 [Q 55](#) (Ken Byng)

646 [Q 55](#) (Dr Gavin Harper)

647 [Q 55](#) (Ken Byng)

648 [Q 55](#) (Cory Reynolds)

649 Written evidence from Defra ([ELV0144](#))

650 [Q 55](#) (Cory Reynolds). Previously known as the European Waste Catalogue codes, see: The List of Wastes (England) Regulations 2005 ([SI 2005/895](#))

651 [Q 58](#) (Cory Reynolds)

652 Written evidence from Salvage Wire Limited ([ELV0011](#))

*lithium-ion batteries be assigned a hazardous List of Wastes code to support the reporting and management of the risks and to ensure that recycling is undertaken by responsible operators.*

*Producer responsibility regulations*

323. Vehicle manufacturers have a responsibility to provide a free take-back service for EV batteries at the end of a vehicle's life under the Waste Batteries and Accumulators Regulations 2009.<sup>653</sup> The Regulations stipulate that battery producers take back EV batteries on request at no cost to the consumer and ensure that the battery is processed at permitted facilities (ATFs) which meet the required recycling standards.<sup>654</sup> At present, EV batteries are classified in the regulation as 'industrial batteries' and there is a requirement that 50 per cent of the battery by weight be recycled.<sup>655</sup>
324. The End-of-Life Vehicles Regulations 2003 stipulate the same requirements but for the non-battery components of a vehicle.<sup>656</sup> Where a vehicle is not salvageable, vehicle manufacturers are responsible under producer responsibility regulations for both the vehicle and its batteries to ensure they are taken back free of charge and recycled in line with the law.<sup>657</sup>

**Box 4: Relevant battery recycling regulations**

**The Waste Batteries and Accumulators Regulations (2009)** mandate UK battery producers to register and label products, while promoting recycling and obliging retailers to offer battery disposal services.

**The End-of-Life Vehicles (ELV) Regulations (2003)** require vehicle manufacturers to ensure de-pollution of vehicles, while also setting recycling and recovery targets.

**The Waste Electrical and Electronic Equipment (WEEE) Regulations (2013)** mandate producers to fund the collection, treatment, and recycling of electronic waste.

Source: Written evidence from the Faraday Institution ([ELV0047](#))

325. Witnesses told us that the Waste Batteries and Accumulators Regulations 2009 require updating to be fit for purpose for EVs.<sup>658</sup> Manufacturers are currently required to provide take-back of EV batteries, though only if requested.<sup>659</sup> Some witnesses argued that producer responsibility take-back schemes are only partially effective with some manufacturers failing to take their responsibilities seriously—others added that the Regulations are not sufficiently widely communicated or publicised by either battery producers or car manufacturers and called for this to change.<sup>660</sup> Others argued that

653 Written evidence from the Advanced Propulsion Centre ([ELV0107](#)), CarTakeBack.com Limited ([ELV0009](#)), the Faraday Institution ([ELV0047](#)), Defra ([ELV0144](#)) and [Q 59](#) (Ken Byng)

654 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#)) and the Faraday Institution, ([ELV0047](#))

655 The Waste Batteries and Accumulators Regulations 2009 ([SI 2009/890](#))

656 The End-of-Life Vehicles Regulations 2003 ([SI 2003/2635](#)), written evidence from the Advanced Propulsion Centre ([ELV0107](#)), CarTakeBack.com Limited ([ELV0009](#)), the Faraday Institution ([ELV0047](#)) Defra ([ELV0144](#)) and [Q 59](#) (Ken Byng)

657 Written evidence from CarTakeBack.com Limited ([ELV0009](#)) and Zouk Capital LLP ([ELV0044](#))

658 Written evidence from CarTakeBack.com Limited ([ELV0009](#)) and [Q 62](#) (Robin Brundle)

659 Written evidence from Defra ([ELV0144](#)) and [Q 60](#) (Cory Reynolds)

660 Written evidence from CarTakeBack.com Limited ([ELV0009](#)) and [Q 60](#) (Cory Reynolds)

the primary issue is a lack of enforcement.<sup>661</sup> Ken Byng, Senior Manager at CarTakeBack.com, told us that while many manufacturers fulfil their responsibility to make sure information about the dismantling of vehicles is made available to ATFs, there is notable variation.<sup>662</sup>

326. Others, however, called for the regulations themselves to go further to be effective, with EV-specific producer responsibility regulations to ensure manufacturers would be responsible for the whole life of the battery, including its recyclability.<sup>663</sup>
327. At present, there is also regulatory uncertainty as to whether the producer of an EV battery remains responsible once the battery is repurposed for some other use outside the vehicle.<sup>664</sup> Stellantis noted that while manufacturers are responsible legally and financially for how batteries are managed at end-of-life, they do not own the battery at end-of-life and so do not have control over what happens to it.<sup>665</sup>
328. The European Union recently adopted new regulations for batteries and waste batteries and Defra has started a review of UK regulations in this area.<sup>666</sup> The EU regulations update includes Extended Producer Responsibility for batteries and sets out new collection and recycling targets.<sup>667</sup> The European Union also proposed regulation in July 2023 that will replace the existing Directives on end-of-life vehicles. This includes new regulations to cover the reusability, recyclability and recoverability of end-of-life vehicles.<sup>668</sup> Included in the scope of the regulations is the potential to use Extended Producer Responsibility to incentivise vehicle design to improve the recyclability of batteries and to enhance circularity.<sup>669</sup> Ken Byng and Shell recommended that the UK should align itself with the EU regulations.<sup>670</sup> The Advanced Propulsion Centre noted that given UK manufacturers' exposure to EU markets, "it is expected that all manufacturers will strive to comply with this EU legislation even in the absence of any UK standard."<sup>671</sup> The UK regulations will apply to the 85 per cent<sup>672</sup> of cars bought in the UK which are imported so they will be very relevant to how they are recycled.
329. In written evidence to our inquiry, Defra told us that a consultation on battery regulations is due to be published in 2024.<sup>673</sup> Previously, it had been

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661 [Q 54](#) (Ken Byng)

662 [Q 55](#) (Ken Byng)

663 Written evidence from Green Alliance ([ELV0099](#)) and [Q 55](#) (Cory Reynolds)

664 Written evidence from the Faraday Institution ([ELV0047](#))

665 Written evidence from Stellantis ([ELV0038](#))

666 [Q 60](#) (Ken Byng) and Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC, [OJ L 191/1](#), 28 July 2023

667 Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC, [OJ L 191/1](#), 28 July 2023

668 Proposal for a Regulation (EU) 2023/0284(COD) of the European Parliament and of the Council of 13 July 2023 on circularity requirements for vehicle design and on management of end-of-life vehicles, amending Regulations (EU) 2018/858 and 2019/1020 and repealing Directives 2000/53/EC and 2005/64/EC. [COM \(2023\) 451 final](#)

669 European Parliament, *Circularity requirements for vehicle design and management of end-of-life vehicles* (December 2023): [https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/754627/EPRS\\_BRI\(2023\)754627\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2023/754627/EPRS_BRI(2023)754627_EN.pdf) [accessed 29 January 2024]

670 [Q 60](#) and written evidence from Shell UK ([ELV0055](#))

671 Written evidence from the Advanced Propulsion Centre ([ELV0107](#))

672 [Q 16](#) (Mike Hawes)

673 Written evidence from Defra ([ELV0144](#))

announced that this would take place in 2023.<sup>674</sup> OZEV stated that it would consider the changes needed to develop a framework for the increasing numbers of EV batteries.<sup>675</sup>

330. **Compliance with the current producer responsibility regulations under the Waste Batteries and Accumulators Regulations 2009 is variable. We heard that the regulations are not well communicated by some manufacturers and there is poor awareness of them. At present the regulations are not well enforced, but we heard that even if better enforced, they would still fall short of what will be required to manage the expected increase in volume of EVs.**
331. *We recommend that, as part of the upcoming consultation on the Waste Batteries and Accumulators Regulations 2009 and the Batteries and Accumulators (Placing on the Market) Regulations 2008, Defra reviews and strengthens the UK producer responsibility regulations for batteries and EVs to ensure compliance with manufacturer take-back schemes and to make the manufacturer more explicitly responsible for batteries and EVs at end-of-life. Defra should also review options to enhance producer responsibility under the Waste Batteries and Accumulators Regulations to encourage more efficient battery design to support recyclability and circularity of EV batteries. Defra should launch a consultation on reviewing and updating the End-of-Life Vehicles (ELV) Regulations 2003 in tandem to ensure that regulation is coherent. It would be advisable that equivalence with similar EU regulations be maintained.*

### EV battery reuse

332. We heard that the majority of used EV batteries may be reusable for energy storage applications, and that reuse should be considered before recycling in line with the waste hierarchy.<sup>676</sup> We heard that EV batteries can be used for energy storage for up to 20 years after manufacture,<sup>677</sup> for example to integrate wind power to minimise grid outage impacts.<sup>678</sup> Zouk Capital told the Committee that energy storage could be a major use for EV batteries in the medium term, citing an initiative recently announced by Jaguar Land Rover to reuse 30 EV batteries to power 250 homes in the UK for a day.<sup>679</sup>
333. However, we heard that outdated regulation is holding back the reuse of EV batteries. Ken Byng told us that the current Waste Batteries and Accumulators Regulations 2009 do not accommodate EV battery reuse.<sup>680</sup> At present, EV batteries are regulated, certified and approved as car batteries, which limits their reuse in domestic or industrial energy storage.<sup>681</sup> He added that updated regulations would give industry the necessary confidence to enable further investment in this area.<sup>682</sup>

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674 HC Deb, 29 November 2022, [col 723WH](#)

675 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

676 Written evidence from Zouk Capital ([ELV0044](#)), Green Alliance ([ELV0099](#)) and [Q 85](#) (Richard Bruce)

677 Written evidence from Electrifying.com ([ELV0075](#))

678 Written evidence from the Faraday Institution ([ELV0047](#))

679 Written evidence from Zouk Capital ([ELV0044](#))

680 [Q 61](#) (Ken Byng)

681 [Q 62](#) (Ken Byng)

682

334. The EU has recently updated its battery regulations to facilitate the reuse of EV batteries. We heard that if the UK Government were to do the same, it would boost confidence in industry to invest in this sector.<sup>683</sup>
335. Outdated regulations are also leading to serious safety risks. Cory Reynolds, Corporate Affairs and Communications Director at Veolia, noted examples of second-hand EV batteries being sold and purchased on the internet and used in unregulated ways such as DIY energy storage projects.<sup>684</sup> Dr Gavin Harper told us that in part this was due to a lack of clarity around whether recycled and reused EV batteries are classed as a “product” or a “waste item”.<sup>685</sup>
336. As noted in Chapter 3, improved battery health tests would give consumers confidence in the condition of second-hand EV batteries. These tests would also be useful for quickly and simply approving batteries for re-use.
337. **The Committee heard that current Waste Batteries and Accumulators Regulations 2009 do not cover battery reuse and that there is a lack of regulatory clarity around battery reuse for energy storage products as well as old batteries being sold privately online. We recommend that Defra, as part of their upcoming review, develop regulations that support authorised reuse, creating equivalence with similar EU provisions and clarify when a battery is a “product” and when it is classified as “waste”, including stipulating who bears responsibility at each stage to ensure that batteries are covered by appropriate regulations at each stage of the battery’s life.**

### EV battery recycling

338. The recycling of many components of an EV such as the body, windows and tyres is similar to an ICE vehicle.<sup>686</sup> The components that differ, including the motor, battery and power electronics, contain a range of materials and minerals that are challenging but valuable to extract via recycling.<sup>687</sup> Some have been designated by the Government as ‘critical minerals’, meaning they are minerals with high economic vulnerability through risks to their global supply chain.<sup>688</sup> In the case of EVs, these include lithium, cobalt and nickel.<sup>689</sup>
339. As the Government’s Critical Minerals Strategy highlights, recovering these minerals through recycling EVs and developing a circular economy for these materials could provide a significant source of supply for UK manufacturing

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683 [Q 61](#) (Ken Byng)

684 [Q 60](#) (Cory Reynolds)

685 [Q 66](#) (Dr Gavin Harper)

686 Written evidence from the Faraday Institution ([ELV0047](#))

687 *Ibid.*

688 Department for Business and Trade and Department for Business, Energy and Industrial Strategy, *Resilience for the Future: The UK’s Critical Minerals Strategy* (July 2022), p 10: [https://assets.publishing.service.gov.uk/media/62f36baf90e07714288b188/resilience\\_for\\_the\\_future\\_the\\_uk\\_critical\\_minerals\\_strategy.pdf](https://assets.publishing.service.gov.uk/media/62f36baf90e07714288b188/resilience_for_the_future_the_uk_critical_minerals_strategy.pdf) [accessed 18 January 2024]

689 Nickel is not currently on the UK’s critical minerals list but sits on the Critical Minerals Expert Committee’s watchlist. See: Department for Business and Trade and Department for Business, Energy and Industrial Strategy, *Resilience for the Future: The UK’s Critical Minerals Strategy* (July 2022), p 11: [https://assets.publishing.service.gov.uk/media/62f36baf90e07714288b188/resilience\\_for\\_the\\_future\\_the\\_uk\\_critical\\_minerals\\_strategy.pdf](https://assets.publishing.service.gov.uk/media/62f36baf90e07714288b188/resilience_for_the_future_the_uk_critical_minerals_strategy.pdf) [accessed 18 January 2024]

and shield the UK from supply chain issues or volatile prices.<sup>690</sup> An intention to incentivise investment into the circular economy to support UK battery production was also set out in the Department for Business and Trade’s ‘UK Battery Strategy’ published in November 2023.<sup>691</sup> Some respondents to our inquiry called for the Government to go further and build on the Critical Minerals Strategy with an automotive industry-specific critical minerals strategy.<sup>692</sup>

340. In the UK, current regulations classify EV batteries as industrial batteries and the Waste Battery and Accumulator Regulations 2009 state that EV battery recycling must achieve 50 per cent by average weight of the battery.<sup>693</sup> A minimum level set at 50 per cent could mean that a significant amount of critical material is lost during recycling. In the recently-adopted EU battery regulations there is a specific target for lithium recovery from waste batteries of 50 per cent by the end of 2027 and 80 per cent by the end of 2031.<sup>694</sup>
341. The EU is also introducing mandatory minimum levels of recycled content for manufacturing EV batteries that is set by material: 16 per cent for cobalt, 85 per cent for lead, 6 per cent for lithium and 6 per cent for nickel will need to come from recycled sources from 18 August 2031.<sup>695</sup> This will apply to UK manufacturers exporting into EU markets, and will mean that UK manufacturers need to secure recycled materials for vehicle manufacturing accordingly.
342. The dominant method for recycling EV batteries in the UK involves ‘shredding’ the battery and turning it into a recycled product referred to as ‘black mass’.<sup>696</sup> While the UK has some facilities to shred batteries and produce black mass, it does not have facilities to extract the critical minerals contained within the black mass.<sup>697</sup> The Faraday Institution told us that even the UK’s existing recycling facilities have insufficient capacity to shred all batteries, and that some manufacturers ship used batteries to European facilities for black mass shredding—an expensive option because batteries are considered to be hazardous waste.<sup>698</sup> Manufacturers pay between £3–8 per kilogram to ship lithium-ion batteries abroad, and must then pay again for the importing of recycled minerals and other materials.<sup>699</sup>
343. There are some signs of progress in this area. Veolia is building a battery reprocessing facility at Minworth in the West Midlands where they aim

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690 Department for Business and Trade and Department for Business, Energy and Industrial Strategy, *Resilience for the Future: The UK’s Critical Minerals Strategy* (July 2022), p 24: [https://assets.publishing.service.gov.uk/media/62f36baf90e07714288b188/resilience\\_for\\_the\\_future\\_the\\_uk\\_s\\_critical\\_minerals\\_strategy.pdf](https://assets.publishing.service.gov.uk/media/62f36baf90e07714288b188/resilience_for_the_future_the_uk_s_critical_minerals_strategy.pdf) [accessed 18 January 2024]

691 Department for Business and Trade, UK Battery Strategy (November 2023) p 52: <https://assets.publishing.service.gov.uk/media/656ef4871104cf000dfa74f3/uk-battery-strategy.pdf> [accessed 18 January 2024]

692 Written evidence from the Institution of Mechanical Engineers ([ELV0088](#))

693 The Waste Batteries and Accumulators Regulations 2009 ([SI 2009/890](#))

694 Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC, [OJL 191/1](#), 28 July 2023

695 Regulation (EU) 2023/1542 of the European Parliament and of the Council of 12 July 2023 concerning batteries and waste batteries, amending Directive 2008/98/EC and Regulation (EU) 2019/1020 and repealing Directive 2006/66/EC, [OJL 191/1](#), 28 July 2023

696 Written evidence from the Advanced Propulsion Centre ([ELV0107](#))

697 Written evidence from CarTakeBack.com Limited ([ELV0009](#)), Stellantis ([ELV0038](#)), and the Faraday Institution ([ELV0047](#)), [Q 55](#) (Dr Gavin Harper)

698 Written evidence the Faraday Institution ([ELV0047](#))

699 Written evidence from Green Alliance ([ELV0099](#))

to process 5,000 tonnes of EV batteries—this plant will process batteries into black mass material.<sup>700</sup> Recyclus is also building a lithium-ion battery processing plant in the Midlands with a permit for 22,000 tonnes of lithium-ion batteries including EV batteries alongside those from e-bikes and vapes.<sup>701</sup>

344. Robin Brundle, Executive Chairman of Technology Minerals PLC suggested that approximately 30 per cent of the raw materials required to meet demand for new EVs could ultimately be achieved through recycling.<sup>702</sup> Green Alliance told us that EV battery recycling could provide at least ten per cent of the minerals required for battery manufacturing in the UK in 2035, increasing up to 43 per cent by 2040 when more EVs are reaching the end of life and are available for recycling.<sup>703</sup> Green Alliance estimate that the economic value of lithium contained in EV batteries that reach end of life in 2040 in the UK could reach £146 million, while cobalt could reach £63 million.<sup>704</sup>
345. Currently, however, this black mass material is shipped elsewhere, including China, South Korea and Japan, where the critical minerals are extracted and retained.<sup>705</sup> These materials of significant economic and strategic value are therefore lost from UK supply chains, increasing overall production costs.<sup>706</sup>
346. We also heard that the European black mass processing industry is growing, increasing competition for black mass supply contracts.<sup>707</sup> Contracts for UK-originated end-of-life materials secured with overseas plants could undermine the viability of UK investment into recycling as the short-term feedstock is already committed in other contracts.<sup>708</sup> Robin Brundle emphasised that investment in black mass treatment and extraction in the short to medium term will be crucial if the UK is to retain the critical materials from EVs.<sup>709</sup>
347. To date, the Government has invested more than £500 million of funding into the Faraday Battery Challenge to support battery research and innovation with a further £400 million received in private investment.<sup>710</sup> The Government is also providing grants to the Advanced Propulsion Centre on a project called RECOVAS which is investigating a circular end-of-life supply chain for the EV industry.<sup>711</sup> RECOVAS is working with manufacturers and research centres to develop a commercial scale recycling facility for automotive battery packs in the UK.<sup>712</sup>
348. These investments are clearly welcome. We heard that they must be accompanied by updated regulation.<sup>713</sup> The Advanced Propulsion Centre itself told us that the primary barrier to recycling batteries is not technological

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700 [Q 55](#) (Cory Reynolds)

701 [Q 55](#) (Robin Brundle)

702 *Ibid.*

703 Written evidence from Green Alliance ([ELV0099](#))

704 *Ibid.*

705 Written evidence from CarFakeBack.com Limited ([ELV0009](#)), Stellantis ([ELV0038](#)), the Faraday Institution ([ELV0047](#)), the Advanced Propulsion Centre ([ELV0107](#)) and [Q 55](#) (Robin Brundle, Dr Gavin Harper)

706 Written evidence from the Faraday Institution ([ELV0047](#)) and [Q 55](#) (Robin Brundle, Dr Gavin Harper)

707 Written evidence from the Advanced Propulsion Centre ([ELV0107](#))

708 *Ibid.*

709 [Q 55](#) (Robin Brundle)

710 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

711 *Ibid.*

712 *Ibid.*

713 Written evidence from the Institution of Mechanical Engineers ([ELV0088](#))



but economic, with the current cost of recycling rendering recycling less commercially viable than using virgin material.<sup>714</sup> However, witnesses noted that specific waste codes, enhanced extended producer responsibility and regulation of battery reuse could address this issue.<sup>715</sup>

349. We also heard that battery production and recycling technologies continue to evolve, and academics are researching new battery chemistries which require fewer critical materials and lower volumes per battery pack.<sup>716</sup> We also heard that there are opportunities to design batteries for easier recycling: batteries in models by BYD, a Chinese car manufacturer, are much easier to disassemble than those in other EV vehicles and thus require less complex processing.<sup>717</sup>
350. Currently, the cost of the recycling can in part be compensated for by the value of the minerals and material extracted.<sup>718</sup> In alternative battery chemistries where the volume of critical materials is lower, the recycling costs may not be compensated for in this way.<sup>719</sup> Currently, the sector is moving towards the development of lithium-iron phosphate batteries which do not have as much intrinsic value in the raw materials.<sup>720</sup> One outcome of the move to drive down battery costs is that this will also reduce the profitability of recycling.<sup>721</sup>
351. Any investment in battery recycling and critical minerals recovery will also take some years to flow through to the feedstock, while EV volumes remain relatively low, and are in use for long periods.<sup>722</sup> We heard that while UK EV battery volumes remain low and are reused efficiently, the supply of end-of-life batteries is unlikely to be significant until several years after 2030.<sup>723</sup> Battery packs in EVs have much longer lifespans than the starter batteries in cars and there are examples of people driving older EVs for several hundred thousand miles with the battery only degrading minimally over time.<sup>724</sup>
352. **The Committee heard that at present, the UK is not maximising the recycling of EV batteries. The UK also has insufficient capacity to recover critical materials from batteries and retain them in the UK. This is for three reasons:**
- (1) the current Waste Battery and Accumulator Regulations 2009 stipulate that only 50 per cent of an EV battery needs to be recycled meaning material is lost or wasted;**
  - (2) the UK currently has no capacity to process black mass which is instead exported for processing, together with the critical materials it contains;**
  - (3) shredding to produce black mass is itself an inefficient process that does not optimise the recovery of critical materials.**

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714 Written evidence from the Advanced Propulsion Centre ([ELV0107](#))

715 [Q 60](#) (Cory Reynolds)

716 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#)), the Warwick Manufacturing Group ([ELV0124](#)) and the Advanced Propulsion Centre ([ELV0047](#))

717 [Q 55](#) (Dr Gavin Harper) and [Q 66](#) (Dr Gavin Harper)

718 Written evidence from Stellantis ([ELV0038](#))

719 *Ibid.*

720 [Q 58](#) (Dr Gavin Harper)

721 Written evidence from the Faraday Institution ([ELV0047](#)) and [Q 64](#) (Dr Gavin Harper)

722 Written evidence from the Advanced Propulsion Centre ([ELV0107](#))

723 *Ibid.*

724 Written evidence from the RAC ([ELV0078](#))

**The UK needs to improve its capacity and standards for EV recycling to support UK manufacturing demand and to aid in their compliance with EU battery regulations.**

353. *We recommend that the Government review current UK regulation and increase the minimum recycled amount of an EV battery to above 50 per cent. The Government should also introduce minimum recovery amounts from EV batteries for specific critical minerals including Lithium.*
354. **If, as the Government states, its ambition is to achieve a circular economy for batteries, a step-change in investment in black mass processing and technology to extract critical minerals from black mass will be essential. We recommend that the Government urgently review and progress opportunities to rapidly accelerate investment in black mass processing facilities and critical minerals extraction facilities in the UK in the medium term.**
355. **In the longer term, we note that research is underway to develop alternative battery chemistries that avoid the need for black mass processing altogether. While this remains nascent the Government should monitor progress in this area closely, and ensure horizon scanning informs battery recycling strategies. Government must also provide clarity to the recycling industry about future standards at the earliest stage possible to ensure it is able to adapt to changes.**

#### *Battery gigafactories*

356. A number of stakeholders noted that the UK needs to significantly expand its battery-manufacturing capacity to safeguard the automotive industry and to develop a supply chain for critical materials.<sup>725</sup> This in turn would also give confidence to the recycling industry to develop separation and extraction facilities for a domestic car market.
357. Tata Group recently announced plans to build a gigafactory in the UK alongside over £4 billion investment. According to the Office for Zero Emission Vehicles, it is predicted to supply nearly half of the batteries needed in the UK by 2030.<sup>726</sup> The Faraday Institute and Greenpeace noted that 10 such gigafactories will be required by 2040.<sup>727</sup>
358. **The Committee welcomes the recently announced development of a gigafactory in Somerset which is a welcome move towards generating a supply chain in the UK and a circular economy for EV batteries in the UK. However, this falls short of what the UK will need. We recommend that the Government prioritise securing additional gigafactories to ensure a domestic supply chain, make sure critical minerals are retained in the UK and reduce reliance on imported critical materials.**

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725 Written evidence from Green Alliance ([ELV0099](#)), Transport and Environment ([ELV0035](#)) and the Faraday Institution ([ELV0047](#)).

726 Written evidence from the Office for Zero Emission Vehicles ([ELV0110](#))

727 Written evidence from Greenpeace UK ([ELV0040](#)) and the Faraday Institute ([ELV0047](#))

## Regulatory reform

359. In July 2023 the EU introduced an updated ‘EU Batteries Regulation’ which includes the following measures:<sup>728</sup>

- Passports for batteries<sup>729</sup>
- Traceability of batteries<sup>730</sup>
- Information on the battery’s embedded carbon footprint<sup>731</sup>
- Recycled content minimum levels for new batteries for 2031 and 2036<sup>732</sup>

Defra stated that it is reviewing UK batteries regulation and that the Government will consider if elements of the EU regulation can be adapted to the UK’s needs and circumstances.<sup>733</sup>

360. Several responses to our inquiry said that the UK regulations should follow the EU’s example around sustainable sourcing of raw materials, targets for recycled components in new batteries and sustainable manufacturing and disposal of EV batteries.<sup>734</sup> Green Alliance suggested that battery passports similar to those being brought in in the EU would also provide clear information on both supply chain due diligence and the carbon footprint of the battery.<sup>735</sup> This could improve consumer confidence in the positive environmental impact of EVs. Ken Byng noted expectations that updated UK battery regulations would align with the EU’s, given the exposure of UK manufacturers to the EU markets.<sup>736</sup>

361. Enforcement of regulations is shared between Defra and the Environment Agency: Defra is responsible for ensuring that ATFs and manufacturers report targets and recycle the vehicles to the percentages detailed in the regulation while the Environment Agency carries out ATF visits and is responsible for closing down illegal sites.<sup>737</sup>

362. We heard concerns that at present, the Environment Agency is not sufficiently resourced to deliver the enforcements required to effectively regulate the industry.<sup>738</sup> Additionally, some stakeholders report that permitting for a new waste management facility can take as long as two years to receive a permit from the EA due to under-resourcing.<sup>739</sup>

**363. We heard that permitting processes for new recycling plants are lengthy and that enforcement of legislation is currently insufficient to ensure facilities are adhering to regulation. Both permitting and enforcement are administered by the Environment Agency**

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728 Written evidence from the Advanced Propulsion Centre ([ELV0107](#)), and Shell UK ([ELV0055](#))

729 European Council, ‘Council adopts new regulation on batteries and waste batteries’, (10 July 2023): <https://www.consilium.europa.eu/en/press/press-releases/2023/07/10/council-adopts-new-regulation-on-batteries-and-waste-batteries/> [accessed 29 January 2024]

730 Written evidence from the Faraday Institution ([ELV0047](#))

731 *Ibid.*

732 *Ibid.*

733 Written evidence from Defra ([ELV0144](#))

734 Written evidence from the Advanced Propulsion Centre ([ELV0107](#)), Greenpeace UK ([ELV0040](#)), Shell UK ([ELV0055](#)) and [Q 60](#) (Ken Byng)

735 Written evidence from Green Alliance ([ELV0099](#))

736 [Q 60](#) (Ken Byng)

737 [Q 63](#) (Ken Byng)

738 [Q 62](#) (Robin Brundle)

739 [Q 62](#) (Robin Brundle) and [Q 63](#) (Ken Byng)

**in England, which we heard faces significant resource challenges. Sufficient resources at the Environment Agency will be of particular importance when the new regulations being consulted on in 2024 are introduced. We recommend that the Government review the resources available to the Environment Agency in this area, and ensure these are sufficient to accelerate permitting and support the enforcement of current and future regulation.**

*Government coordination*

364. Oversight of the various issues relating to recycling, reuse and the circular economy falls to a number of different Government Departments, regulatory and enforcement organisations including the Department for Business and Trade, OZEV, the Department for Energy Security and Net Zero, Defra and the Environment Agency.
365. Defra stated that the four environmental regulators in the devolved nations (Environment Agency, Natural Resources Wales, Scottish Environment Protection Agency and Northern Ireland Environment Agency) are the responsible bodies for permitting of Approved Battery Treatment Operators and ATFs.<sup>740</sup> The Office for Product Safety and Standards (OPSS) has oversight for enforcing ‘placing on the market’ (POM) requirements for batteries as well as reporting data for industrial and automotive batteries—the OPSS also enforce the free take-back responsibility.<sup>741</sup>
366. Stakeholders noted the cross-departmental nature of this issue, and argued that it would benefit from some focussed oversight.<sup>742</sup> We heard calls for holistic and joined-up Government working and a plan for industry support around the disposal and recycling of EVs.<sup>743</sup>
367. **The Committee heard that waste management and recycling is overseen by a range of Departments and regulators, and there is a need for enhanced central oversight and coordination to support an increasingly critical area of growth and development. In response to this report, the Government should set out how it plans better to join up cross-Government action on waste management and recycling, and how it will facilitate improved communication with industry and consumers.**

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740 Written evidence from Defra ([ELV0144](#))

741 *Ibid.*

742 [Q 57](#) (Dr Gavin Harper)

743 Written evidence from Stellantis ([ELV0038](#))

## SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

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### Chapter 2: Strategic approach and public messaging

1. The Minister told us that the Government was concerned about misinformation and the Director of Transport Decarbonisation at the Department for Transport stated that there had been a “concerted campaign of misinformation” about EVs in recent months. This echoed concerns from a broad range of witnesses, from individual members of the public to car manufacturers. (Paragraph 27)
2. The Government’s concern at the scale of misinformation, however, has not been matched by commensurate urgency in tackling it. A joint consumer information campaign between Government and industry that was praised by several witnesses was ended in 2021. We heard the decision to end the campaign was led by a belief that EVs were moving into the mass market, and misconceptions were dissipating. This is not supported by the evidence we received. (Paragraph 28)
3. *The Government should take a more proactive and leading role in communicating a positive vision of the EV transition to consumers, and promoting comprehensive, clear, authoritative, accurate and balanced information. The Government should develop a communication strategy in collaboration with industry partners and consumer organisations to provide clear, authoritative and trustworthy information. This could build on previous successes such as the Go Ultra Low website.* (Paragraph 29)
4. We welcome the Government’s commitment that the central Government car fleet will be zero emission by the end of 2027. (Paragraph 30)
5. *To communicate this commitment more visibly, all cabinet members should be driven in EVs by the end of 2024.* (Paragraph 30)
6. The challenges involved in the EV transition cover a wide range of departments and policy areas, and joined-up cross-Government coordination is essential. The Government must also work closely with industry to monitor progress in the uptake of EVs and the rollout of charging infrastructure. Unfortunately, we heard persistent concerns about a lack of consistent cross-Government progress on interdependent policy areas, and delays to major projects. (Paragraph 38)
7. *The Government should focus first on*
  - (a) *targeted actions that can be taken now to remove simple blocks in the system such as amending planning and waste management regulations and accelerating delays to the rollout of public chargepoint funding schemes, then*
  - (b) *setting out the actions that will be taken over the next 10 years of the transition in order to map out a long-term approach.*

*This roadmap should be published to enable scrutiny and support consumer confidence.* (Paragraph 39)
8. We welcome the Minister’s commitment to monitor cross-Government work on the EV transition closely, and advise the Secretary of State and Prime Minister if changes to coordination structures are required. However, we heard strong calls for this to happen now. (Paragraph 40)

9. *OZEV must be resourced as a delivery unit within Government to achieve this and/or a new body such as a Ministerial Taskforce should be set up to provide direction for the wide range of Government departments, sectors and stakeholders involved. (Paragraph 41)*

### Chapter 3: Acquiring an EV

10. The UK EV market remains concentrated around high value cars (costing over £40,000) and SUVs. Unless the market changes to offer more affordable options to consumers, the Government's objective of mass ownership of EVs will not be met. This must also change to avoid issues caused by the trend towards heavier SUVs, including excessive road wear and typically higher embedded emissions in production. As set out in further detail below, this change may be enacted through investments in UK production, fiscal incentives to bring price parity at the more affordable end of the market, or taxation on heavier vehicles. The Government should keep the trend towards SUVs under review and consider what measures may be necessary to counteract it given its many negative consequences. (Paragraph 61)
11. By the end of the decade, a broader range of affordable EVs should become available to UK consumers. The growing import of cheaper Chinese EVs will help in this regard, providing more options to consumers and stimulating competition in the market. However, in the longer term the UK must avoid reliance on foreign imports, which are currently mainly Chinese, to support mass ownership of EVs. This is important for the UK's economy, strategic priorities and net zero targets. (Paragraph 62)
12. We welcome recent announcements on new investment in the UK's car manufacturing industry. This is positive news for British jobs as well as for the environment. Strong domestic strategies on electric vehicle and battery production will be essential to support further UK EV production and the circular economy. We welcome the recent publication of the Government's Advanced Manufacturing Plan and Battery Strategy. (Paragraph 63)
13. *The Government should provide a progress update on the Advanced Manufacturing Plan and Battery Strategy by summer 2025. (Paragraph 63)*
14. *The Government must accelerate the rollout of the UK's EV charging infrastructure which is essential in giving UK consumers the confidence to choose smaller, more affordable EVs, which typically have smaller ranges. We discuss this in further detail in Chapter 4. (Paragraph 64)*
15. There is currently an insufficient range of affordable EVs, and price parity between EVs and ICE vehicles has not yet been reached. The growth in EV uptake, originally driven by early adopters and corporate fleets, is stalling as upfront cost barriers put EVs out of reach of the majority of drivers. (Paragraph 72)
16. The Government's stated aim is to support "mass ownership" of EVs. Yet unlike other major European markets, the Government has removed incentives to support consumers with upfront purchase costs. (Paragraph 73)
17. *The Government should explore targeted grants to incentivise the purchase of EVs with a view to facilitating a list price under an appropriate threshold. This would stimulate the affordable market, support the move to price parity and help counteract the trend towards SUVs which have broader environmental costs. These incentives*

*should be accompanied by an exit strategy for when and how they should be tapered; this should only be as price parity is reached. (Paragraph 74)*

18. The majority of EVs entering the second-hand market will be the higher value cars and SUVs favoured by corporate fleets and early adopters. As such, even at second-hand prices they are out of reach of most consumers. (Paragraph 83)
19. *The Government should review the schemes that other countries, including Scotland and the Netherlands have implemented to incentivise the purchase of second-hand EVs, evaluate their outcomes and explore whether similar schemes could be offered in England and Wales. (Paragraph 83)*
20. Consumer confidence in the second-hand market is also currently being undermined by uncertainty and concerns about EV battery health. We welcome industry's work to develop a 'battery health standard' that would give confidence to consumers. (Paragraph 84)
21. *The Government should accelerate its collaboration with industry to develop a 'battery health standard' that is objective and reliable. (Paragraph 84)*
22. The EV leasing market has performed well, and salary sacrifice and benefit in kind incentives have been successful. (Paragraph 92)
23. *Low benefit in kind rates should be retained, though as with all other financial incentives, the Government must plan for how they will be tapered and exited. (Paragraph 92)*
24. We heard some concerns about price volatility in the second-hand market and particularly the impact this may have on the leasing market. If used electric vehicle prices continue to drop, leasing companies will raise leasing charges for consumers—potentially making them less attractive than leasing ICEs despite the big fiscal incentives for electric vehicle leasing. The second-hand market remains immature and we would not recommend that the Government make any intervention now to prevent used prices dropping further. (Paragraph 93)
25. *However, Government should monitor prices, and assess whether the leasing market continues to work well for consumers. (Paragraph 93)*
26. It is crucial that the Government considers road taxation alongside other fiscal measures taken to drive EV uptake, giving consumers a clear and consistent steer on future total motoring costs. As the UK transitions away from petrol and diesel vehicles, road taxation will need to be fundamentally redesigned, including issues like road pricing. (Paragraph 104)
27. *We support the conclusions of the House of Commons Transport Committee's January 2022 report that comprehensive reform of road taxation is needed, to start an honest conversation with the public and work towards a system that is seen as fair and enjoys public acceptance. We note the urgency of this has only increased in the intervening two years. In response to this report, the Government should urgently provide a progress update on work in this area. (Paragraph 104)*
28. L-category and micromobility vehicles (such as e-scooters) may make a small but important contribution to the EV transition, particularly in urban areas. However, uptake is being held back by insufficient safety regulations around both their manufacturing and use. (Paragraph 113)

29. *In response to this report, the Government should confirm whether it has abandoned previous plans to legislate in this area, and if so why. (Paragraph 113)*
30. Car clubs may make a limited but important contribution to the EV transition, and constitute an important part of a broader modal shift in transport use. While private car ownership will likely remain the default mode of car use for some time, for those who require occasional car use they present a more cost-effective and environmentally-friendly alternative. Car sharing will likely become increasingly significant as the Government looks to legislate for the future of autonomous vehicles. We welcome the credit for car club vehicles included in the ZEV mandate. To support car clubs further, the rollout of chargepoints must be accelerated. We discuss this further in Chapter 4. (Paragraph 118)
31. Even at current upfront prices, the lifetime costs of an EV (to the driver) are likely to be lower than ICE equivalents overall (with present road and fuel taxes). Nevertheless, there are several factors Government should address to reduce these lifetime costs further. (Paragraph 125)
32. To ensure maintenance costs remain reasonable, there must be a sufficient number of skilled mechanics trained to maintain EVs. While EVs generally have lower maintenance costs, any skills shortages among mechanics may mean more expensive services for consumers. (Paragraph 126)
33. *In line with the communications campaign we call for, the Government must now provide policy certainty and consistent messaging to give car maintenance workers the confidence to invest in upskilling. (Paragraph 126)*
34. We expect data on EV safety and the cost of repairs to improve as the EV market matures, and help lower insurance premiums. However, consumers understandably need clarity and reassurance about the safety of new technologies in order to confidently choose EVs. As we set out in Chapter 5, greater regulatory certainty over batteries is needed to support industry and waste management facilities—this should also provide added certainty for consumers and the insurance industry. (Paragraph 127)

#### **Chapter 4: EV charging**

35. A lack of confidence in the charging infrastructure is commonly cited as the most or second most significant obstacle for consumers alongside the upfront cost of EVs. Infrastructure must be rolled out ahead of demand to give consumers the confidence to make the switch to EVs, but the UK's chargepoint infrastructure is lagging behind need, and is contributing to consumer anxiety. The Government's target is an advisory ambition, and we are concerned there is currently an insufficient sense of urgency to meet the scale of the challenge. (Paragraph 134)
36. Progress in rolling out public charging infrastructure is highly variable across the UK, with rural areas particularly at risk of having insufficient infrastructure. The Government told us it was considering new powers to issue instructions to local authorities in areas without enough chargepoints. (Paragraph 144)
37. *We recommend that the Government introduce these new powers urgently and use them to direct local authorities in areas where there are fewer than 50 public chargepoints per 100,000 people to prepare EV strategies. This will help to ensure a more evenly distributed chargepoint rollout. (Paragraph 144)*



38. Lower-powered, on-street AC charging involves cheaper installation for operators, less demand on the grid, and cheaper prices for consumers. Ensuring that the rollout of on-street charging proceeds rapidly, while taking account of broader issues such as pavement access and safety, is essential to provide fair and equitable access to charging across the UK. (Paragraph 149)
39. The ORCS continues to enable a number of small-scale but important installation projects. However, considerable delays to the application process have risked limiting wider success. (Paragraph 155)
40. *The Government should continue the ORCS alongside the LEVI Fund enabling targeted support for smaller discrete projects. In response to this report, the Government should set out what actions it has taken and will take to ensure that application and implementation processes are not undermined by delays in future.* (Paragraph 155)
41. The LEVI fund is welcome, but the slow pace of the rollout has significantly undermined progress and frustrated investment. The Government should set and communicate clear timelines and deadlines for the scheme and provide sufficient time for application preparation. (Paragraph 166)
42. *The Government should set and communicate clear timelines and deadlines for the scheme and provide sufficient time for application preparation.* (Paragraph 166)
43. We heard from a range of stakeholders that current guidance for applications to the LEVI Fund is not sufficient, particularly around the best approach to expenditure at a given site. We also heard that the guidance and training provided through the LEVI Support Body has been useful and that it should be continued throughout the lifetime of the project. (Paragraph 167)
44. The capability funding as part of the LEVI Fund is welcome, but we heard that it does not cover the additional functions and resources that local government needs in order to deliver EV infrastructure projects. (Paragraph 168)
45. *The Government should consider widening the scope of the capability funding to cover other essential functions, such as legal and planning teams.* (Paragraph 168)
46. *The Government should also investigate options for building on the LEVI Support Body to address skills shortages. The Government should consult local authorities about what guidance and training they need as part of the LEVI scheme and seek to adjust the offer accordingly.*(Paragraph 169)
47. The scheme is due to end in 2025, but we heard that an extension would allow local authorities to plan more strategically and adopt self-sustaining approaches. (Paragraph 170)
48. *We recommend that the scheme is extended for a further three years and that the Government refine its focus to target areas that are falling behind with chargepoint infrastructure delivery.* (Paragraph 170)
49. Destination charging, including at supermarkets, hotels and workplaces, is convenient for consumers and can reduce reliance on but not replace on-street residential charging. (Paragraph 179)
50. The Government's advisory targets for the public chargepoint rollout depend on a high proportion of workplace charging. However, the number of workplace and other forms of destination chargepoints is currently

not monitored. This means that nobody knows if a crucial pillar of the Government's EV Infrastructure Strategy is keeping pace with expectations. (Paragraph 180)

51. *We recommend that the Government monitor this important element of the charging rollout.* (Paragraph 180)
52. We welcome the Government's scheme to support workplace chargepoint installation but heard that the scheme is not well utilised and uptake is slow, suggesting it is not adequately publicised. Additionally, the growth in privately funded workplace charging infrastructure is not monitored and so the overall picture is unclear. (Paragraph 181)
53. *In response to this report, the Government should set out its assessment of how the market-led rollout of workplace charging is progressing, and on what basis it is confident that this is sufficient to end direct subsidy through the Workplace Charging Scheme in April 2024. The Government should also set out its assessment of how the market-led rollout of other forms of destination charging is progressing.* (Paragraph 182)
54. *The Government should gather comprehensive data on the availability of workplace chargepoints and consult on mandating workplaces with designated car parking spaces and more than a certain number of employees to install chargepoints using the grant.* (Paragraph 183)
55. We welcome the targeting of private chargepoint grants to drivers and residents in situations where securing chargepoint installation is more challenging and where the private sector is unlikely to deliver chargepoint provision. However, we heard that awareness of these schemes is low. (Paragraph 189)
56. *The Government should explore ways to publicise and raise awareness of available schemes through the public information campaign we call for in Chapter 2 of this report.* (Paragraph 189)
57. Some tenants and leaseholders experience significant delays in obtaining a chargepoint. They often have limited bargaining power to request chargepoint installation in their residences where landlords are reluctant. (Paragraph 190)
58. *The Government should consult on offering a 'right to charge' for tenants and leaseholders in multi-occupancy buildings to address landlord reluctance. Given the delays experienced by tenants seeking permission to install a chargepoint, the Government should extend the deadline for the grant scheme for landlords and tenants.* (Paragraph 190)
59. Consumers need confidence that they will be able to charge their electric vehicle, no matter how long their journey. Yet the Government has missed its target to have at least 6 high powered chargepoints at each motorway service area in England by the end of 2023. The Rapid Charging Fund is designed to support the delivery of rapid and ultra-rapid chargepoints at motorway service areas at a reasonable cost to consumers but has experienced significant delays. While we welcome the recent announcement of a pilot fund and consultation on the design of the scheme, there has been a concerning lack of progress nearly four years after the Fund was announced. (Paragraph 198)
60. *Progress in this area must be accelerated urgently. In response to this report, the Government should confirm its revised deadline for meeting its motorway service*

*area chargepoint target. The Government should also periodically review this target and publish its findings to ensure it keeps pace with the number and category of electric vehicles on the roads. (Paragraph 199)*

61. *In allocating funds from the Rapid Charging Fund, the Government must ensure that these are distributed according to need across the Strategic Road Network. There is a risk that motorway services areas are prioritised over the wider strategic road network which includes important A roads, especially now the Government is behind on its motorway service area target. When opening applications to the Rapid Charging Fund, the Government must make clear its criteria on how funds will be allocated. (Paragraph 200)*
62. The installation of chargepoints is a national priority. But planning and other associated regulations are holding back progress. Simplified and standardised planning processes are needed, whereby these overlapping regulatory processes can be satisfied in a single step. We are pleased to hear that OZEV is considering the development of unified consent processes to streamline the various consents required for planning and permitting. (Paragraph 205)
63. *We recommend that the Government publish its plans as early as possible to support infrastructure rollout. We set out in further detail below the aspects of planning regulation that should be reviewed as part of this process. (Paragraph 205)*
64. Pavement cable gullies may be a solution for a limited number of households, offering access to charging immediately outside the home and at domestic energy prices—which are currently cheaper than public charging and are already being explored in some areas of the country. However, it is essential that these do not threaten the accessibility or safety of the pavement. Some local authorities may understandably be hesitant about granting permission due to a lack of clarity about the necessary planning permissions and liability for hazards. The laying of cables across the pavement, in addition to confusion around who has the right to use the adjoining parking space, could create tension in local communities and careful communication and management by local authorities will be required. (Paragraph 209)
65. *We welcome the Government’s stated intention to provide guidance on the use of cross-pavement solutions and urge this to be published as soon as possible. (Paragraph 209)*
66. We welcome recent updates to the Permitted Development Rights (PDR) for chargepoint installation in England and Wales. However, we note that restrictions remain around chargepoint height which are inhibiting deployment. We heard that the Scottish government’s relaxation of the height restriction in its updates to Permitted Development Rights in Scotland has had a significant impact on accelerating the rollout. (Paragraph 213)
67. *The Government should review permitted development rights as they relate to chargepoint installation and launch a consultation that considers additional PDR for taller chargepoint installations and the installation of solar canopies. (Paragraph 214)*
68. We heard that the Traffic Regulation Orders required to label parking bays as “EV-only” are causing significant delays in the delivery of chargepoint infrastructure. Though the Government launched a consultation into simplifying and streamlining the process for acquiring a Traffic

Regulation Order in March 2022, it has yet to publish a complete response. (Paragraph 217)

69. *The Government should publish its full response to the consultation as soon as possible.* (Paragraph 217)
70. We heard that application of Section 115B of the Highways Act 1980 to chargepoint installation is a major barrier to local authorities keen to progress with the rollout of infrastructure. It is time-consuming and establishes a disproportionately high threshold of consent relative to standard consultation processes. The concerns of residents and businesses must be heard and taken into account, but too many otherwise viable projects risk being stopped entirely where sensible mitigations achieved through consultation could provide a solution. This Section was not designed to apply to chargepoints and should be reviewed. (Paragraph 220)
71. *We recommend that the Government review Section 115B to determine whether it is fit for purpose as it applies to chargepoint installation and, if necessary, use the earliest legislative opportunity to amend the legislation to prevent further delays.* (Paragraph 221)
72. We welcome the Government's updates to the building regulations which require all new developments with parking, and existing developments that are undergoing major renovation, to be fitted with chargepoints. However, these updates do not address obstacles to installing chargepoints in multi-occupancy buildings or buildings with designated parking for which chargepoint installation has been slow and difficult. While mandating retrofitting of these buildings with chargepoints may not be a proportionate step now due to associated costs, the Government should keep the potential for retrofitting multi-occupancy buildings under review. (Paragraph 225)
73. *The Government should consider amendments to the Part S regulations following OZEV's review of fire risks from chargepoints, to allow for installation in covered parking areas in new buildings.* (Paragraph 225)
74. Home charging at all speeds currently offers significant cost benefits over petrol refuelling, and much of the slower public charging infrastructure is also cheaper. The Government should make this clear to consumers as part of the public information campaign that we are calling for. However, there is more that can be done to further bring costs down to incentivise consumers to make the switch including changes to energy pricing and VAT rates as discussed in paragraphs 236 and 243. This will be particularly significant for rapid and ultra-rapid charging, where the cost of charging remains high relative to petrol. (Paragraph 232)
75. Recent electricity price fluctuations have affected consumer confidence in the cost benefits of EVs. As EV uptake increases, EV owners will be more exposed to the cost of electricity. (Paragraph 236)
76. *We reiterate our recommendation following our inquiry into the Boiler Upgrade Scheme that the Government review options for weakening the link between the price of wholesale gas and electricity through electricity market reform in order to reduce the cost of electricity for EV owners.* (Paragraph 236)
77. We received near-unanimous support for the equalisation of VAT rates between domestic and public charging. While VAT is not the only component affecting the difference in electricity pricing between domestic and public

chargepoints, it is a lever that is available to the Government to address the price disparity. Our analysis suggests that VAT equalisation could improve the affordability of public chargepoints by bringing prices down to (a) roughly the same as petrol and diesel prices for rapid and ultra-rapid chargepoints, and (b) significantly below petrol and diesel prices for on-street slow-to-fast chargepoints. (Paragraph 242)

78. *We recommend that the Government explore options for equalising the VAT differential between public and domestic charging by reducing the 20 per cent VAT rate applied to public charging to 5 per cent in line with domestic electricity. As part of this, the Government should model the amount of revenue that would be lost by the Treasury, and explore options for recovering this in line with the holistic bonus-malus approach to taxation we call for in Chapter 3.* (Paragraph 243)
79. We heard concerns about a lack of regulatory clarity holding back the widespread deployment of smart charging. (Paragraph 249)
80. *We recommend that the Government's interim review of the EV Smart Chargepoint Regulations 2021 is brought forward to 2024, and takes into account their interaction with the Measurement Instrument Regulations 2016 to ensure any potential conflicts are resolved as soon as possible. This is essential to give industry confidence and ensure any need for expensive retrofitting of outdated chargepoints in future is avoided.* (Paragraph 249)
81. The Committee heard that smart charging and vehicle-to-grid technologies are very promising, nascent technologies that could both reduce costs for consumers and balance demand on the grid as more low-carbon technologies such as heat pumps are connected to the grid. (Paragraph 253)
82. *We recommend that the Government explore what more can be done to integrate these technologies into EV infrastructure rollout and to ensure consumers have access to these cost-saving measures.* (Paragraph 253)
83. We welcome the Public Charge Point Regulations 2023, which recognise the centrality of chargepoints being accessible and user-friendly to a successful rollout. However, we encourage the Government to explore how these Regulations could go further to support consumers, especially as the transition and chargepoint technology continue to evolve. (Paragraph 262)
84. *The Regulations should be reviewed by Summer 2025 at the latest. As part of this review, the Government should consider incorporating the Public Charging Charter and the targets of the FairCharge campaign into regulations.* (Paragraph 262)
85. Effective communication with drivers about the location and availability of chargepoints will be essential to reducing range anxiety. (Paragraph 263)
86. *We recommend that in the next review of the Regulations the Government consider mandating 'totem signs' on motorways at the approach to service stations with EV charging facilities.* (Paragraph 263)
87. The success of the Public Charge Point Regulations 2023 will be contingent on enforcement. (Paragraph 264)
88. *We recommend that the Government ensure the Office for Product Safety and Security is sufficiently resourced, or considers moving oversight of these important Regulations to a body or Department working more closely on EV uptake, to*

*ensure that there is effective enforcement and that the Regulations deliver improved consumer confidence. (Paragraph 264)*

89. Wider availability of contactless payment on the low powered chargepoint network could simplify and support chargepoint access for consumers. However, witnesses suggested the costs of installing contactless payment modules on the low powered network are significant compared to the cost of the installation and mandating this may risk either fewer chargepoints being installed, or costs being passed on to the consumer. We note that as technology continues to evolve and the industry matures, the costs of installing contactless payments may decrease. At a moment of opportunity for the UK's charging network, we must avoid installing technology that becomes obsolete and must be retrofitted. (Paragraph 268)
90. *We recommend that the Government ensure contactless payment provisions of the 2023 Regulations are re-examined as part of the regular wider review of the Regulations we are calling for. (Paragraph 269)*
91. We heard that the British Standards Institute Guidance on accessible charging (PAS 1899) provides good standards for making chargepoints accessible. It is crucial that those with disabilities can use public chargepoints. However, it may not be practicable for all chargepoints at every site to meet these standards, and imposing this would risk jeopardising the rollout. (Paragraph 273)
92. *Instead, we recommend that chargepoint hubs over a certain size should be required to have a proportion of accessible chargers available that meet these standards. (Paragraph 273)*
93. We welcome recent announcements to improve queue management for transmission projects and to speed up the time needed to build new transmission infrastructure. However, these still do not allow for strategic prioritisation of low-carbon or renewable energy projects ahead of other energy generation. In order for the positive environmental impact of EVs to be maximised, they need to be powered by low-carbon energy generation on the grid. The UK should be seeking to decarbonise the grid as quickly as possible, and prioritisation of low-carbon projects would assist in that process. This would also underpin the decarbonisation impacts of a wide range of other policy changes including the transition to heat pumps and the electrification of industrial processes. (Paragraph 284)
94. *We recommend that the Government designate low-carbon and renewable energy generation projects as strategically important net zero projects and fast track their progress through permitting and grid connection to achieve a decarbonised electricity grid as soon as possible and to support consumer confidence in EVs as a low-carbon technology. (Paragraph 285)*
95. We welcome the recently announced Connections Action Plan and urge the Government to move quickly to implement the crucial changes to address the delays currently experienced in the queue for grid connections. We recommend that the Government considers how best to prioritise EV chargepoints in the queue as projects of strategic and national importance. (Paragraph 292)
96. *We recommend that the Government considers how best to prioritise EV chargepoints in the queue as projects of strategic and national importance. (Paragraph 292)*

97. We note the changes made to the RIIO price control to allow for more anticipatory investment and emphasise that this additional investment is essential to support chargepoint deployment at pace. However, we heard concern that this may still be insufficient. (Paragraph 301)
98. *We recommend that the Government consult Ofgem and industry to identify opportunities to increase anticipatory investment in grid upgrades for the distribution network to future-proof local grids for the EV transition.* (Paragraph 302)
99. *We recommend that the Government define and label grid upgrades to support chargepoint installations as 'Nationally Critical Infrastructure' projects and prioritise the grid upgrades needed to deliver EV infrastructure.* (Paragraph 303)
100. The Committee heard that under current planning regulations, the full planning and land rights process is triggered even for small amounts of upgrade work. This process can be further delayed if landowners do not reach a negotiated settlement. All of this can add significant delays to relatively straightforward upgrade work. (Paragraph 306)
101. *We recommend that the Government review the planning regulations for the upgrade of power lines and simplify the process where possible to speed up upgrades, particularly in rural communities while still ensuring proper protection of the environment and heritage.* (Paragraph 307)
102. We heard that DNOs and other stakeholders such as local authorities and chargepoint operators could benefit from improved data sharing, online tools to support the planning and permitting process and more pro-active engagement between DNOs and customers. (Paragraph 313)
103. *The Government should explore what more it can do to facilitate this, for example by expanding on the support and guidance currently available through the LEVI support body.* (Paragraph 313)

### **Chapter 5: EV end-of-life management and recycling**

104. While the UK's capacity for EV dismantling is currently sufficient, this is expected to change rapidly as EV numbers rise with predictions that capacity could be exceeded within 2–3 years. (Paragraph 321)
105. *We recommend that the Government continue working with the Environment Agency and the recycling sector to explore options for speeding up planning and permitting processes for new treatment facilities.* (Paragraph 321)
106. The Committee heard that at present, despite the unique handling that lithium-ion batteries require in terms of waste management and recycling, they do not have their own waste code and currently sit under a non-hazardous waste code with other batteries. Lithium-ion batteries ending up in general waste streams are a problem for the recycling industry and can lead to increased risk of fire. We recommend that the Government works with the EU to agree that lithium-ion batteries be assigned a hazardous List of Wastes code to support the reporting and management of the risks and to ensure that recycling is undertaken by responsible operators. (Paragraph 322)
107. *We recommend that the Government works with the EU to agree that lithium-ion batteries be assigned a hazardous List of Wastes code to support the reporting and management of the risks and to ensure that recycling is undertaken by responsible operators.* (Paragraph 322)

108. Compliance with the current producer responsibility regulations under the Waste Batteries and Accumulators Regulations 2009 is variable. We heard that the regulations are not well communicated by some manufacturers and there is poor awareness of them. At present the regulations are not well enforced, but we heard that even if better enforced, they would still fall short of what will be required to manage the expected increase in volume of EVs. (Paragraph 330)
109. *We recommend that, as part of the upcoming consultation on the Waste Batteries and Accumulators Regulations 2009 and the Batteries and Accumulators (Placing on the Market) Regulations 2008, Defra reviews and strengthens the UK producer responsibility regulations for batteries and EVs to ensure compliance with manufacturer take-back schemes and to make the manufacturer more explicitly responsible for batteries and EVs at end-of-life. Defra should also review options to enhance producer responsibility under the Waste Batteries and Accumulators Regulations to encourage more efficient battery design to support recyclability and circularity of EV batteries. Defra should launch a consultation on reviewing and updating the End-of-Life Vehicles (ELV) Regulations 2003 in tandem to ensure that regulation is coherent. It would be advisable that equivalence with similar EU regulations be maintained.* (Paragraph 331)
110. The Committee heard that current Waste Batteries and Accumulators Regulations 2009 do not cover battery reuse and that there is a lack of regulatory clarity around battery reuse for energy storage products as well as old batteries being sold privately online. We recommend that Defra, as part of their upcoming review, develop regulations that support authorised reuse, creating equivalence with similar EU provisions and clarify when a battery is a “product” and when it is classified as “waste”, including stipulating who bears responsibility at each stage to ensure that batteries are covered by appropriate regulations at each stage of the battery’s life. (Paragraph 337)
111. *We recommend that Defra, as part of their upcoming review, develop regulations that support authorised reuse, creating equivalence with similar EU provisions and clarify when a battery is a “product” and when it is classified as “waste”, including stipulating who bears responsibility at each stage to ensure that batteries are covered by appropriate regulations at each stage of the battery’s life.* (Paragraph 337)
112. The Committee heard that at present, the UK is not maximising the recycling of EV batteries. The UK also has insufficient capacity to recover critical materials from batteries and retain them in the UK. This is for three reasons:
- (1) the current Waste Battery and Accumulator Regulations 2009 stipulate that only 50 per cent of an EV battery needs to be recycled meaning material is lost or wasted;
  - (2) the UK currently has no capacity to process black mass which is instead exported for processing, together with the critical materials it contains;
  - (3) shredding to produce black mass is itself an inefficient process that does not optimise the recovery of critical materials.

The UK needs to improve its capacity and standards for EV recycling to support UK manufacturing demand and to aid in their compliance with EU battery regulations. (Paragraph 352)



113. *We recommend that the Government review current UK regulation and increase the minimum recycled amount of an EV battery to above 50 per cent. The Government should also introduce minimum recovery amounts from EV batteries for specific critical minerals including Lithium.* (Paragraph 353)
114. If, as the Government states, its ambition is to achieve a circular economy for batteries, a step-change in investment in black mass processing and technology to extract critical minerals from black mass will be essential. (Paragraph 354)
115. *We recommend that the Government urgently review and progress opportunities to rapidly accelerate investment in black mass processing facilities and critical minerals extraction facilities in the UK in the medium term.* (Paragraph 354)
116. In the longer term, we note that research is underway to develop alternative battery chemistries that avoid the need for black mass processing altogether. (Paragraph 355)
117. *While this remains nascent the Government should monitor progress in this area closely, and ensure horizon scanning informs battery recycling strategies. Government must also provide clarity to the recycling industry about future standards at the earliest stage possible to ensure it is able to adapt to changes.* (Paragraph 355)
118. The Committee welcomes the recently announced development of a gigafactory in Somerset which is a welcome move towards generating a supply chain in the UK and a circular economy for EV batteries in the UK. However, this falls short of what the UK will need. (Paragraph 358)
119. *We recommend that the Government prioritise securing additional gigafactories to ensure a domestic supply chain, make sure critical minerals are retained in the UK and reduce reliance on imported critical materials.* (Paragraph 358)
120. We heard that permitting processes for new recycling plants are lengthy and that enforcement of legislation is currently insufficient to ensure facilities are adhering to regulation. Both permitting and enforcement are administered by the Environment Agency in England, which we heard faces significant resource challenges. Sufficient resources at the Environment Agency will be of particular importance when the new regulations being consulted on in 2024 are introduced. (Paragraph 363)
121. *We recommend that the Government review the resources available to the Environment Agency in this area, and ensure these are sufficient to accelerate permitting and support the enforcement of current and future regulation.* (Paragraph 363)
122. The Committee heard that waste management and recycling is overseen by a range of Departments and regulators, and there is a need for enhanced central oversight and coordination to support an increasingly critical area of growth and development. (Paragraph 367)
123. *In response to this report, the Government should set out how it plans better to join up cross-Government action on waste management and recycling, and how it will facilitate improved communication with industry and consumers.* (Paragraph 367)

## APPENDIX 1: LIST OF MEMBERS AND DECLARATIONS OF INTEREST

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### Members

Baroness Boycott  
Baroness Bray of Coln  
Lord Bruce of Bennachie  
Lord Duncan of Springbank  
Lord Grantchester  
Baroness Jones of Whitchurch  
Lord Lilley  
Lord Lucas  
Bishop of Oxford  
Baroness Parminter (Chair)  
Duke of Wellington  
Lord Whitty  
Baroness Young of Old Scone

### Declarations of interest

Baroness Boycott  
*Trustee at Hay Festival*  
*Chair of Feeding Britain*  
*Trustee at Veg Power*  
*Patron of Sustain*  
*Patron of Vavengers*  
Baroness Bray of Coln  
*No relevant interests to declare*  
Lord Bruce of Bennachie  
*No relevant interests to declare*  
Lord Duncan of Springbank  
*President of the Association for Decentralised Energy*  
Lord Grantchester  
*Owner of an electric vehicle*  
Baroness Jones of Whitchurch  
*No relevant interests to declare*  
Lord Lilley  
*No relevant interests to declare*  
Lord Lucas  
*No relevant interests to declare*  
Bishop of Oxford  
*No relevant interests to declare*  
Baroness Parminter (Chairman)  
*Owner of an electric vehicle*  
Duke of Wellington  
*No relevant interests to declare*  
Lord Whitty  
*Owner of a hybrid car*  
Baroness Young of Old Scone  
*Chair of the Labour Climate and Environment Forum*  
*Chair of the Woodland Trust*

A full list of Member's interests can be found in the Register of Lords' Interests:  
<https://members.parliament.uk/members/lords/interests/register-of-lords-interests>

## APPENDIX 2: LIST OF WITNESSES

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Evidence is published online at <https://committees.parliament.uk/work/7846/electric-vehicles/> and available for inspection at the Parliament Archives (020 7219 3074)

Evidence received by the Committee is listed below in chronological order of oral evidence session, and then in alphabetical order. Those witnesses marked with \*\* gave both oral evidence and written evidence. Those marked with \* gave oral evidence and did not submit any written evidence. All other witnesses submitted written evidence only

### Oral evidence in chronological order

**	Phill Jones, Chief Operating Officer, Motors.co.uk	<a href="#">QQ 1-14</a>
**	Marc Palmer, Brand Director, Auto Trader	<a href="#">QQ 1-14</a>
**	Toby Poston, Director of Corporate Affairs, British Vehicle Rental & Leasing Association (BVRLA)	<a href="#">QQ 1-14</a>
*	James Taylor, General Manager of Zipcar UK	<a href="#">QQ 1-14</a>
*	Mike Hawes, Chief Executive Society of Motor Manufacturers (SMMT)	<a href="#">QQ 15-22</a>
*	Lauren Pamma, Programme Director, Green Finance Institute	<a href="#">QQ 15-22</a>
**	Professor Tim Schwanen, Director of the Transport Studies Unit, University of Oxford	<a href="#">QQ 15-22</a>
**	James Taylor, Managing Director, Vauxhall Motors	<a href="#">QQ 15-22</a>
*	Dr Russell Fowler, Senior Manager Decarbonisation of Transport, National Grid	<a href="#">QQ 23-41</a>
**	Steve Gooding, Director, RAC Foundation	<a href="#">QQ 23-41</a>
*	Ian Johnston, CEO Osprey Charging, Chair of Charge UK	<a href="#">QQ 23-41</a>
*	Jonathan Marshall, Senior Economist, Resolution Foundation	<a href="#">QQ 23-41</a>
*	Melanie Shufflebotham, Co-founder and Chief Operating Officer, Zapmap	<a href="#">QQ 23-41</a>
**	Frank Burmeister, Senior Expert on Electric Vehicles and Charging Infrastructure, Government of the Netherlands	<a href="#">QQ 42-54</a>
*	Andreas Hedum, Senior Adviser in Environmental Affairs Section of the Ministry for Transport Government of Norway	<a href="#">QQ 42-54</a>
*	Professor Benjamin Sovacool, Professor of Earth and Environment at Boston University (US), Founding Director of the Institute for Global Sustainability and Professor of Energy Policy at the University of Sussex Business School	<a href="#">QQ 42-54</a>

**	Robin Brundle, Executive Chairman, Technology Minerals Plc	<a href="#">QQ 55–66</a>
**	Ken Byng, Senior Manager, CarTakeBack	<a href="#">QQ 55–66</a>
*	Dr Gavin Harper, Faraday Institution Research Fellow, University of Birmingham	<a href="#">QQ 55–66</a>
*	Cory Reynolds, Corporate Affairs and Communications Director, Veolia UK	<a href="#">QQ 55–66</a>
**	Ian Cameron, Director of Innovation and Customer Service, UK Power Networks	<a href="#">QQ 67–77</a>
**	Shamala Evans-Gadgil, EV Infrastructure Programme Manager, Consultant working on behalf of Coventry City Council	<a href="#">QQ 67–77</a>
*	Dr Chris Pateman-Jones, Chief Executive Officer, Connected Kerb EV Charging Solutions	<a href="#">QQ 67–77</a>
*	Peter Ollivere, Policy Team Leader (Spatial Policy), Durham County Council	<a href="#">QQ 67–77</a>
*	Anthony Browne MP, Parliament Under-Secretary of State for Decarbonisation and Technology, Department for Transport	<a href="#">QQ 78–102</a>
*	Richard Bruce, Director of Transport Decarbonisation, Department for Transport	<a href="#">QQ 78–102</a>

### **Alphabetical list of all witnesses**

Admiral Group	<a href="#">ELV0114</a>
Advanced Propulsion Centre UK	<a href="#">ELV0107</a>
Anonymous P	<a href="#">ELV0024</a>
Anonymous G	<a href="#">ELV0003</a>
Arval UK	<a href="#">ELV0068</a>
The Association for Decentralised Energy	<a href="#">ELV0053</a>
Association for Renewable Energy and Clean Technology (REA)	<a href="#">ELV0093</a>
Association of British Insurers	<a href="#">ELV0080</a>
Augustus	<a href="#">ELV0001</a>
Auto Trader	<a href="#">ELV0094</a>
Autocar	<a href="#">ELV0091</a>
Jean Bacon	<a href="#">ELV0059</a>
James Ball	<a href="#">ELV0014</a>
BEDEO	<a href="#">ELV0046</a>
BMW Group	<a href="#">ELV0120</a>
Bolton Council	<a href="#">ELV0145</a>
British Vehicle Rental & Leasing Association (BVRLA)	<a href="#">ELV0125</a>

*	Anthony Browne MP, Parliament Under-Secretary of State for Decarbonisation and Technology, Department for Transport ( <a href="#">QQ 78-102</a> )	
*	Richard Bruce, Director of Transport Decarbonisation, Department for Transport ( <a href="#">QQ 78-102</a> )	
**	Robin Brundle, Executive Chairman, Technology Minerals Plc ( <a href="#">QQ 55-66</a> )	<a href="#">ELV0139</a>
**	Frank Burmeister, Senior Expert on Electric Vehicles and Charging Infrastructure, Government of the Netherlands ( <a href="#">QQ 42-54</a> )	<a href="#">ELV0140</a>
**	Ken Byng, Senior Manager, CarTakeBack ( <a href="#">QQ 55-66</a> )	<a href="#">ELV0009</a> <a href="#">ELV0136</a>
**	Ian Cameron, Director of Innovation and Customer Service, UK Power Networks ( <a href="#">QQ 67-77</a> )	<a href="#">ELV0138</a>
	Carbon Copy	<a href="#">ELV0041</a>
	Carwow	<a href="#">ELV0084</a>
	The Centre for Climate Change and Social Transformation	<a href="#">ELV0045</a>
	ChargeUK	<a href="#">ELV0076</a> <a href="#">ELV0135</a>
	Char.gy Limited	<a href="#">ELV0098</a>
	Andrew Child	<a href="#">ELV0028</a>
	Citizens Advice Bureau	<a href="#">ELV0116</a>
	CoMoUK	<a href="#">ELV0108</a>
	Competition and Markets Authority	<a href="#">ELV0072</a>
	Connected Kerb	<a href="#">ELV0064</a>
	David Craik	<a href="#">ELV0066</a>
	Day's Rental	<a href="#">ELV0021</a>
	Department for Environment Food and Rural Affairs (DEFRA)	<a href="#">ELV0144</a>
	Department for Levelling Up, House and Communities (DLUHC)	<a href="#">ELV0143</a>
	Disabled Motoring UK	<a href="#">ELV0018</a>
	EDF	<a href="#">ELV0115</a>
	Electric Vehicle Association (EVA) Scotland	<a href="#">ELV0039</a>
	Electric Vehicle Association (EVA) Cymru	<a href="#">ELV0052</a>
	Electric Vehicle Association (EVA) England	<a href="#">ELV0062</a>
	Electrifying.com	<a href="#">ELV0075</a>
	Energy Networks Association	<a href="#">ELV0049</a>

	Energy UK	<a href="#">ELV0103</a> <a href="#">ELV0148</a>
**	Shamala Evans-Gadgil, EV Infrastructure Programme Manager, Consultant working on behalf of Coventry City Council ( <a href="#">QQ 67-77</a> )	<a href="#">ELV0137</a>
	Evri	<a href="#">ELV0067</a>
	The Faraday Institution	<a href="#">ELV0047</a>
	Finance & Leasing Association	<a href="#">ELV0111</a>
	Ford Motor Company	<a href="#">ELV0086</a>
*	Dr Russell Fowler, Senior Manager Decarbonisation of Transport, National Grid ( <a href="#">QQ 23-41</a> )	
	Mark Garnett	<a href="#">ELV0016</a>
	Allen Gilbey	<a href="#">ELV0027</a>
	David Golightly	<a href="#">ELV0071</a>
**	Steve Gooding, Director, RAC Foundation ( <a href="#">QQ 23-41</a> )	<a href="#">ELV0129</a>
	Green Alliance	<a href="#">ELV0099</a>
	Randal Lancelyn Green	<a href="#">ELV0019</a>
	Greenpeace UK	<a href="#">ELV0040</a>
	Timothy Grundey	<a href="#">ELV0022</a>
*	Dr Gavin Harper, Faraday Institution Research Fellow, University of Birmingham ( <a href="#">QQ 55-66</a> )	
*	Mike Hawes, Chief Executive Society of Motor Manufacturers (SMMT) ( <a href="#">QQ 15-22</a> )	
*	Andreas Hedum, Senior Adviser in Environmental Affairs Section of the Ministry for Transport Government of Norway ( <a href="#">QQ 42-54</a> )	
	Hertfordshire County Council	<a href="#">ELV0090</a>
	Graham Hill	<a href="#">ELV0074</a>
	Steve Huntingford, What Car?	<a href="#">ELV0106</a>
	Joyce Hulls	<a href="#">ELV0017</a>
	Hybrid and Electric Vehicle Repair Alliance Ltd (HEVRA)	<a href="#">ELV0033</a>
	Ilika Technologies Ltd	<a href="#">ELV0097</a>
	Institution of Mechanical Engineers	<a href="#">ELV0088</a>
	The Institute of the Motor Industry	<a href="#">ELV0042</a>
	Gordon Jackson	<a href="#">ELV0004</a>
	JCB	<a href="#">ELV0050</a>
*	Ian Johnston, CEO Osprey Charging, Chair of Charge UK ( <a href="#">QQ 23-41</a> )	

**	Phill Jones, Chief Operating Officer, Motors.co.uk ( <a href="#">QQ 1-14</a> )	<a href="#">ELV0126</a>
	Dylan Khoo	<a href="#">ELV0105</a>
	Lancashire Enterprise Partnership	<a href="#">ELV0073</a>
	Malcolm Lisle	<a href="#">ELV0005</a>
	Local Government Association	<a href="#">ELV0141</a>
	Logistics UK	<a href="#">ELV0051</a>
	London Councils	<a href="#">ELV0119</a>
*	Jonathan Marshall, Senior Economist, Resolution Foundation ( <a href="#">QQ 23-41</a> )	
	Anthony McClennon	<a href="#">ELV0012</a>
	Midlands Connect	<a href="#">ELV0085</a>
	Diane Moir	<a href="#">ELV0029</a>
	Motability Foundation	<a href="#">ELV0077</a>
	Motability Operations Ltd	<a href="#">ELV0061</a>
	Motor Cycle Industry Association (MCIA)	<a href="#">ELV0132</a>
	Motorcycle Action Group (MAG)	<a href="#">ELV0056</a>
	Motors.co.uk	<a href="#">ELV0109</a>
	Myenergi Ltd	<a href="#">ELV0095</a>
	Mykos Technologies Ltd	<a href="#">ELV0034</a>
	National Grid	<a href="#">ELV0118</a>
	The National Franchised Dealers Association (NFDA)	<a href="#">ELV0112</a>
	Steve Neill	<a href="#">ELV0010</a>
	Peter Newson	<a href="#">ELV0008</a>
	Nodum Industries Ltd	<a href="#">ELV0036</a>
	North East Derbyshire District Council	<a href="#">ELV0146</a>
	John and Gwyneth Oakeshott	<a href="#">ELV0020</a>
	Octopus Electric Vehicles	<a href="#">ELV0087</a>
*	Peter Ollivere, Policy Team Leader (Spatial Policy), Durham County Council ( <a href="#">QQ 67-77</a> )	
	Office for Zero Emission Vehicles	<a href="#">ELV0110</a>
**	Marc Palmer, Brand Director, Auto Trader ( <a href="#">QQ 1-14</a> )	<a href="#">ELV0127</a>
*	Lauren Pamma, Programme Director, Green Finance Institute( <a href="#">QQ 15-22</a> )	
	David Partridge	<a href="#">ELV0092</a>
*	Dr Chris Pateman-Jones, Chief Executive Officer, Connected Kerb EV Charging Solutions ( <a href="#">QQ 67-77</a> )	
	Petrol Retailers Association	<a href="#">ELV0082</a>

	S Patel	<a href="#">ELV0002</a>
	Pod Point	<a href="#">ELV0101</a>
**	Toby Poston, Director of Corporate Affairs, British Vehicle Rental & Leasing Association (BVRLA) ( <a href="#">QQ 1-14</a> )	<a href="#">ELV0054</a>
	RAC	<a href="#">ELV0078</a>
	Dr Suresh Renukappa, Wahiba Erriadi, Dr Subashini Suresh, Professor Panagiotis Georgakis, Faculty of Science and Engineering, University of Wolverhampton	<a href="#">ELV0037</a>
*	Cory Reynolds, Corporate Affairs and Communications Director, Veolia UK ( <a href="#">QQ 55-66</a> )	
	Robin Roberts	<a href="#">ELV0031</a>
	Douglas Robertson	<a href="#">ELV0015</a>
	Roadchef	<a href="#">ELV0100</a>
	T Salmon	<a href="#">ELV0006</a>
	Salvage Wire Ltd	<a href="#">ELV0011</a>
**	Professor Tim Schwanen, Director of the Transport Studies Unit, University of Oxford ( <a href="#">QQ 15-22</a> )	<a href="#">ELV0133</a>
	Secretariat of the UK Electric Fleet Coalition (UKEFC)	<a href="#">ELV0089</a>
	Shell UK	<a href="#">ELV0055</a>
*	Melanie Shufflebotham, Co-founder and Chief Operating Officer, Zapmap ( <a href="#">QQ 23-41</a> )	
	Kieran Smith	<a href="#">ELV0032</a>
	Society of Motor Manufacturers and Traders (SMMT)	<a href="#">ELV0117</a> <a href="#">ELV0134</a>
*	Professor Benjamin Sovacool, Professor of Earth and Environment at Boston University (US), Founding Director of the Institute for Global Sustainability and Professor of Energy Policy at the University of Sussex Business School ( <a href="#">QQ 42-54</a> )	
	SSE Ltd	<a href="#">ELV0057</a>
	Stellantis	<a href="#">ELV0038</a>
	Sussex Energy Group, Science Policy Research Unit, University of Sussex	<a href="#">ELV0065</a>
**	James Taylor (Stellantis: Managing Director, Vauxhall Motors) ( <a href="#">QQ 15-22</a> )	<a href="#">ELV0128</a>
*	James Taylor, (General Manager of Zipcar UK) ( <a href="#">QQ 1-14</a> )	
	Matt Thompson	<a href="#">ELV0026</a>
	Toyota Motor Europe	<a href="#">ELV0048</a>



Transport and Environment UK	<a href="#"><u>ELV0035</u></a>
Transport for London and Greater London Authority	<a href="#"><u>ELV0121</u></a>
Transport for West Midlands	<a href="#"><u>ELV0060</u></a>
Transport Scotland and Energy Saving Trust	<a href="#"><u>ELV0149</u></a>
Turo	<a href="#"><u>ELV0113</u></a>
UK Power Networks	<a href="#"><u>ELV0070</u></a>
Urban Transport Group	<a href="#"><u>ELV0063</u></a>
Volkswagen Group	<a href="#"><u>ELV0123</u></a>
Wales & West Utilities Ltd	<a href="#"><u>ELV0058</u></a>
West of England Combined Authority	<a href="#"><u>ELV0130</u></a>
Wilkins BEng	<a href="#"><u>ELV0007</u></a>
WMG	<a href="#"><u>ELV0124</u></a>
Walsall Metropolitan Borough Council	<a href="#"><u>ELV0147</u></a>
David Willis	<a href="#"><u>ELV0025</u></a>
Andy Wilson	<a href="#"><u>ELV0013</u></a>
WSP	<a href="#"><u>ELV0096</u></a>
Zapmap Limited	<a href="#"><u>ELV0102</u></a>
Zenith	<a href="#"><u>ELV0081</u></a>
Zipcar	<a href="#"><u>ELV0122</u></a>
Zouk Capital LLP	<a href="#"><u>ELV0044</u></a>
Zurich UK	<a href="#"><u>ELV0131</u></a>

## APPENDIX 3: CALL FOR EVIDENCE

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On Wednesday 18 November 2020, the UK Government announced a 2-stage approach to decarbonising cars and vans in the UK.<sup>744</sup> 2030 will see the end of all sales of new petrol and diesel cars and vans in the UK, whilst a second phase out date of 2035 will see new cars and vans “fully zero emission at the tailpipe”. The dates were published in the Government’s “Ten Point Plan for a Green Industrial Revolution”, which outlines the 2030 phaseout date and brings the end of new petrol and diesel car sales forward 10 years earlier than planned.<sup>745</sup> The announcement was backed by an initial pledge of £1.3 billion to support the uptake of zero emission vehicles across the UK, which includes investment into charging infrastructure and grants for homeowners to install charge points at home.

The transition to Electric Vehicles (EVs) is central to the Government’s efforts to meet its target of reaching net zero by 2050, legislated in June 2019.<sup>746</sup> The 2030/2035 phaseout targets were reiterated on 19 October 2021 in the “Net Zero Strategy: Build Back Greener” strategy document.<sup>747</sup> The Department for Transport’s “Decarbonising Transport” document, published 14 July 2021, also restates the 2030 and 2035 phase out dates for achieving a zero-emission fleet of vehicles.<sup>748</sup>

The Committee wants to hear your views. We welcome submissions from anyone with answers to the questions in the call for evidence.

### Aims

The aims of this inquiry are:

To understand how the Government will achieve its upcoming 2030 and 2035 deadlines for the phase out dates for non-zero emission vehicles, with a focus on passenger cars, as well as exploring the main obstacles and barriers to meeting these targets.

To understand the costs, alongside the benefits, associated with the 2030 phase out date, and to understand Government progress towards decarbonising car usage by this earlier date.

### Questions

The following questions are intended to provide guidance for those who wish to offer their views. It is not necessary to answer all the questions, please only respond to those that are relevant to your experiences or expertise.

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744 Department for Transport, ‘Government takes historic step towards net-zero with end of sale of net petrol and diesel cars by 2030’, (18 November 2020): <https://www.gov.uk/government/news/government-takes-historic-step-towards-net-zero-with-end-of-sale-of-new-petrol-and-diesel-cars-by-2030> [accessed 29 January 2024]

745 Department for Energy Security and Net Zero, *The ten point plan for a green industrial revolution* (18 November 2020): <https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial-revolution> [accessed 29 January 2024]

746 The Climate Change Act 2008 (2050 Target Amendment) Order 2019 ([SI 2019/1056](https://www.gov.uk/government/legislation/si-2019-1056))

747 Department for Energy Security and Net Zero, *Net Zero Strategy: Build Back Greener* (updated 5 April 2022): <https://www.gov.uk/government/publications/net-zero-strategy> [accessed 29 January 2024]

748 Department for Transport, *Decarbonising Transport: A Better, Greener Britain* (2021): [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1009448/decarbonising-transport-a-better-greener-britain.pdf) [accessed 29 January 2024]

*Government approaches*

- (1) What are the main obstacles to the achievement of the Government's 2030 and 2035 phase-out dates? Are the phase-out dates realistic and achievable? If not, what steps should the Government take to make the phase-out dates achievable?
- (2) Do the 2030 and 2035 phase-out dates serve their purpose to incentivise the development of an EV market in the UK? To what extent are car makers focusing on one date or the other? What are the impacts of the deadlines on the ability of the UK supply chain to benefit and how could the Government seek to further support the development of the UK EV industry? Would the introduction of a plan with key dates and timescales support the development of the EV industry in the UK?
- (3) What specific national policies, regulations or initiatives have been successful, or have hindered, EV adoption to date? Are these policies or initiatives fit for purpose?
- (4) Given that the Government should apply a behavioural lens to policy—which involves people making changes to their everyday lives, such as what they purchase and use—is there a role for clearer communication of the case for EVs from the Government? If so, who should take the lead on delivering that?
- (5) What is your view on the accuracy of the information in the public domain relating to EVs and their usage?
- (6) What are the overall environmental benefits that would result from achieving the 2030 and 2035 targets?
- (7) What are the likely costs that will be faced by consumers as a result of the Government's phase-out dates for non-zero emissions vehicles? Are there policies or initiatives that the Government could use to specifically target barriers arising from unpredictable costs to the consumer, for example significant fluctuations in the cost of electricity, changes to road taxes, or the introduction of low emission zones?

*EV Market and Acquiring an EV*

These questions relate to the UK EV market and uptake of EVs by UK consumers.

- (8) What are the main routes for acquiring an EV? Which aspects of these routes are working well, and which aspects could be improved?
- (9) What are the main consumer barriers to acquiring an EV, either through purchasing, leasing, or other routes?
- (10) How is the Government helping to ensure that EVs are affordable and accessible for consumers, and are these approaches fit for purpose?
- (11) Do you think the range of EVs on offer in the UK is sufficient to meet market needs? Which segments are under-served and why? Why is the UK market not seeing low cost EVs, particularly in comparison to China?

- (12) What is the future role of L-segment and personal light electric vehicles, and how will that impact car ownership and usage? What is inhibiting their uptake?
- (13) What is your assessment of the current second-hand EV market? How is the second-hand EV market projected to develop between now and the phase out dates?
- (14) What is the relationship between EV leasing and the second-hand market and how do they interrelate?
- (15) What barriers are there to achieving a sufficient supply of second-hand EVs, mindful that second-hand vehicles make up a high proportion of all vehicles purchased?
- (16) What is the value and role of alternative transport models such as car clubs and micro mobility vehicles in the Government achieving the 2030 phase out date, and how should the Government consider their roles and opportunities for use in transport decarbonisation?
- (17) Are consumers charged higher rates of insurance for an EV when compared to an internal combustion engine (ICE) vehicle, and if so, are these higher rates justified? Can the Government do anything to mitigate this?

#### *Experience of using an EV*

- (18) What are the main challenges that UK consumers face in their use of EVs?
- (19) What are the main benefits that UK consumers could realise from using an EV?
- (20) How prepared are car dealerships, service networks, repairs and maintenance organisations, breakdown services and aftermarket suppliers to meet the growing EV uptake?
- (21) How does the charging infrastructure for EVs need to develop to meet the 2030 target? Does the UK need to adopt a single charging standard (e.g., the Combined Charging System (CCS)) or is there room in the market for multiple charger types?
- (22) The Government recently published the draft legislation of “Public Charge Point Regulations 2023”. What assessment have you made of the draft legislation text, and what contribution will it make in ensuring the charging experience is standardized and reliable for consumers?
- (23) What assessment do you make of the requirements set out in the draft legislation of “Public Charge Point Regulations 2023” for charge point operators to make data free and publicly available, and how may this improve the EV charging experience for consumers?
- (24) In terms of charging infrastructure, are there unique barriers facing consumers in areas of low affluence and/or multi-occupancy buildings, such as shared housing or high-rise flats? Do you consider public EV charging points to be accessible and equitable compared to home-

charging points? What can be done to improve accessibility and equitability?

- (25) Is there a financial benefit to the consumer of choosing an EV over an ICE vehicle? Are there further benefits, aside from financial, that a consumer may gain from EV use?

#### *End of life disposal of EVs*

- (26) What options are there for consumers for end-of-life management of batteries and EVs, and what impact does this have on consumer attitudes towards buying an EV?
- (27) What are the current regulations and responsibilities of disposal and recycling for EVs, and how effective are they? How much of the battery can be recycled from a technical standpoint, and how much of that is economically feasible?
- (28) Is there a risk that the residual value of EVs may be lower than the value of the EV as a source of recoverable critical minerals, and how might this effect the flow of EVs into the second-hand market?

#### *National and regional issues*

- (29) What are the challenges or concerns around grid capacity in relation to significantly increased EV adoption?
- (30) What is the role of distribution network operators in ensuring EV infrastructure can be rolled out sufficiently to meet 2030 target?
- (31) What are the requirements, challenges or opportunities for the development of public charge point delivery across the UK? How will the development of EV charging infrastructure in the UK interact with existing planning regulations?
- (32) What are the issues facing rural residents, urban residents, and suburban residents and how do they differ?
- (33) What role do you see local authorities playing in the delivering the 2030 phase out target, particularly in relation to planning regulations, charge points and working with District Network Operators? How can government best support local authorities in their roles?

#### *International perspectives*

- (34) What are the successful approaches to the rollout and uptake of EVs in other countries, and what can the UK learn from these cases?

## APPENDIX 4: HIGH LEVEL SUMMARY OF ENGAGEMENT ACTIVITY IN THIS INQUIRY

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### Youth engagement programme, 2023–24

Six schools from across the UK were part of the Committee’s youth engagement programme this year.<sup>749</sup>

The schools are:

- Boroughmuir High School, Edinburgh
- Loreto Sixth Form College, Greater Manchester
- Barnsley College, Barnsley
- Langley College, Slough
- London Academy of Excellence, London
- St Louise’s Comprehensive College, Belfast

The schools will continue to work with the Committee until April 2024.

In October 2023, the Committee considered feedback schools had sent in response to several prompt questions related to the Electric Vehicles inquiry. There were several recurring themes across feedback from all the schools: they suggested that issues with and a lack of confidence in the EV charging infrastructure meant that those students whose families had purchased something other than a fossil fuel car had chosen hybrid cars instead of EVs. Many of the students had learned, were learning or planned to learn to drive, but thought that most EVs were currently too expensive to be a realistic option for them to purchase as a first car, and hoped that the second hand EV market would grow. They also noted that driving lessons may need to change to adapt to EVs. Some students noted that making more progress on decarbonising the grid would bolster the positive environmental impact of the transition. Many highlighted the need to improve public education and awareness about EVs, the transition and its benefits.

On 21 November, the Committee met with students from each of the six schools on the Youth Engagement Programme in meetings held via Microsoft Teams. In the meetings, the Committee Members asked students their thoughts on several key questions that had arisen during the inquiry thus far. Many of the students raised points related to the upfront cost of electric vehicles and a lack of reliable access to charging being the main barriers to adopting EVs—both for themselves as first-time prospective car owners, and for other consumers. Many expressed enthusiasm for the idea of owning an EV, but were more sceptical about whether they would be able to afford to buy one, or that the charging infrastructure would be sufficient even if they were able to purchase one.

Participants said they could envisage a future where people didn’t use cars as much, but many were confident that cars would remain important for the independence and flexibility they provide, particularly in areas with limited or unreliable public transport. Many of the students suggested that access to charging varied regionally, both within and between their areas. Many suggested that while rural

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<sup>749</sup> For more information about the Youth Engagement Programme see: Environment and Climate Change Committee, ‘Applications open for schools to take part in the next youth engagement programme’ (19 May 2023): <https://committees.parliament.uk/committee/515/environment-and-climate-change-committee/news/195308/applications-open-for-schools-to-take-part-in-the-next-youth-engagement-programme/>.

areas with minimal public transport provision would be particularly dependent on good charging infrastructure, there were equally significant challenges in cities and more densely populated areas where fewer residents have access to off-street parking.

Many students also suggested that questions to Ministers could emphasise concerns that pushing back the phase out date for the sale of new petrol and diesel vehicles had sent an unhelpful message and undermined confidence in the transition. Some however, added that delaying the deadline gave the Government an opportunity to make progress on addressing the barriers to adoption. Many students said that the health benefits that come with the reduction of air pollution through EVs should be talked about much more.

**APPENDIX 5: GLOSSARY**

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Chargepoint operator	A business which installs and maintains electric vehicle chargepoints
Distribution network	The part of the electricity grid that delivers lower-voltage electricity from substations to homes and businesses
DNOs	Distribution network operators are responsible for maintaining and upgrading the local grid to support customer demand
EV	Electric vehicle
GW	gigawatt, equivalent to 1,000,000 kilowatts
ICE	Internal combustion engine
KW	kilowatt, a measure of one thousand watts of electrical power
KWh	The amount of energy delivered by one kilowatt of power for one hour
OZEV	Office for Zero Emission Vehicles
SUV	Sports utility vehicle, a car classification that combines elements of road-going passenger cars with features from off-road vehicles
Transmission network	The part of the electricity grid that delivers high-voltage electricity to substations across the country
TW	terawatt, equivalent to 1000 gigawatts or one trillion watts
TWh	The amount of energy delivered by one terawatt of power for one hour, often used to express the energy consumption of whole countries
VED	Vehicle Excise Duty