EV Charging on England's Strategic Road Network

Research Report

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Contents

1	Exe	cutive summary	5
	Aims	s of the study	5
	Meth	nodology	5
	Curr	ent attitudes and behaviours of BEV drivers relating to long distance journeys on the SRN	5
	Chargepoint provision required to feel confident driving long distances on the SRN		
	Leve	el of delay or diversion BEV drivers accept for charging on long distance journeys on the SRN	
2	Bac	kground and methodology	8
3	BEV	driver profile and usage	10
	3.1	Summary	10
	3.2	Driver profile: all vehicle engine/motor types	10
	3.3	Driver profile: BEV drivers only	11
	3.4	BEV usage patterns	14
	3.5	BEV charging behaviours	17
4	Cha	rging on the SRN: General attitudes and behaviours	19
	4.1	Summary	19
	4.2	Charging preference on the SRN	19
	4.3	Comparison between charging on England's motorways and SRN A-roads	22
5	Attit	tudes and behaviours towards long distance journeys on the SRN	. 24
	5.1	Summary	24
	5.2	Frequency of long distance journeys on the SRN	24
	5.3	Long distance journeys and charging on route	26
	5.4	Purpose of long distance journeys on the SRN	27
	5.5	Engine/motor preference for those who only drive BEVs	28
	5.6	Engine/motor preference for those who drive multiple types	29
6		tharging infrastructure needs for confidence whilst driving long distance neys on the SRN	31
	6.1	Summary	31
	6.2	Factors influencing confidence when driving a BEV on the SRN	31
	6.3	Current confidence in chargepoint availability on the SRN	33
	6.4	Minimum chargepoint provision for long distance BEV journeys on the SRN	34
7	Cha	rgepoint provider needs	36
	7.1	Summary	36
	7.2	Chargepoint provider diversity and driver preferences	36
	7.3	Preferred number of chargepoint providers at SRN service areas	38
8	Acc	eptability of delays and diversions for BEV charging on the SRN	39
	8.1	Summary	39
	8.2	Willingness to leave	39

8.3 Willingness to queue	
9 Appendix	42
9.1 Appendix A – Methodology	
KnowledgePanel and weighting	42
Robust significance testing	
9.2 Appendix B – Strategic Road Network Map	44
9.3 Appendix C – Questionnaire	

1 Executive summary

Aims of the study

The Department for Transport (DfT) commissioned this research to understand the charging infrastructure needs and behaviours of battery electric vehicle (BEV) drivers using England's Strategic Road Network (SRN)¹. The study aimed to inform policy and decision-making by exploring three key questions:

- What are the current attitudes and behaviours of BEV drivers relating to long distance journeys² on the SRN?
- What chargepoint provision do BEV drivers need to feel confident driving long distances on the SRN?
- What level of delay or diversion will BEV drivers accept for charging on long distance journeys on the SRN?

Methodology

An online panel survey was conducted between August and September 2024 with 707 BEV drivers in England. Ipsos' UK KnowledgePanel, a random probability-based online panel was used. Survey data was weighted using key demographic information to reflect the BEV driver population in England. This sampling and weighting approach ensured robust and reliable results that are representative of BEV drivers in England.

This report focuses solely on the attitudes and behaviours of BEV drivers in relation to long distance journeys on the Strategic Road Network (SRN). Long distance journeys were defined as journeys of 100 miles or more in one direction where the driver may need to stop and charge the BEV. The research did not collect data on the general population of drivers who use internal combustion engine (ICE) vehicles. Therefore, no comparisons are made between BEV and ICE drivers within this report.

Current attitudes and behaviours of BEV drivers relating to long distance journeys on the SRN

The majority of BEV drivers (63%) drove a BEV with an advertised range of 201+ miles, with men more likely to drive a longer range BEV (69%) compared to women (56%).

Most BEV drivers (83%) used their vehicles at least weekly with 30% driving daily and over half making long distance journeys on the SRN at least once every three months (61% motorways, 57% SRN A-roads). Drivers who did not consider a BEV their primary vehicle were significantly less likely to have undertaken long SRN journeys in a BEV (31% never made a long distance journey on motorways or SRN A-roads, compared to 9% on motorways and 12% on SRN A-roads of those who did consider the BEV their primary vehicle).

¹ The strategic road network (SRN) comprises more than 4,500 miles of motorways and major A-roads in England.

The vast majority (83%) of BEV drivers could charge at home, with 71% having a dedicated charger installed at home. One in six (16%) had no method of charging at home and relied on the public charging network. Urban BEV drivers were less likely to be able to charge at home and therefore more likely to be reliant on public charging infrastructure. Higher income households and drivers who had driven a BEV longer (since before 2023) were more likely to have dedicated chargers.

When asked about the longest journey driven in a BEV that required charging, one in five drivers (20%) reported that they had never charged during a journey. However, the majority (60%) said they had charged a BEV at least once on journeys of 121 miles or more.

The research explored vehicle preferences for long distance journeys on the SRN for different subgroups of BEV drivers. Among those who had not driven any vehicle other than a BEV in the last 6 months, the majority (81%) said they would most likely use the BEV for long distance journeys on the SRN (note: they may not have had continuous access to any vehicle) with cost being the primary motivator. However, 11% would rent or borrow a vehicle with a different engine/motor type for journeys 100 miles or over on the SRN. Among drivers who had access to multiple vehicle engine/motor types, the picture was mixed with less than half (42%) stating they would use the BEV for long distance journeys, primarily motivated by cost savings, while 46% would opt for a petrol or diesel vehicle. The main reasons for choosing a non-BEV were: 'driving mile range' (57%); 'availability of fuel charging points' (54%); 'refuel/recharging time' (48%); and 'reliability of refuelling charging stations' (48%). This suggests that range anxiety and concerns about charging infrastructure still influence vehicle choices for long distance journeys.

The study explored the general attitudes and behaviours of BEV drivers regarding charging on the SRN. In the last 12 months, most BEV drivers had driven a BEV for a long distance journey on the SRN where they had to stop and charge (73%), primarily for leisure and holidays.

Drivers typically started looking for a chargepoint when their battery level dipped to between 10-29%, indicating a preference for maintaining a reasonable reserve, with no significant variation between motorways (82%) and SRN A-roads (81%). Interestingly, while charging preferences were broadly consistent across motorways and SRN A-roads, when considering whether to stop and charge, charger speed was more commonly cited as important for motorways compared to SRN A-roads.

Chargepoint provision required to feel confident driving long distances on the SRN

Across the research, the availability of rapid and ultra-rapid chargers emerged as the most important factor influencing driver confidence on long distance SRN journeys, even for those driving a BEV with a range over 200 miles. The majority, 72%, of BEV drivers cited it as important, and 42% considered it the top priority. However, only just over half expressed confidence in the current rapid charging infrastructure on the England's motorways (56%) and SRN A-roads (50%), with over half (57%) of drivers wanting to see 6 or more chargepoints at motorway service areas to feel confident making long distance journeys.

There is a clear link between confidence and preferred charger provision, with those lacking confidence in the current availability of chargepoints expressing a preference for a significantly higher number of chargers (13+). This could partly be driven by perceptions rather than reality as BEV drivers who were not confident driving long distance journeys on the SRN due to chargepoint availability were more likely to have never driven long distance journeys on the SRN (34% and 42% motorways and SRN A-roads respectively, compared to 10% and 11% who were confident).

The question of chargepoint provider diversity presents a more nuanced picture. While around half of BEV drivers did not think having multiple providers at the same location was important in their decision making around charging, a significant minority (40% for motorways and 43% for SRN A-roads) did value this diversity. Their reasons primarily revolved around concerns about charger reliability, particularly the risk of encountering out-of-service chargers (note: the research was conducted prior to the introduction of chargepoint regulations on reliability of rapid chargers³), and the desire for competitive pricing.

There was uncertainty among drivers regarding the ideal number of providers, with many unsure of their preference. Of those with a preference, around three in ten favoured having just one or two providers.

Level of delay or diversion BEV drivers accept for charging on long distance journeys on the SRN

BEV drivers' willingness to make short detours for charging was evident, particularly on SRN A-roads, with two-thirds willing to divert from their route for up to 3 miles during long journeys (66% SRN A-roads and 64% motorways).

Over half of drivers were willing to queue for up to 15 minutes at a service area to charge before considering the experience as poor or disruptive (53% motorways and 54% SRN A-roads).

In conclusion, this research provides valuable insights into the attitudes, behaviours, and charging infrastructure needs of England BEV drivers particularly for long distance journeys on the SRN. The majority of BEV drivers reported charging their vehicle at least once on journeys of 121 miles or more, demonstrating a willingness to undertake longer trips that require on route charging.

However, only just over half of BEV drivers expressed overall confidence in undertaking long-distance journeys on England's motorways (56%) and SRN A-roads (50%) given the current state of charging infrastructure. Rapid and ultra-rapid charger availability emerged as the most important factor influencing their confidence for these journeys. This suggests initiatives to expand reliable rapid charging are key to instilling greater confidence for long-distance BEV travel on the SRN. However, a significant portion of drivers still expressed the desire for more rapid and ultra-rapid charging infrastructure along the SRN.

While range anxiety persists as a factor influencing vehicle choice for long journeys, BEV drivers demonstrate a willingness to make short detours and queue for a reasonable time to charge. The research highlights the importance of a robust and reliable charging network, with a preference for multiple providers at charging locations to mitigate concerns about charger availability and pricing.

³ https://www.gov.uk/government/publications/the-public-charge-point-regulations-2023-guidance/public-charge-poi

2 Background and methodology

2.1 Background

The Department for Transport (DfT) commissioned Ipsos to undertake a quantitative research project on the attitudes and behaviours of battery electric vehicle (BEV) drivers in relation to using the Strategic Road Network (SRN; a map of the SRN can be found in Appendix B). The research aimed to inform understanding and policymaking surrounding what BEV drivers need from the SRN to be confident in taking long distance journeys in their BEVs. Long distance journeys are defined in this research as journeys of 100 miles or more in one direction where the driver may need to stop and charge the BEV.

2.2 Research questions

The report seeks to answer the following questions:

- What are the current attitudes and behaviours of BEV drivers in relation to long distance journeys on the SRN? (see Chapter 5 of the report)
- What level of chargepoint provision do BEV drivers need to see to give them confidence to drive their BEVs for long distance journeys on the SRN? (see Chapters 6 and 7 of the report)
- What level of delay/length of diversion are BEV drivers willing to accept to charge their battery for long distance journeys on the SRN? (see Chapter 8 of the report)

2.3 Methodology

The following sampling and weighting approach was used to ensure robust and reliable results that are representative of Battery Electric Vehicle (BEV) drivers in England.

Data was collected via an online survey between August 29, 2024 and September 4, 2024, using the Ipsos' UK KnowledgePanel, a random probability-based online panel ensuring a nationally representative sample. This means that every household in the UK has an equal chance of being selected for the panel, including digitally excluded households.

Survey data was weighted using key demographic information to reflect the BEV driver population in England and provide robust research results. The weighted sample size was 670. For further detail about the weighting approach, please see appendix A.

707 BEV drivers participated in the survey. BEV drivers were defined as those who had driven a battery-only car or van⁴ in the last six months that they personally owned or had continuous use of, including any company battery-only cars or vans available for personal use. The survey explored driver confidence levels regarding the SRN charging infrastructure, acceptability of charging delays/diversions, and current long distance travel behaviours. In households of more than one person, no data was collected about other household members and how they might use the same BEV. This means that the research findings are not necessarily reflective of household-level results as some BEVs may be used differently by other members of the household.

⁴ The term 'vehicle' is used throughout the report and refers to both cars and vans which were referenced in the survey

This report focuses solely on the attitudes and behaviours of BEV drivers in relation to long distance journeys on the Strategic Road Network (SRN). The research does not include data on the general population of drivers who use internal combustion engine (ICE) vehicles. Therefore, no comparisons are made between BEV and ICE drivers within this report.

2.4 Interpreting the report

The total sum of answer codes may appear to be higher/lower than 100% and combinations might not sum to their constituent parts (e.g. 'agree' relative to 'strongly agree'/'tend to agree'). This is due to the rounding of results to the nearest whole number.

Throughout this report, when two finding percentages are shown in parentheses, such as (10% motorways and 11% SRN A-roads), they represent responses to identical questions, differing only by whether they referred to England's *motorways* or *SRN A-roads*. These two road types together constitute the SRN, the primary focus of this report. Most questions in this survey addressed experiences and opinions related to both motorways and SRN A-roads within England.

To ensure the reliability of the statistical analysis, significance testing was only analysed and reported on for subgroups with an effective base exceeding 100. For further detail about significance testing, please see appendix A.

3 BEV driver profile and usage

This chapter explores the profile and general usage patterns of BEV drivers in England. It presents findings on the proportion of drivers in England using BEVs, the number of vehicles (including BEVs) driven, advertised and experienced mile range of BEVs, and access to home charging. This chapter also examines general driving patterns using BEVs, including distances typically driven in a week, and general charging behaviour when making long distance journeys⁵ (not exclusively on the Strategic Road Network).

3.1 Summary

- In 2024, 6% of adults in England had driven a BEV in the previous six months.
- Most (86%) BEV drivers in England had driven only one BEV for personal use. Higher income householders of £100,000 and above were more likely to have driven two BEVs (16%) compared with the overall average (9%).
- The majority (63%) drove a BEV with an advertised range of 201+ miles. Men were more likely to drive a longer range BEV (69% compared to 56%), and women were more likely to use a shorter range (0-100 miles) BEV compared to men (8% and 1% respectively).
- Six in ten drivers in England who had driven a BEV and another engine/motor type, considered the BEV as their primary vehicle.
- Most BEV drivers had access to charging at home (83%), with seven in ten (71%) using a
 dedicated home charger. Those living in rural areas were more likely to have a dedicated
 home charger (85%) compared to those living in urban areas (67%). Those that live in urban
 areas were more likely to rely on the public chargepoint network (19%), compared to those
 living in rural areas (5%).
- The majority (83%) drove their BEV at least once a week, with 30% driving daily.
- Three in five (60%) reported travelling 121 miles or more during a single journey which
 involved charging their BEV, with one in five (20%) reporting that they had never charged a
 BEV during a single journey.
- Of those who had charged a BEV during a single journey, just under half (45%) had charged once, followed by 30% who reported having charged twice and 18% who reported having charged 3 times or more.

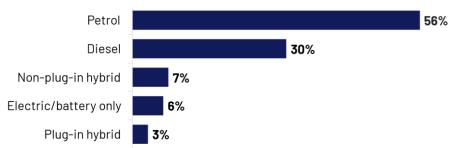
3.2 Driver profile: all vehicle engine/motor types

This section presents findings on vehicle use of all drivers in England. It looks at the mix of engine/motor types driven, as well as which type of vehicle is considered the primary one among those who drive multiple types.

⁵ Long distance journeys are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

A small percentage of adults in England had driven a BEV in the past six months (6%). The most common engine/motor type driven was petrol (56%), followed by diesel (30%) (Figure 3.1).

Figure 3.1: Vehicles driven in the past 6 months by engine/motor type

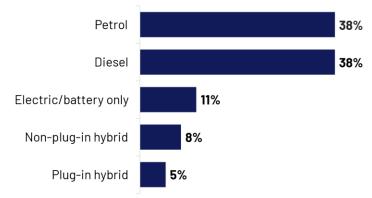


SCN1. In the past 6 months, have you driven any cars or vans for personal use with the following engine/motor type(s)?

Base: All England adults: Unweighted (11,576), Weighted (12,046)

Continuing to look at the sample of all drivers in England, around two in ten (21%) said that they drove multiple vehicles with at least two different engine/motor types including a BEV. Around one in ten (11%) that drove multiple engine/motor types considered a BEV as their primary vehicle. Petrol (38%) and diesel (38%) were the most common engine/motor types of primary vehicles (Figure 3.2).

Figure 3.2: Primary vehicle among those who drive multiple engine/motor types including a BEV



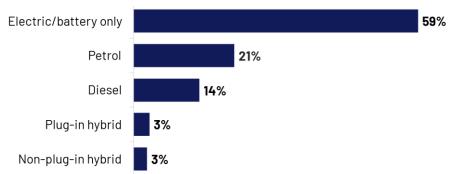
SCN2. What engine/motor type is your primary car or van?

Base: Those who drive more than one vehicle including a BEV in England: Unweighted (2,464), Weighted (2,472)

3.3 Driver profile: BEV drivers only

Looking at BEV drivers only in England, the majority reside in urban areas (76%) with around a quarter living in rural areas (24%). In the past 6 months, around two thirds of BEV drivers reported that they drove a BEV and at least one other vehicle with a different engine/motor type (67%). Among those who drove more than one engine/motor type including a BEV, around six in ten (59%) considered a BEV as their primary vehicle, followed by petrol (21%), and diesel (14%) (Figure 3.3).

Figure 3.3: Engine/motor type of primary vehicle among those who drive multiple vehicles including a BEV in England

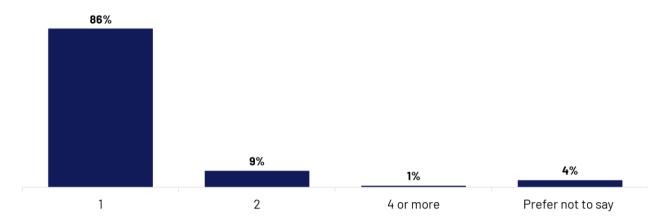


SCN2. What engine/motor type is your primary car or van?

Base: Battery electric vehicle drivers in England drive more than one vehicle (451)

Most BEV drivers reported having driven only one BEV for personal use in the last 6 months (86%) with a minority (10%) having driven two or more BEVs in the last 6 months (Figure 3.4). This may be due to continuous use of multiple BEVs (i.e. more than one in household) or switching to a new BEV within this timeframe.

Figure 3.4: Number of BEVs driven for personal use



Q1. How many battery electric vehicles (BEVs) do you drive for personal use? Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

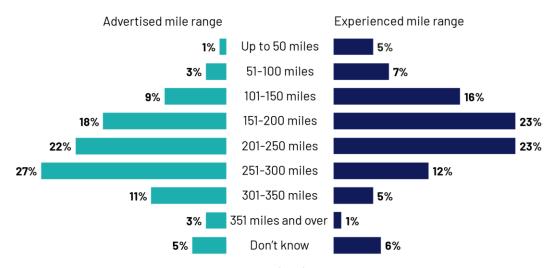
There were a few subgroup differences in the number of BEVs driven, of particular interest:

• Those with an annual household income of £100,000 and above were more likely to have personally driven two BEVs (16%) compared to the overall average (9%).

Six in ten BEV drivers used longer range vehicles (an advertised range of 201+ miles) (63%). Three in ten drove a BEV with an advertised range of 101-200 miles (27%); and only 4% drove a BEV with an advertised range of 0-100 miles (Figure 3.5).

Figure 3.5 compares the advertised BEV range with BEV drivers' experienced range. Analysis suggests around three in five BEV drivers (58%) experienced a battery range lower than the advertised range in the past three months. This figure was derived from a comparison of reported advertised and experienced range. As these questions were not designed to directly measure this difference, results should be interpreted with caution.

Figure 3.5: Advertised mile range versus experienced mile range of BEV



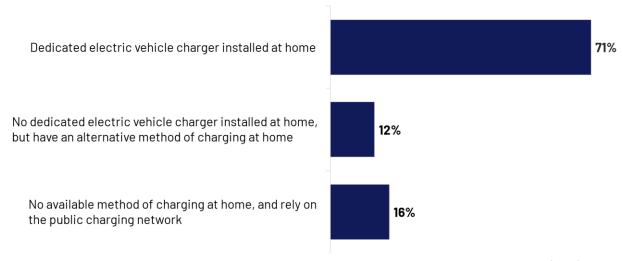
Q4a. What is the advertised range of the battery electric vehicle (BEV) that you drive? Q4b. In the past three months, what is the typical mile<u>range you have experienced</u> when driving the battery electric vehicle (BEV)?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

- Male BEV drivers were more likely to report driving a BEV with an advertised range of 201 miles or more (69%) than female BEV drivers (56%). In contrast, female BEV drivers were more likely to report driving a BEV with an advertised mile range of 0 to 100 miles compared to males (8% and 1% respectively).
- BEV drivers with a higher annual household income were more likely to drive BEVs with longer battery ranges (201 miles or more). For example, BEV drivers with an annual household income of £52,000 to £99,999 and BEV drivers with an annual household income of £100,000 and above reported driving a BEV with an advertised range of 201+ miles (71% and 73%, respectively) compared to the overall average (63%).

Four in five BEV drivers reported having a method of charging at home (83%), with 71% having a dedicated home charger and 12% not having a dedicated home charger installed but having an alternative method of charging at home. Less than one in five BEV drivers did not have a method of charging at home, relying on the public chargepoint network (16%) (Figure 3.6).

Figure 3.6: Access to charger for BEV at home



Q8. Which of these statements best describes your access to a charger for the battery electric vehicle (BEV) at home?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

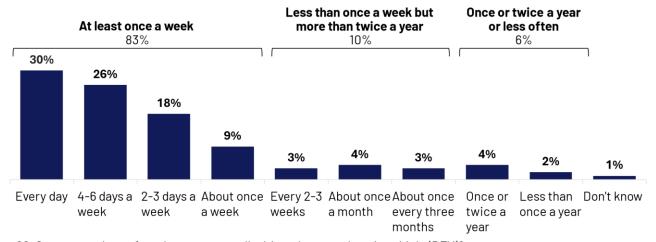
There were some differences across subgroups:

- BEV drivers with a higher annual household income were more likely to have a dedicated home charger. For example, having an annual income of £52,000 up to £99,999 was associated with higher levels of dedicated home charger access compared to those with a lower annual household income of £26,000 up to £51,000 (78% compared to 63%). This should be interpreted with caution as the sample sizes for the lower annual household income group was too small for robust statistical testing.
- Those living in rural areas were more likely to have a dedicated home charger (85%) and less likely to rely on the public charging network (5%) compared to those living in urban areas (67% and 19% respectively).
- There was an association between when BEV drivers had first driven a BEV and their access to chargers. Those that first drove a BEV before 2023 were more likely to have a dedicated home charger (78%) than those that had first driven a BEV more recently (2023 onwards) (64%).
- Those whose BEV was not their primary vehicle were more likely to rely on the public charging network as they did not have an available method of charging at home (22%), compared to primary BEV drivers (10%).
- Conversely, those who drive more than one vehicle and consider the BEV their primary vehicle (78%), were more likely to have a dedicated charger installed at home compared to those who consider a BEV a non-primary vehicle (58%).

3.4 BEV usage patterns

Around eight in ten (83%) BEV drivers used a BEV at least once a week, with three in ten (30%) reporting daily use. One in ten (10%) reported to have driven a BEV less than once a week but more than twice a year; and only 6% stated that they had driven a BEV once or twice a year or less often (Figure 3.7).

Figure 3.7: Average frequency of driving BEV



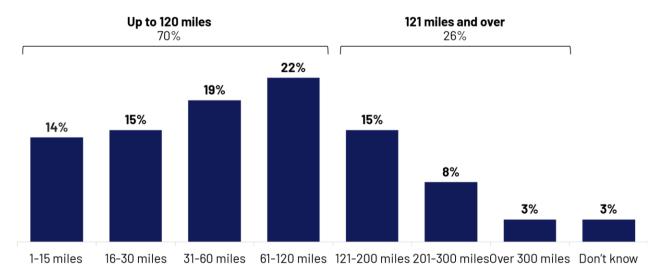
Q6. On average, how often do you <u>personally</u> drive a battery electric vehicle (BEV)? Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

There were a few subgroup differences:

- Those aged 55-64 (89%) were statistically significantly more likely than average (83%) to drive a BEV at least once a week. There was an observed pattern by age with BEV drivers aged 35 and over more likely to drive a BEV at least once a week compared to those under 35. Among those aged 18-24, 52% drove a BEV at least weekly and among those aged 25-34 the figure was 69%. This compared to those aged 35-44 (90%), 45-54 (83%), 55-64 (89%), 65-74 (88%) and 75+ (98%). This should be interpreted with caution as the sample sizes for some age groups were too small for robust statistical testing.
- Those living in rural areas (89%) were more likely to drive a BEV at least once a week compared to those living in urban areas (81%).
- Those who drive a BEV with an advertised range of 201 miles or over (90%) were more likely to drive a BEV at least once a week compared to the total average (83%).
- Those who do not consider a BEV their primary vehicle were more likely to drive less frequently (once or twice a year or less often) than those who consider a BEV their primary vehicle (12% compared to 4%, respectively).
- BEV drivers who have a dedicated charger installed at home were more likely to drive at least once a week (91%) compared to the average (83%). Those who have no method of charging at home were also most likely to drive at least once a week (67%) however, there was a slightly higher skew towards less often than once a week but more than twice a year (20%) compared to those with a dedicated home charger (6%). This should be interpreted with caution as the sample sizes for those with no home charging method were too small for robust statistical testing.

Participants were mostly driving up to 120 miles a week on average using a BEV (7 in 10) and around a quarter (26%) drove 121 miles and over in a week on average using a BEV. Three in ten BEV drivers drove 1-30 miles a week and almost two in five (37%) drove 61-200 miles a week on average using a BEV (Figure 3.8).

Figure 3.8: Average miles driven using a BEV in a week



Q7. On average, how many miles do you drive in a week using a battery electric vehicle (BEV)? Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

Some subgroup differences included:

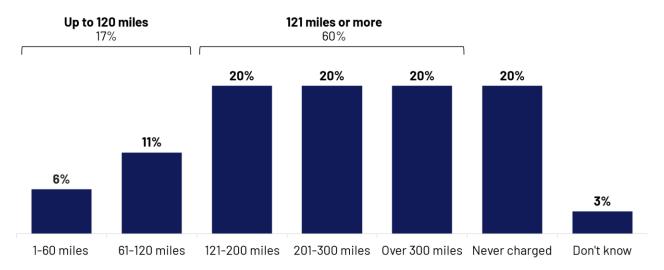
- In general, a pattern by age was apparent with those aged 55 and over tending to have reported driving more miles per week. Those aged 55-64 were more likely than the average to drive 61-200 miles a week in a BEV (47% and 37%, respectively). For example, those aged 55-64, 65-74 and 75+ were more likely to have driven 61-200 miles per week, (47%, 44% and 49% respectively) compared to younger age groups (8% for 18-24, 37% for 25-34, 37% for 35-44 and 31% for 45-54). The small sample sizes for age groups mean this pattern should be treated with caution.
- Women (38%) were more likely than men (24%) to drive fewer miles in a week (1-30) using a BEV. In contrast, men (42%) were more likely to drive more miles (61-200 miles) in a week using a BEV compared to women (30%).
- Those living in urban areas were more likely to drive fewer miles (1-30 miles) using a BEV (33%) than those living in rural areas (18%). Conversely, those living in rural areas were more likely to drive more miles (201-300 miles) using a BEV in a week (13%) compared to those living in urban areas (7%).
- Those who first drove a BEV in 2023 and onwards were also more likely to drive 1-30 miles (37%) compared to BEV drivers that first drove a BEV before 2023 (24%).
- Participants with an advertised range of 201+ miles were more likely to drive 61-200 miles (40%) or 201-300 miles (11%) a week in a BEV compared to the average (37% and 8% respectively).
- Participants that consider a BEV their primary vehicle drove more electric miles a week than those
 who did not consider a BEV their primary vehicle. For example, those whose BEV was their
 primary vehicle were more likely to drive between 61-300 miles (49% for 61-200 miles and 12% for
 201-300 miles) a week in a BEV compared to those whose BEV is not their primary vehicle (15%
 and 4% respectively).
- Whilst similar, those with a dedicated home charger were more likely than the average to drive 61-200 miles (40%) or 201-300 miles (11%) weekly in a BEV, compared to the total average (37% and 8% respectively). BEV drivers without a dedicated home charger were more likely to drive shorter

distances weekly. Specifically, 45% of those without a dedicated charger (whether or not they had an alternative charging method at home) drove 1-30 miles per week, compared to 24% of those with a dedicated home charger. This should be interpreted with caution as the sample sizes for those who use charging methods other than one installed in their home were too small for robust statistical testing.

3.5 BEV charging behaviours

Most BEV drivers (60%) reported charging their vehicle at least once on journeys of 121 miles or more (in one direction). A smaller proportion (17%) said their longest journey requiring charging was 120 miles or less (Figure 3.9). One fifth of drivers (20%) reported never having to charge during a journey.

Figure 3.9: Longest distance driven in BEV which has involved charging



Q11a. What is the longest distance you have driven a battery electric vehicle (BEV) which has involved charging the vehicle at least once during a single journey? That is a journey in one direction.

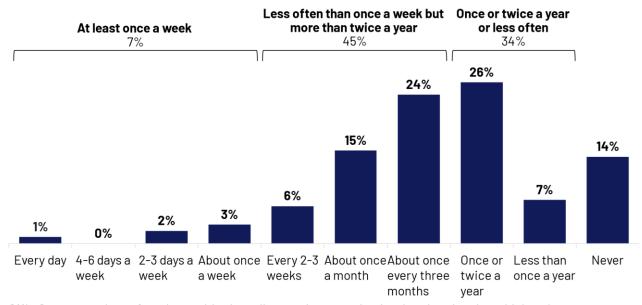
Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

- Those aged 55-64 and 65-74 were more likely to have never charged on a journey (26%, 33% compared to 20% overall). This increased to 48% among those aged 75+ however the sample size for this group is too small to be statistically robust.
- Longer range BEVs were more likely to have been driven on longer distance journeys that involved stopping and charging. For example, BEV drivers that drove a BEV with an advertised range of 201+ miles were more likely to have charged on a journey over 300 miles (29%) and 201-300 miles (23%) compared to the total average of BEV drivers (20% for both).
- BEV drivers' longest journeys requiring charging varied slightly depending on home charging access. Among those with dedicated home chargers, longer trips were more common, with 25% saying their longest charge-requiring journey was over 300 miles, and 23% reported a longest journey between 201-300 miles. This compares to 20% for both distance categories among all BEV drivers. Drivers without dedicated home chargers were more likely to report shorter longest journeys, with 26% saying their longest charge-requiring journey was between 121-200 miles, compared to 17% of those with dedicated home chargers. This should be interpreted with caution as the sample sizes for those who do not have a dedicated home charger installed were too small for robust statistical testing.

• Those who do not consider a BEV their primary vehicle were more likely than primary BEV drivers to never have charged on a single journey (28% compared to 17%).

Around one in seven (14%) BEV drivers have never driven a long distance journey that involved charging the vehicle. Just under half (45%) of BEV drivers have driven long distance journeys that involved charging less often than once a week but more than twice a year, followed by 34% who reported doing this once or twice a year or less often, and only 7% who reported making a long distance journey that involved charging at least once a week (Figure 3.10).

Figure 3.10: Frequency of driving long distance journeys (100 miles or more) that involve charging

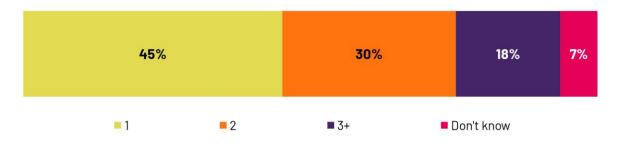


Q11b. On average, how often do you drive long distance journeys that involve charging the vehicle at least once during a single journey? That is, journeys of 100 miles or more in one direction.

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

When those who had charged their BEV on a journey were asked what the greatest number of charges they have made in a single journey, just under half (45%) said they had charged once, followed by 30% who reported having charged twice and 18% who reported having charged 3 times or more (Figure 3.11).

Figure 3.11: Most number of times BEV has been charged in a single journey



Q12. What is the most number of times you have charged a battery electric vehicle (BEV) during a single journey? That is a journey in one direction.

Base: Battery electric vehicle drivers in England excluding those who reported they have charged 0 times at Q12 Unweighted (503), Weighted (468)

4 Charging on the SRN: General attitudes and behaviours

This section explores the general attitudes and behaviours of BEV drivers in England regarding charging on the Strategic Road Network (SRN). While subsequent chapters explore specific aspects of long distance journeys⁶ and other research questions, this section provides a foundational understanding of overall charging preferences and practices on the SRN irrespective of journey length (i.e., not exclusively long distance journeys). It examines charging frequency, preferred battery levels for charging, and factors influencing charging decisions. Understanding these general attitudes and behaviours is important for informing policymaking and ensuring the SRN charging network is fit for purpose.

4.1 Summary

- The majority of BEV drivers said they would stop and charge their BEV when the battery level was between 10-29%.
- The number of available rapid or ultra rapid chargers were the most important factors in BEV drivers' decision to stop and charge. Other important factors that influenced when BEV drivers chose to charge on the SRN were cost per kilowatt and distance from planned route.
- While charging preferences were broadly consistent across England's motorways and SRN A-roads, charger speed was prioritised more on motorways.

4.2 Charging preference on the SRN

The majority of BEV drivers would stop and charge a BEV on the SRN when the battery level was between 10-29%. This did not vary significantly depending on whether BEV drivers were considering the level of charge they would stop at on a *motorway* or *SRN A-road* in England (82% and 81% respectively would stop and charge when the battery level was between 10-29%). A minority of BEV drivers would stop and charge with a battery level of 0-9% (4% for motorways and 6% for SRN A-roads) (Figure 4.1).

⁶ Long distance journeys are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

Battery: 30% and over Motorways (4%) Motorways (82%) Motorways (12%) Major A-roads (6%) Major A-roads (81%) Major A-roads (12%) 44% 43% 39% **37**% 8% 8% 6% 4% 2% 2% 2% 2% 1% 1% 0-9% 10-19% 20-29% 30-49% 50-59% 60% or higher Don't know ■ Motorways ■ Major A-roads

Figure 4.1: Battery percentage for stopping to charge on motorways and SRN A-roads

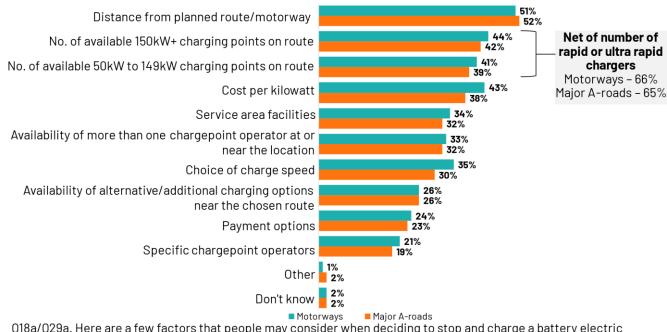
Q17/Q28. What battery percentage (%) would you stop to charge the vehicle on a<u>motorway/major A-road</u> in England? Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

There were several demographic subgroups that were more likely than others to stop and charge a BEV on the SRN when the battery percentage was between 10-19%. However, significant differences among subgroups for other battery percentages were not evident. The subgroup differences among those stopping and charging between 10-19% and other battery percentages included:

- Male BEV drivers were more likely to stop and charge between 10-19% on the SRN (49% motorways and 48% SRN A-roads) compared to women (33% motorways and 37% SRN A-roads). Women were most likely to stop and change between 20-29% (44% motorways and 41% SRN A-roads), however, there is no statistically significant difference between men and women in this battery range, so this finding should be interpreted with caution.
- Those who have been driving a BEV for longer (prior to 2023) were more likely to stop and charge between 10-19% on *motorways* and *SRN A-roads* (50% for both) compared to newer BEV drivers (those who first drove a BEV from 2023) (37% for both).
- BEV drivers who prioritise rapid/ultra-rapid charger availability tend to stop and charge at a lower battery percentage compared to those who priioritise other factors. Those who said that the 'availability of rapid/ultra-rapid chargers' is the most important factor in ensuring their confidence when driving a BEV for long distance journeys on England's SRN A-roads were more likely to stop and charge between 10-19% battery on *motorways* and *SRN A-roads* (51% for both). This is compared to BEV drivers who prioritised other factors (43% and 41% respectively). Those who prioritised other factors in ensuring their confidence were still most likely to stop and change between 10-19%, but they skewed slightly more toward the 20-29% battery range (39% for both) than those prioritising rapid/ultra-rapid chargers (37% *motorways* and 34% *SRN A-roads*).

The number of available rapid or ultra-rapid chargers was the most common factor selected by BEV drivers when asked to consider important factors for deciding where to stop and charge on the SRN. Around two in three drivers selected this factor for both motorways (66%) and SRN A-roads (65%) (Figure 4.2). When BEV drivers were asked to select their most important consideration when deciding where to stop and charge, rapid/ultra-rapid charger availability was also the most important factor, with 41% citing it as their top consideration for motorways and 38% for SRN A-roads (Figure 4.3). The proximity of chargepoints to their planned route (51% on *motorways*, 52% on *SRN A-roads*) was also a common factor when deciding to stop and charge on the SRN.

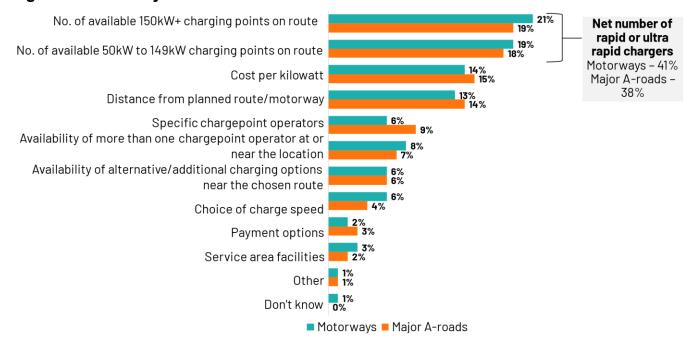
Figure 4.2: Factors considered when deciding to stop and charge a BEV on England's motorways/A-roads



Q18a/Q29a. Here are a few factors that people may consider when deciding to stop and charge a battery electric vehicle (BEV) on England's motorways/A-roads. Which of the following do you consider most important when deciding to stop and charge?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

Figure 4.3: Most important factor considered when deciding to stop and charge a BEV on England's motorways/SRN A-roads



Q18b/Q29b. Which is the factor you consider most important when deciding to stop and charge a battery electric vehicle (BEV) on England's motorways and major A -roads?

Base: Battery electric vehicle drivers who selected more than one factor (Unweighted/Weighted): Motorways (590/545), Major A-road (582/533)

There were several differences among subgroups concerning what important factors were considered (all mentions) when deciding to stop and charge a BEV on the SRN:

- Men were more likely to consider cost per kilowatt (47% motorways and 43% SRN A-roads) compared to women (36% motorways and 32% SRN A-roads).
- Women were more likely to consider the availability of more than one chargepoint operator at or near the location on motorways (41%) compared to men (29%).
- Those living in households with an income of £100,000 or above were more likely to consider the *number of available 150kW+ chargepoints* on *motorways* (57%) compared to the overall average (44%).
- Those who have been driving a BEV longer (before 2023) were more likely to consider the availability of alternative or additional charging options near the chosen route on motorways (32%) compared to newer BEV drivers (those who first drove a BEV from 2023) (20%). Comparatively, on SRN A-roads, newer BEV drivers were more likely to consider cost per kilowatt (45%) compared to those who have been driving a BEV for longer (34%).
- Those who drove a BEV which had an advertised range of 201+ miles were more likely to consider the *number of available rapid/ultra-rapid chargepoints* (73% *motorways* and 74% *SRN A-roads*) compared to the total average (66% *motorways* and 65% *SRN A-roads*).

There were also several differences across subgroups about the most important factor (top mention) when deciding to stop and charge on the SRN:

- Rural residents were more likely to consider the number of available 50kW to 149kW chargepoints
 the most important factor on motorways (27%) compared to urban residents (17%). Rural residents
 were also more likely to consider the distance from planned route the most important factor on
 SRN A-roads (20%) compared to urban residents (12%).
- Those who drove a BEV with an advertised range of 201+ miles were more likely to consider the most important factors to be the *number of available 150kW+ chargepoints* on *motorways* (24%) compared to the total average (21% *motorways*).
- Conversely, newer BEV drivers were more likely to consider cost per kilowatt the most important factor (21% motorways and 23% SRN A-roads) compared to those who had driven BEVs for longer (9% both motorways and SRN A-roads).
- Finally, those with a dedicated chargepoint installed at home were more likely to consider the number of available 50kW to 149kW chargepoints the most important factor on motorways (22%) compared to those who have no method of charging a BEV at home (13%). This comparator group was more likely to consider the most important factor cost per killowatt on motorways (22%). This should be interpreted with caution as the sample sizes for those who do not have a dedicated home charger installed were too small for robust statistical testing.

4.3 Comparison between charging on England's motorways and SRN A-roads

To better understand BEV drivers' charging patterns on the different road types on the SRN, this subsection explores the consistencies and differences between charging preferences on England's motorways and SRN A-roads.

BEV drivers' charging preferences and behaviours were consistent between England's motorways and SRN A-roads across most measures. The percentage willing to stop and charge at various battery levels

was very similar for *motorways* (82% between 10-29% battery level) and *SRN A-roads* (81% between 10-29% battery level).

However, there were some differences in the factors influencing charging decisions. The availability of rapid/ultra-rapid chargers was more commonly cited as important for *motorways* (66%) than *SRN A-roads* (65%), suggesting charging speed may be more critical for longer motorway journeys. Cost per kilowatt was also a greater consideration on *motorways* (43%) compared to *SRN A-roads* (38%).

Despite these variations, the overall patterns in charging preferences and influential factors were highly consistent across both motorways and SRN A-roads. This suggests initiatives to improve the BEV charging experience should consider both road types holistically.

5 Attitudes and behaviours towards long distance journeys on the SRN

This section explores the attitudes and behaviours of BEV drivers in England for long distance journeys⁷, including vehicle charging. It explores the frequency and purpose of long distance travel, vehicle preferences for these journeys, and the decision-making processes involved in planning charging stops. This understanding is important for informing policy and ensuring the SRN charging network effectively supports the unique demands of long distance BEV travel.

5.1 Summary

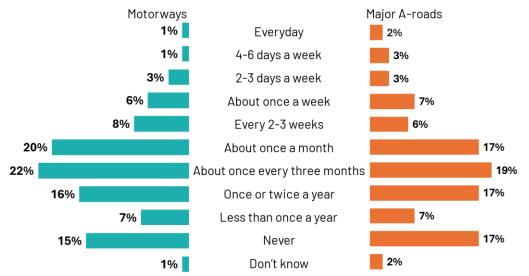
- BEV drivers typically made long journeys on the SRN less than weekly but more than twice yearly, primarily for leisure (46%) and UK holidays (35%).
- Those who did not consider the BEV their primary vehicle were significantly more likely to have never driven the BEV on a long distance journey on the SRN (31% for both motorways and SRN A-roads) compared to those who primarily drove a BEV (9% for motorways and 12% for SRN A-roads).
- Just over one in ten of those who had only driven a BEV in the last 6 months would rent or borrow a vehicle with a different engine/motor type for journeys of 100 miles or more on the SRN (11%). Less than half (42%) of those who drive multiple motor/engine type vehicles said they would use a BEV for a journey of 100 miles or more on the SRN. A slightly higher proportion (46%) said they would use a petrol or diesel vehicle.
- For BEV drivers who drove multiple engine/motor types, cost to run (72%), was the biggest motivator for those who said they would use their BEV for a long distance journey on the SRN. Whilst mile range (57%) was the most selected reason for those who would choose another engine/motor type for these journeys.
- For long distance journeys on the SRN, the number of available rapid or ultra-rapid chargers
 was the most commonly considered factor as well as being considered the *most* important
 factor in determining when they stop and charge a BEV on the SRN.

5.2 Frequency of long distance journeys on the SRN

Over half of BEV drivers drove long distance journeys on England's *motorways* (58%) and *SRN A-roads* (53%) between once a month and once a year. This includes those who drove about once a month (20% motorways, 17% SRN A-roads), about once every three months (22% motorways, 19% SRN A-roads), and once or twice a year (16% motorways, 17% SRN A-roads) (Figure 5.1). In contrast, just over one in ten used *motorways* (11%) and *SRN A-roads* (15%) for long distance journeys at least once a week.

⁷ Long distance journeys are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

Figure 5.1: Frequency of BEV drivers making long distance journeys that include travelling on the SRN



Q9/Q10. How often, if at all, do you typically drive long distance journeys that include travelling on England's motorways/major A-roads with a battery electric vehicle (BEV)? That is, journeys of 100 miles or more in one direction.

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

- There were several differences across subgroups for those who had driven a long distance journey on the SRN: BEV drivers with a household income of £52,000-£99,999 were more likely to have driven long distance journeys on England's *motorways* at least once a week (14%) compared to those living in households earning £100,000 or above (6%).
- Those who were not confident (scores of 0-3) driving long distance journeys on England's motorways due to chargepoint availability were more likely to have never driven on England's motorways for a long distance (34%) compared to those more confident (confidence score 4-10, 10%). Similarly, those who were not confident driving long distance journeys on England's SRN A-roads due to chargepoint availability were significantly more likely to have never driven on England's SRN A-roads for a long distance (42%) compared to those more confident (11%).
- BEV drivers with longer mile range BEVs were more likely to drive longer distances on the SRN more often than those who drive BEVs with lower mile range. For example, BEV drivers who use a BEV that has a range capability of 201+ miles, were more likely to have driven a long distance journey on the SRN less often than once a week but more than twice a year (55% motorways and 48% SRN A-roads) compared to the total average (50% motorways and 41% SRN A-roads).
- Those whose BEV is their primary vehicle drove long distance journeys more frequently. For example, they were more likely to have driven a long distance journey on the SRN in a BEV less often than once a week but more than twice a year on England's motorways (56%) and at least once a week on England's SRN A-roads (20%) compared to those whose BEV is not their primary vehicle (38% motorways and 9% SRN A-roads).

Some key subgroup differences among those who said they had never driven a long distance journey on the SRN included:

- Drivers whose BEV is not their primary vehicle were more likely to have never driven a long distance journey on the SRN in a BEV (31% motorways and 31% SRN A-roads) compared to primary BEV drivers (9% motorways and 12% SRN A-roads).
- Those who have a long-term health condition were more likely to have never driven a long distance journey on the SRN in a BEV (21% motorways and 23% SRN A-roads) compared to those without a long-term health condition (14% motorways and 15% SRN A-roads).
- Those not working full-time were more likely to have never driven a long distance journey on England *motorways* in a BEV (21%) compared to full-time workers (12%).

5.3 Long distance journeys and charging on route

Almost a quarter (24%) of BEV drivers had not stopped to charge on a long distance journey on the SRN in the last 12 months.

There were a few subgroup differences among those who have not driven a long distance journey (with a stop to charge) on the SRN in the past 12 months:

- Those aged 55-64 and 65-74 were more likely to have not made this type of journey (35% and 39% respectively) compared to the overall average (24%). The pattern by age indicates that older people aged 55 and over (35%-49%) were more likely to have not driven journeys like this compared to those under the age of 55 (9%-20%) however caution should be exercised with this finding due to small sample sizes.
- Rural residents were more likely to have never driven a BEV for these journeys (31%) compared to urban residents (22%).

5.4 Purpose of long distance journeys on the SRN

Nearly half of BEV drivers (46%) made a journey on the SRN where they charged on route for leisure (including visiting friends and family). A further 35% made long distance journeys on the SRN where they charged on route for UK holidays (Figure 5.2).

Figure 5.2: Reasons for making long distance journeys in a BEV on England's motorways and SRN A-roads



Q39. Thinking about the last 12 months, for which of these reasons, if any, have you made a long -distance journey as a driver in a battery electric vehicle (BEV) using England's motorways and major A -roads where you have had to stop and charge?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

There were several subgroup differences for the reasons long distance journeys (with a stop to charge) had been driven on the SRN in the past 12 months:

- Men were more likely to have made a journey for business travel purposes (21%) compared to women (8%).
- BEV drivers with longer range vehicles (an advertised range of 201+ miles) were more likely to have travelled for *leisure* (50%), for *holiday(s)* within the UK (42%), for business (19%) and for holiday abroad purposes (14%) compared to the total average (46%, 35%, 15% and 11% respectively).
- Those who use England's motorways less often than once a week but more than twice a year were more likely to have made these types of journeys whilst travelling for leisure (63%), holiday(s) within the UK (45%), business (18%) and commuting (6%) compared to those who use the motorways once or twice a year or less often (37%, 28%, 4% and 1% respectively).
- Those who use England's SRN A-roads less often than once a week but more than twice a year were more likely to have made these types of journeys whilst travelling for leisure (63%), business (17%) and commuting (9%) compared to those who use the motorways once or twice a year or less often (39%, 7% and 2% respectively).

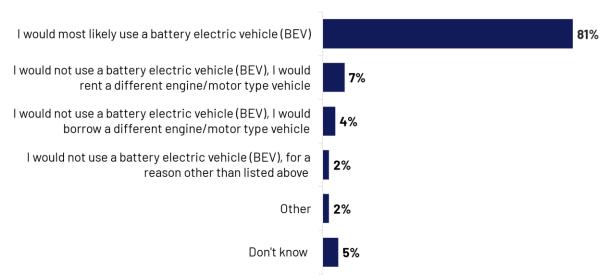
• Primary BEV drivers were more likely to have travelled for *leisure* (50%), *holiday(s) within the UK* (42%) and *business* (20%) compared to those whose BEV is not their primary vehicle (39%, 17% and 11% respectively).

5.5 Engine/motor preference for those who only drive BEVs

Participants who had not driven any vehicle other than a BEV in the last 6 months were asked about what engine/motor types they would use for long distance journeys on the SRN (n=219). The majority said that they would most likely use a BEV (81%), however, 7% would rent a different engine/motor type and a further 4% would borrow a different engine/motor type (Figure 5.3).

Of those who said they would most likely use a different engine/motor type for a long distance journey (n=27), the reliability of refuelling/charging stations (n=16) was cited as the main reason.

Figure 5.3: BEV only drivers' vehicle engine/motor type preference for long distance journeys on the SRN



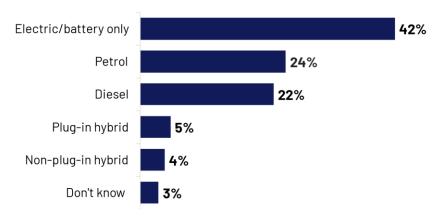
013b. You said that in the last 6 months you only have personally driven a battery electric vehicle (BEV), if you were making a journey of 100 miles or more as a driver that included travelling on England's motorways and major A - roads, which of the following vehicle engine/motor types would you most likely use? That is a journey in only one direction.

Base: Battery electric drivers in England who have only driven a BEV: Unweighted (231), Weighted (219)

5.6 Engine/motor preference for those who drive multiple types

Among participants who drove multiple vehicle motor/engine types, 42% said they would use a BEV for a journey of 100 miles or more on the SRN. Whereas 46% said they would use a petrol or diesel vehicle (Figure 5.4).

Figure 5.4: Vehicle engine/motor type preference for long distance journeys among BEV drivers who use multiple vehicle motor/engine types



Q13a. If you were making a journey of 100 miles or more as a driver that included travelling on England's motorways and major A-roads, which of the following vehicle engine/motor types would you most likely use? That is a journey in only one direction.

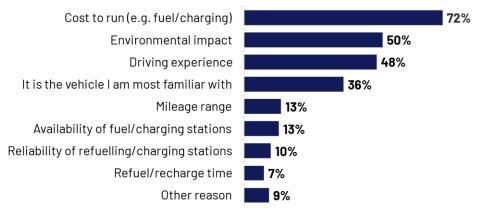
Base: Battery electric drivers in England who own or have continuous use of more than one vehicle including a BEV: Unweighted (476), Weighted (451)

Of those who drove multiple motor/engine types, there was a range of subgroups that were more likely to select a BEV for long distance journeys on the SRN, including:

- Primary BEV drivers were more likely to want to drive a BEV (60%) compared to non-primary BEV drivers (15%).
- BEV drivers with longer range vehicles (an advertised range of 201+ miles) were more likely to opt to drive a BEV (55%) compared to the total average (42%).
- Those with a dedicated charger installed at home were more likely to want to drive a BEV (49%) compared to those who do not have a charger installed at home but have an alternative method of charging at home (21%) and those who have no method of charging at home (28%). Those who have no method of charging at home were more likely to want to drive a petrol vehicle (44%) compared to those who have a charger installed (18%). This should be interpreted with caution as the sample sizes for those who have an alternative method of charging at home or do not have a dedicated home charger installed were too small for robust statistical testing.

For BEV drivers who drove multiple engine/motor types, the decision of whether to use a BEV for long journeys on the SRN was influenced by several factors. Cost to run (72%), environmental benefits (50%), and driving experience (48%) motivated those who would use their BEV (Figure 5.5). Mile range (57%), charging and refuelling infrastructure availability and reliability (54% and 48% respectively) and recharging times (48%) motivated those who would choose another engine/motor type (Figure 5.6).

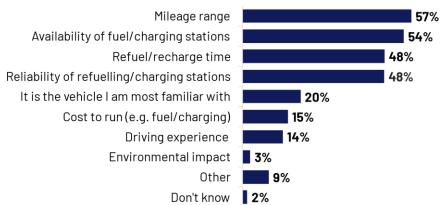
Figure 5.5: Reasons for choosing a BEV for long distance journeys among BEV drivers who own or have continuous use of multiple vehicles



Q14a. What are the main reasons you would most likely drive a [ANSWER FROM Q13a] engine/motor vehicle if you were making a journey of 100 miles or more as a driver on England's motorways and major A -roads? That is a journey in only one direction.

Base: Battery electric drivers in England who own or have continuous use of more than one vehicle including a BEV and who are most likely to drive a BEV for journeys of 100 miles or more: Unweighted (207), Weighted (187)

Figure 5.6: Reasons for choosing a non-BEV for long distance journeys among BEV drivers who own or have continuous use of multiple vehicles



Q14a. What are the main reasons you would most likely drive a [ANSWER FROM Q13a] engine/motor vehicle if you were making a journey of 100 miles or more as a driver on England's motorways and major A -roads? That is a journey in only one direction.

Base: Battery electric drivers in England who own or have continuous use of more than one vehicle including a BEV and who are most likely to drive a car/van other than a BEV for journeys of 100 miles or more: Unweighted (269), Weighted (263)

6 BEV charging infrastructure needs for confidence whilst driving long distance journeys on the SRN

This section explores the chargepoint provision requirements for instilling confidence in EV drivers undertaking long distance journeys⁸ on the SRN.

6.1 Summary

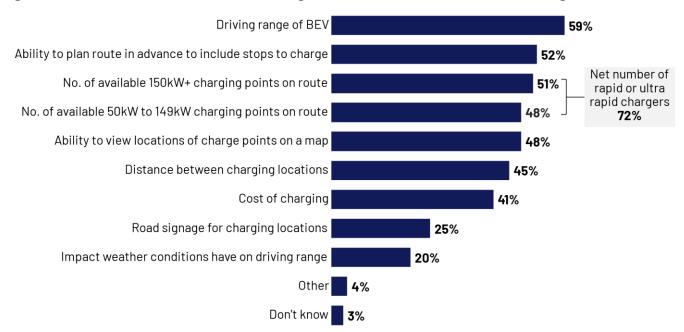
- Rapid/ultra-rapid charger availability (72%), vehicle range (59%), and route planning with charging stops (52%) were the most common factors selected by BEV drivers when asked what would give them confidence making long distance journeys on the SRN. Rapid/ultra rapid charger availability was the *most important* single factor (42%).
- Confidence in current chargepoint availability was slightly higher for motorways (56% rate confidence 7-10/10) than SRN A-roads (50% rate confidence 7-10/10). Comparatively, around one in five said they were not confident in England's motorways and SRN A-roads (18% for both, rate confidence 0-3/10).
- Those who were least confident in the current availability of chargepoints on motorways (scored 0-3/10) were more likely to want to see 13+ chargepoints across motorway (20%) compared to those more confident (scored 4-10/10) (7%). Similar findings were seen for SRN A-roads.

6.2 Factors influencing confidence when driving a BEV on the SRN

Charger availability (50kW and over) (72%), vehicle range (59%) and route planning (52%) were selected the most frequently when BEV drivers were asked what factors would ensure their confidence driving a BEV on the SRN. Furthermore, the same three factors, charger availability (50kW and over) (42%), vehicle range (21%), and route planning (16%) were selected by BEV drivers as the *most important* factors in ensuring their confidence (Figure 6.2).

⁸ Long distance journeys are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

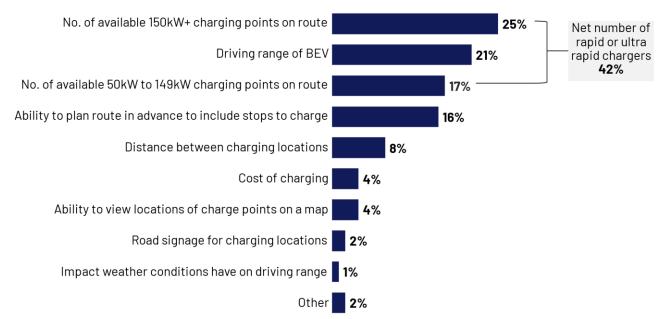
Figure 6.1: Factors that would make England BEV drivers confident driving on the SRN



Q15. If you were making a journey of 100 miles or more as a driver on England's motorways and major A -roads, which factors would be important to ensure you were confident driving a battery electric vehicle (BEV)? That is a journey in only one direction.

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

Figure 6.2: Most important factor that would make England BEV drivers confident driving on the SRN



Q16. Which is the <u>most important factor</u> to ensure you were confident driving a battery electric vehicle (BEV) if you were making a journey of 100 miles or more as a driver on England's motorways and major A -roads? That is a journey in only one direction.

Base: Battery electric vehicle drivers in England who selected more than one factor in Q15: Unweighted (603), Weighted (546)

There were several differences among subgroups concerning what factors were important (all mentions) in ensuring driver confidence when making a long distance journey in a BEV on the SRN:

 Those aged 65-74 were statistically significantly more likely to select ability to plan route in advance, including charging stops (65% compared to the total average 52%). This factor was more frequently selected by those aged 55 and over (59-65%) compared to those aged 18-54 (39-52%) although the base sizes are too small to detect significant differences.

- Those not working full-time were more likely to select ability to plan route in advance, including charging stops (60%) compared to full-time workers (47%).
- Rural residents were more likely to say ability to plan route in advance, including charging stops (60%) compared to urban residents (49%).
- Those who have been driving a BEV for longer (before 2023) were more likely to say a number of factors were important in ensuring confidence compared to newer BEV drivers (those who first drove a BEV from 2023). Including, number of available 50kW to 149kW chargepoints (54% vs. 43%, respectively), number of available 150kW+ chargepoints (56% vs. 46%, respectively) and the distance between charging locations (52% vs. 39%, respectively).
- Those with a dedicated charger installed at home were more likely to choose *number of available* 150kW+ chargepoints (54%), the ability to plan route in advance, including charging stops (57%) and ability to view locations of chargepoints on a map (51%) compared to the total average (51%, 52% and 48%, respectively).
- It was also observed that those with a dedicated home charger were more likely to choose *ability to* plan route in advance to include stops to charge (57%) compared to those with no available method of charging at home (38%).

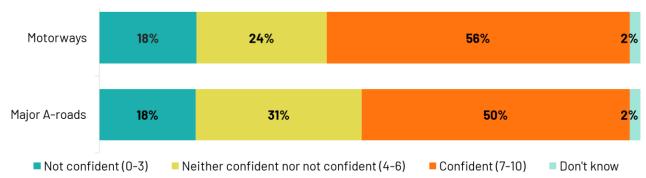
Additionally, there were also several differences among subgroups concerning what factors are the **most** important in ensuring driver confidence when making a long distance journey in a BEV on the SRN:

- Non-primary BEV drivers were more likely to say the driving range of the BEV (29%) compared to those whose primary vehcile is a BEV (17%).
- Urban residents were more likely to say the *number of available 150kW+ chargepoints* (28%) compared to rural residents (18%).
- Those who drove a BEV before 2023 were more likely to say *distance between charging* locations (11%) compared to newer BEV drivers (first drove a BEV from 2023) (4%).
- BEV drivers with a longer range vehicle (an advertised range of 201+ miles) were more likely to say the number of available 150kW+ chargepoints (28%) compared to the those with a BEV range of 101-200 miles (17%).

6.3 Current confidence in chargepoint availability on the SRN

Around half of BEV drivers were confident (scored 7-10/10) in current chargepoint availability on motorways (56%) and SRN A-roads (50%) when driving a long distance journey. Around a quarter (24%) of BEV drivers were neither confident nor not confident on motorways and 31% on SRN A-roads. Just under a fifth (18%) were not confident at all about the availability of chargepoints on motorways and SRN A-roads (Figure 6.3).

Figure 6.3: Confidence driving long distance journeys on the SRN with current chargepoint availability



Q19/Q30. Thinking about the current availability of battery electric vehicle (BEV) charging points on motorways/major A-roads in England, how confident or not would you feel driving a journey of 100 miles or more in a battery electric vehicle (BEV)?

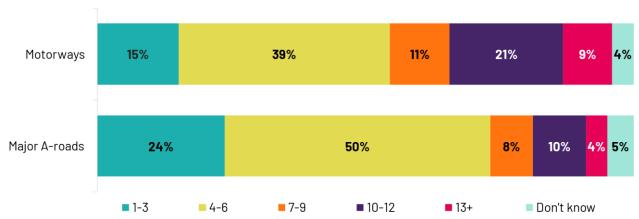
Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

- Those whose primary vehicle is not a BEV were less confident (score 0-3) driving a long distance journey on the SRN due to the *current availability of chargepoints* (29% motorways and 25% SRN A-roads) compared to primary vehicle BEV drivers (12% motorways and 16% SRN A-roads).
- Those with a dedicated charger installed at home were more likely to be extremely confident (score 10) driving a long distance journey on the SRN due to the *current availability of chargepoints* (26% motorways and 24% SRN A-roads) compared to the total average (22% motorways and 19% SRN A-roads). Whereas those who have no method of charging at home were more likely to be not confident (score 0-3/10) with the *current availability of chargepoints* on the SRN (29% motorways and 26% SRN A-roads) compared to those with a dedicated charger at home (15% motorways and 14% SRN A-roads). This should be interpreted with caution as the sample sizes for those who do not have a dedicated home charger installed were too small for robust statistical testing.
- BEV drivers with a longer range vehicle (an advertised range of 201+ miles) were more likely to be extremely confident (score 10) driving a long distance journey on the SRN due to the *current availability of chargepoints* (28% motorways and 25% SRN A-roads) compared to the total average (22% motorways and 19% SRN A-roads).

6.4 Minimum chargepoint provision for long distance BEV journeys on the SRN

BEV drivers preferred to see a greater number of chargepoints at motorway service areas compared to services on SRN A-roads. For motorways, the most common preference was 4-6 chargepoints (39%), followed by a preference for 10-12 chargepoints (21%). Over half (57%) of drivers preferred to see 6 or more chargepoints at MSAs to feel confident making long distance journeys. On SRN A-roads, however, the preference for 4-6 chargepoints was more pronounced (50%) and a quarter (24%) aimed to see 1-3 chargepoints compared to 15% on motorways (Figure 6.4). Almost two-fifths (38%) of drivers preferred to see 6 or more chargepoints at SRN A-road service areas to feel confident making long distance journeys.

Figure 6.4: Minimum number of chargepoints needed on the SRN for long distance BEV journeys



Q20/Q31. Imagine you are using motorways/major A-roads in England to make a journey of 100 miles or more as a driver in a battery electric vehicle (BEV), what is the minimum number of battery electric vehicle (BEV) charging points you would need to find at a Motorway Service Area to feel confident you will be able to charge? Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

Notable differences in terms of the number of chargepoints BEV drivers aimed to see on motorways and SRN A-roads include:

- Rural residents were more likely to want to see 1-3 chargepoints at an *SRN A-road service area* (31%) compared to urban residents (21%).
- Those who were least confident in the current availability of chargepoints (scored 0-3/10) on motorways and SRN A-roads were more likely to want to see 13+ chargepoints. For example:
 - One in five (20%) of those with a confidence level of 0-3, when asked about availability of chargepoints on motorways, were more likely to want to see 13+ chargepoints at a *motorway* service area compared to only 7% of those with higher confidence in charger availability (score 4-10/10).
 - Additionally, 17% of those who had a confidence level of 0-3 when asked about availability of chargepoints on SRN A-roads were more likely to want to see 13+ chargepoints at a *motorway* service area compared to only 8% of those with higher confidence (score 4-10/10).
- BEV drivers with a longer range vehicle (an advertised range of 201+ miles) were more likely to want to see 10-12 chargepoints at a *motorway service area* (24%) compared to the total average (21%).

7 Chargepoint provider needs

This section looks at how BEV drivers in England perceived the adequacy of the number of chargepoints and the diversity of chargepoint operators, exploring how these factors influence driver confidence in using their BEVs for long distance journeys⁹.

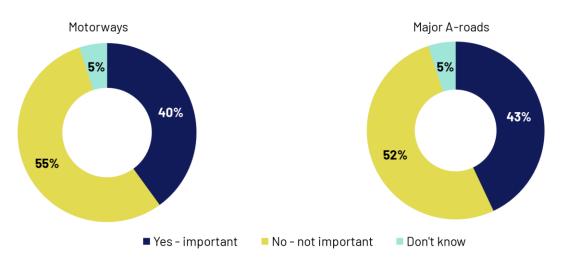
7.1 Summary

- Around half of BEV drivers did not prioritise having different chargepoint providers at the same location on motorways (55%) and SRN A-roads (52%). However, a significant minority (40% and 43%, respectively) did see it as important.
- For those who valued chargepoint provider diversity, key reasons included charger reliability (52% on motorways, 50% on A-roads cite concern about out-of-service chargers) and cost (48% and 51%, respectively).
- There was significant uncertainty about the ideal number of providers, with many unsure of their preference (38% on motorways, 37% on A-roads). Around three in ten preferred 1-2 providers.

7.2 Chargepoint provider diversity and driver preferences

Over half did not think it was important to have different chargepoint providers at or near the same location on the SRN (55% motorways, 52% SRN A-roads) compared to around 40% who said it was important (40% motorways, 43% SRN A-roads) (Figure 7.1).

Figure 7.1: Importance of different chargepoint providers at SRN service areas



Q25/Q35. Is the number of different chargepoint providers at the same location or very near the same location on England's <u>motorways/major A-roads</u> important to your decision to stop and charge a battery electric vehicle (BEV)? Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

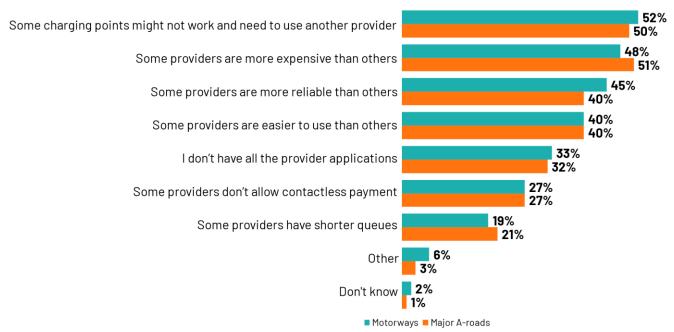
⁹ Long distance journeys are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

The importance of chargepoint provider diversity varied across subgroups.

- Men were more likely to think that the number of different chargepoint providers on/nearby England's *motorways* was important (45%) compared to women (33%).
- Those with a dedicated home charger were more likely to think that the number of different chargepoint providers on/near the SRN was <u>not important</u> (58% motorways and 56% SRN A-roads) compared to the total average (55% motorways and 52% SRN A-roads). This difference was also evident on SRN A-roads between those with a dedicated charger and those with no method of charging at home (56% compared to 38%), however, the sample size of those with no method of charging was too small for robust statistical testing.

Of those who said the number of different chargepoint providers at the same/nearby location on the SRN was important (n=268 motorways and n=287 SRN A-roads), the most common reasons centred on reliability and cost (Figure 7.2). Around half cited the possibility of some chargepoints being out of service, necessitating alternative providers (52% on motorways, 50% on SRN A-roads). Cost considerations, specifically that some providers are more expensive than others, was also frequently mentioned (48% on motorways, 51% on SRN A-roads). The reliability of different providers was another key factor (45% on motorways, 40% on SRN A-roads).

Figure 7.2: Perceived benefits of different chargepoint providers on the SRN



Q26/Q36. What are the main reasons that <u>different</u> chargepoint providers on England's <u>motorways/major A-roads</u> are important?

Base: Battery electric vehicle drivers in England who consider the number of chargepoint providers on or near motorway/major A-road important (Unweighted/Weighted): Motorway (270/268), Major A-road (285/287)

Those with a dedicated charger installed at home were more likely to select the following reasons when asked why different chargepoint providers on England's motorways is important; they don't have all the provider applications (37%), some providers are more expensive than others (54%) and some providers are more reliable than others (50%) compared to the total average (33%, 48% and 45%, respectively). Additionally, this group were also more likely to say that having different chargepoint providers on England's SRN A-roads was important because some providers don't allow contactless payment (34%) compared to the total average (27%). Since this fieldwork was

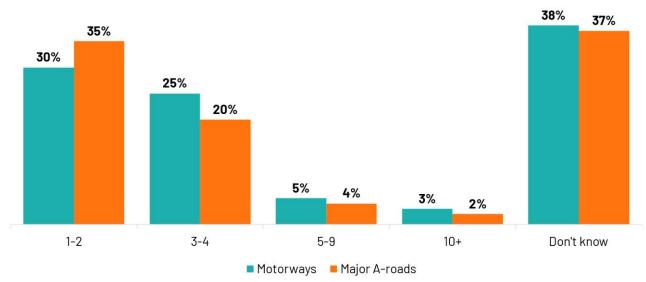
undertaken, all chargepoint providers of 50kW and above chargers have been required to offer contactless payment methods.

 BEV drivers with a longer range vehicle (an advertised range of 201+ miles) were more likely to say the reasons different chargepoint providers on England's SRN A-roads are important is because some providers don't allow contactless payment (34%) compared to the total average (27%).

7.3 Preferred number of chargepoint providers at SRN service areas

BEV drivers' preferences for the number of chargepoint providers on the SRN were somewhat dispersed, with a significant portion unsure of their ideal number. Around three in ten drivers aimed for one or two different chargepoint providers (30% for motorways, 35% for SRN A-roads), while a smaller group preferred three or four different providers (25% on motorways, 20% on SRN A-roads). A substantial proportion (38% on motorways, 37% on SRN A-roads) expressed uncertainty about their desired number of chargepoint providers (Figure 7.3). The mean number of chargepoint providers BEV drivers want to see on the SRN was similar across motorways and SRN A-roads, with participants reporting an average of 3.0 for motorways and 2.8 for SRN A-roads.

Figure 7.3: Preferred number of chargepoint providers at SRN service areas



Q27/Q37. How many different chargepoint providers do you aim to see at, or very near, the same location on England's <u>motorways/major A-roads</u>?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

- BEV drivers lacking confidence (scoring 0-3) in the availability of chargepoints on England's motorways were more likely to say that they needed more chargepoint providers at/near the same location on motorways (average of 3.7) compared to more confident drivers (scoring 4-10, an average of 2.9).
- BEV drivers that were less confident (0-3) about SRN A-road chargepoint availability were also more likely to want more chargepoint providers at/near the same location on motorways (average of 3.7) than those more confident (4-10) about A-road availability (average of 2.9).

8 Acceptability of delays and diversions for BEV charging on the SRN

This section explores attitudes towards delays and diversions for BEV charging, specifically exploring the willingness of drivers to leave the SRN to charge at a nearby location, distance willing to drive to charge in a nearby location, and length of time willing to queue to charge.

8.1 Summary

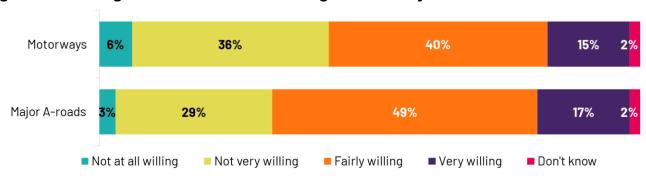
- BEV drivers were more willing to leave an SRN A-road (66%) than a motorway (55%) to charge at a nearby location.
- Most of those who were willing to leave the SRN said they would travel up to 3 miles to an alternate charging location (64% for motorways, 66% for SRN A-roads).
- Most drivers said they would be willing to queue for up to 10 minutes at a motorway service area (50%) or an SRN A-road service area (54%). Less than a quarter of drivers were willing to queue for more than 15 minutes to charge at a motorway service area (24%) or an SRN Aroad service area (22%).
- Compared to the total average (15%), men and primary BEV users were more sensitive to queuing times on SRN A-roads and considered 5 minutes or less a poor experience (20% and 21%, respectively).

8.2 Willingness to leave

BEV drivers were more willing to leave an SRN A-road (66%) as opposed to a motorway (55%) to charge at a nearby location when making a long distance journey¹⁰. Around three in ten were not willing to leave an SRN A-road (32%) and four in ten were not willing to leave a motorway (42%) (Figure 8.1).

¹⁰ Long distance journeys are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

Figure 8.1: Willingness to leave SRN to charge in a nearby location



Q21/Q32. How willing, or not, are you to leave the <u>motorway/major A-road</u> when making long-distance journey as a driver of 100 miles or more in a battery electric vehicle (BEV) to charge in a nearby location such as a town, super or retail park?

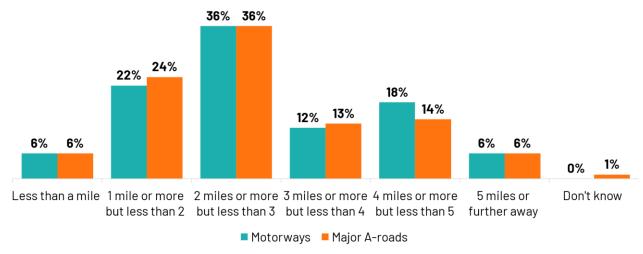
Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

There were some subgroup differences:

- BEV drivers with a longer range vehicle (an advertised range of 201+ miles) were more willing to leave an SRN A-road (71%) compared to the total average (66%).
- BEV drivers who first drove a BEV before 2023 (60%) were more likely to be willing to leave a
 motorway compared to the total average (55%).

Most drivers who were willing to leave the SRN to charge would only drive up to 3 miles to a nearby location (64% on *motorways* and 66% on *SRN A-roads*) (Figure 8.2). There were no significant differences to comment on.

Figure 8.2: Distance willing to leave SRN to charge in nearby location



Q22/Q33. You said, if the battery electric vehicle (BEV) needed charging, you would be willing to leave the motorway/major A-road to charge in a nearby location such as a town, supermarket or retail park. How far off the motorway/major A-road would you be willing to drive in this situation?

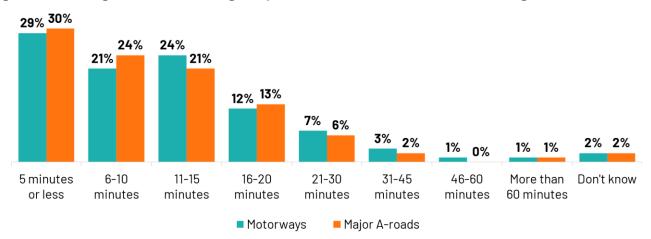
Base: Battery electric vehicle drivers in England who are willing to leave motorway when making LDJ (Unweighted/Weighted): Motorway (397/371), Major A-road (454/441)

8.3 Willingness to queue

Less than a quarter of drivers were willing to wait more than 15 minutes to charge a BEV at a *motorway* service area (24%) or a service area on an *SRN A-road* (22%). Around three in ten were willing to wait

up to 5 minutes (29% for *motorways* and 30% for *SRN A-roads*), with around two in ten willing to wait 6-10 minutes (21% for *motorways* and 24% for *SRN A-roads*) (Figure 8.3). There were no significant differences to comment on.

Figure 8.3: Length of time willing to queue at SRN service area to charge

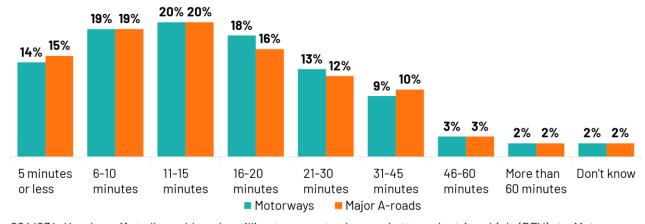


Q23/Q38. How long, if at all, would you be willing to queue at a Motorway Service Area or Service Area on a major Aroad to charge a battery electric vehicle?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

Around half of BEV drivers would consider queueing for up to 15 minutes at a motorway service area or a charging location on an SRN A-road before considering it a poor charging experience (53% *motorways* and 54% *SRN A-roads*) (Figure 8.4).

Figure 8.4: Willingness to queue at SRN service area to charge before considering the experience poor or disruptive



Q24/Q34. How long, if at all, would you be willing to queue to charge a battery electric vehicle (BEV) at a Motorway Service Area/at or near a charging location on a major A-road for you to be having a poor recharge experience or feel your journey has been disrupted?

Base: Battery electric vehicle drivers in England: Unweighted (707), Weighted (670)

- Men were more likely than women to consider queuing 5 minutes or less as a poor or disruptive experience on both *motorways* (19% compared to 8%) and *SRN A-roads* (20% compared to 9%).
- In general, those who first drove a BEV in 2023 and onwards generally considered waiting up to 10
 minutes as a poor or disruptive experience, however, base sizes are too small to comment on any
 statistical significance.

9 Appendix

9.1 Appendix A – Methodology

The Department for Transport (DfT) commissioned a survey to explore the behaviours and experiences of battery electric vehicle (BEV) drivers within England.

The primary objective of this research was to inform understanding and policy-making surrounding what EV drivers need from the SRN charging network to be confident in long distance EV journeys through understanding:

- What level of chargepoint provision do EV (zero emission vehicle) drivers need to see to give them confidence to drive their EVs for long distance trips on the Strategic Road Network?
- What level of delay/length of diversion are EV drivers willing to accept to charge their EVs for long distance journeys on the SRN?
- What are the current attitudes and behaviours of EV drivers in relation to long distance journeys on the SRN?

KnowledgePanel and weighting

The following sampling and weighting approach was used to ensure robust and reliable results that are representative of Battery Electric Vehicle (BEV) drivers in England.

Survey data was collected using the Ipsos' UK KnowledgePanel, a random probability-based online panel. Panellists are recruited via a random probability unclustered address-based sampling method, ensuring that every UK household has a known chance of being selected. Invitation letters are sent to selected addresses using the Postcode Address File, allowing members to join the panel by completing an online or paper questionnaire.

The survey was designed with a 'mobile-first' approach to enhance usability on mobile devices. This design optimised question formats and ensured compatibility with screen reader software. Digitally excluded individuals are provided with a tablet, email address, and basic internet access to participate online.

Initial data collection included participants from all UK nations up to the screener stage. 26,769 respondents across the UK were invited and 14,291 respondents answered the screener question (53% response rate). In England, 21,668 were invited and 11,576 answered the screener question (53% response rate). The screener question used was:

SCN1. In the past 6 months, have you driven any cars or vans for <u>personal use</u> with the following engine/motor type(s)?

Please only include cars or vans you personally own or have continuous use of. Please include any company car(s) or van(s) available for personal use.

The survey adhered to a non-quota approach, with invited samples stratified to account for profile skews within the panel. Design weights corrected for unequal probabilities of household member selection and calibration weights were applied using the latest population statistics, as follows:

 Demographic weights addressed imbalances in the sample, using variables such as education, ethnicity, Index of Multiple Deprivation (quintiles), and household size, following ONS 2020 midyear estimates and the Annual Population Survey The survey was conducted between 29th August and 4th September 2024. A total of 707 BEV drivers participated, with a weighted sample size of 670. Questions focused on personal BEV usage, including any company-owned BEV available for personal use. In households with multiple members, the survey did not collect data on other members' BEV usage.

The survey results were compiled into data tables featuring demographic and attitudinal cross-tabulations, with significance testing performed at the 95% confidence level. An SPSS dataset was generated for further analysis and integration with existing datasets.

This comprehensive methodological approach provides robust insights into BEV usage patterns among residents in England, supporting future research and policy formulation.

Robust significance testing

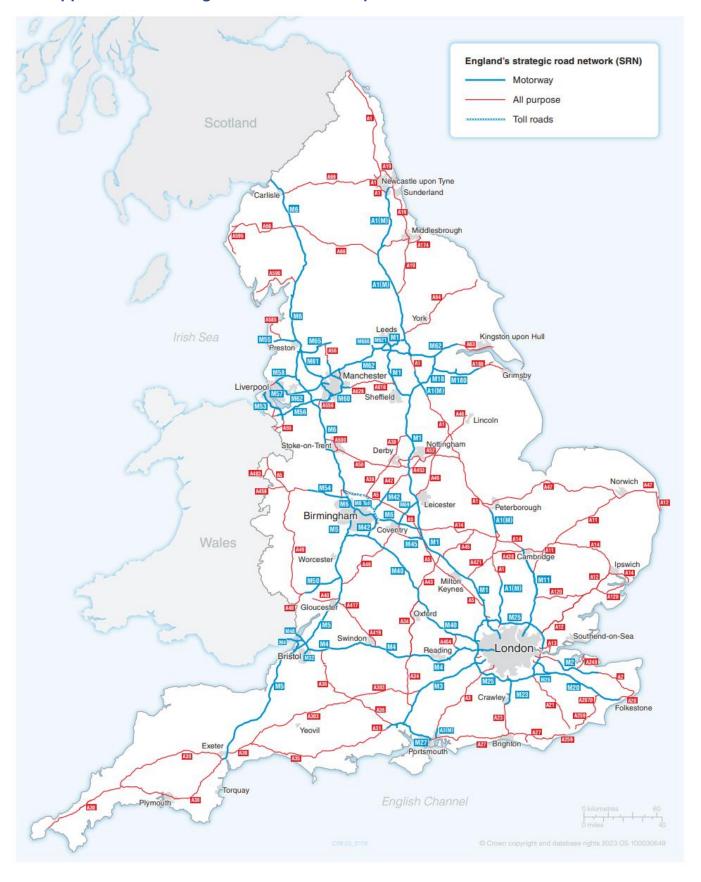
Weighting is a process used to adjust survey samples to better represent the target population. However, this adjustment can sometimes lead to results appearing more precise than they actually are.

To address this issue, the concept of 'effective base' is employed. The effective base serves as a measure of the reliability of weighted results. It acts as a safeguard to ensure the trustworthiness of the data after weighting has been applied.

A minimum effective base of 100 is required for results to be considered reliable. Any findings with an effective base below 100 are flagged in the report, indicating that these results should be interpreted with caution.

The use of effective base ensures the provision of accurate and dependable information, even when sample adjustments through weighting have been necessary. This approach maintains the integrity of the survey results and provides a clear indication of their reliability.

9.2 Appendix B – Strategic Road Network Map



9.3 Appendix C - Questionnaire

ASK ALL

MULTI CODE

SCN1.

In the past 6 months, have you driven any cars or vans for <u>personal use</u> with the following engine/motor type(s)?

Please only include cars or vans you personally own or have continuous use of.

Please include any company car(s) or van(s) available for personal use.

Please select all that apply

- 1. Petrol
- 2. Diesel
- 3. Electric/battery only [MUST CODE TO CONTINUE SURVEY, REST SCREENED OUT]
- 4. Non-plug-in hybrid
- 5. Plug-in hybrid
- 6. Liquified Petroleum Gas (LPG)
- 7. Bi-fuel (a combination of any two of petrol or diesel or ethanol with natural gas or LPG)
- 8. Other (please specify)
- 9. I have not driven a car or van in the past 6 months **[EXCLUSIVE]**

998. Don't know [FIX] [EXCLUSIVE]

999. Prefer not to say **[FIX] [EXCLUSIVE]**

ASK IF SELECT MORE THAN ONE OF CODES 1-8 AT <u>AND</u> SELECTED CODE 3 AT SCN1. SINGLE CODE

SCN2.

What engine/motor type is your primary car or van?

If you own or have continuous use of more than one vehicle, please think about the one that you drive the most.

Please select one option only

- 1. Petrol [SHOW IF CODE 1 AT SCN1]
- 2. Diesel [SHOW IF CODE 2 AT SCN1]
- 3. Electric/battery only [SHOW IF CODE 3 AT SCN1]
- 4. Non-plug-in hybrid [SHOW IF CODE 4 AT SCN1]
- 5. Plug-in hybrid [SHOW IF CODE 5 AT SCN1]
- 6. Liquified Petroleum Gas (LPG) [SHOW IF CODE 6 AT SCN1]
- 7. Bi-fuel (a combination of any two of petrol or diesel or ethanol with natural gas or LPG) [SHOW IF CODE 7 AT SCN1]
- 8. [PULL THROUGH ANSWER AT SCN1 FOR CODE 8] [SHOW IF CODE 8 AT SCN1]

998. Don't know

999. Prefer not to say

ASK ALL

SINGLE CODE

m_country.

- 1. England [MUST CODE TO CONTINUE]
- 2. Wales
- 3. Scotland
- 4. Northern Ireland

998. Prefer not to say

SHOW ALL

NEW SCREEN INTRO_TEXT

Battery electric vehicle (BEV) is a vehicle that has a battery powered electric motor only.

A plug-in hybrid electric vehicle (PHEV) has <u>both</u> a battery-powered electric motor and an internal combustion engine.

Throughout this survey, please think about your primary car or van that has a <u>battery powered electric motor only</u>. Please exclude any plug-in hybrid car(s) or van(s).

ASK ALL

SINGLE CODE

Q1.

How many battery electric vehicles (BEVs) do you drive for personal use?

Please exclude any company car(s) or van(s) if only used for business use.

Please select one option only

- 1. 1
- 2. 2
- 3. 3
- 4. 4 or more

999. Prefer not to say

ASK ALL

SINGLE CODE

BOLD CODE 27

Q2.

What make is your primary battery electric vehicle (BEV)?

If you have continuous use of more than one battery electric vehicle, please think about the one that you drive the most.

- 1. Audi
- 2. BMW
- 3. BYD
- 4. Citroen
- 5. Cupra
- 6. Fiat
- 7. Ford
- 8. Honda
- 9. Hyundai
- 10. Jaguar
- 11. Kia
- 12. Lexus
- 13. Mazda
- 14. Mercedes-Benz
- 15. MG
- 16. Mini
- 17. Nissan
- 18. Peugeot
- 19. Polestar
- 20. Renault
- 21. Skoda
- 22. Tesla
- 23. Toyota
- 24. Vauxhall
- 25. Volkswagen
- 26. Volvo
- 27. Other (please specify) [BOLD]
- 998. Don't know

SINGLE CODE

Q3.

What model is the battery electric vehicle (BEV)?

If you have continuous use of more than one battery electric vehicle, please think about the one that you drive the most.

- 1. [IF CODE 1 (AUDI) AT Q2] Q6 e-tron quattro
- 2. [IF CODE 1 (AUDI) AT Q2] Q4 e-tron 45
- 1. [IF CODE 2 (BMW) AT Q2] i3
- 2. [IF CODE 2 (BMW) AT Q2] i4
- 3. [IF CODE 2 (BMW) AT Q2] i4 eDrive40
- 4. [IF CODE 2 (BMW) AT Q2] i5
- 5. [IF CODE 2 (BMW) AT Q2] i5 eDrive40
- 6. [IF CODE 2 (BMW) AT Q2] iX1 xDrive30
- 7. [IF CODE 2 (BMW) AT Q2] iX xDrive 40
- 8. [IF CODE 2 (BMW) AT Q2] iX3
- 9. [IF CODE 3 (BYD) AT Q2] DOLPHIN 60.4 kWh
- 10. [IF CODE 3 (BYD) AT Q2] SEAL 82.5 kWh AWD
- 11. [IF CODE 3 (BYD) AT Q2] SEAL 82.5 kWh RWD
- 12. [IF CODE 3 (BYD) AT Q2] ATTO 3
- 13. [IF CODE 4 (CITROEN) AT Q2] e-C4
- 14. [IF CODE 4 (CITROEN) AT Q2] e-C4 X
- 15. [IF CODE 5 (CUPRA) AT Q2] Born
- 16. [IF CODE 6 (FIAT AT Q2] Fiat 500e
- 17. [IF CODE 7 (FORD) AT Q2] Capri
- 18. [IF CODE 7 (FORD) AT Q2] Explorer
- 19. [IF CODE 8 (HONDA) AT Q2] e:Ny1
- 20. [IF CODE 9 (HYUNDAI) AT Q2] Kona Electric 65 kWh
- 21. [IF CODE 9 (HYUNDAI) AT Q2] IONIQ 5 Long Range 2WD
- 22. [IF CODE 9 (HYUNDAI) AT Q2] IONIQ 5 N
- 23. [IF CODE 9 (HYUNDAI) AT Q2] IONIQ 6 Long Range 2WD
- 24. [IF CODE 10 (JAGUAR) AT Q2] I-Pace
- 25. [IF CODE 11 (KIA) AT Q2] Niro EV
- 26. [IF CODE 11 (KIA) AT Q2] EV6 Long Range 2WD
- 27. [IF CODE 12 (LEXUS) AT Q2] UX 300e
- 28. [IF CODE 13 (MAZDA) AT Q2] MX-30
- 29. [IF CODE 14 (MERCEDES-BENZ) AT Q2] EQA
- 30. [IF CODE 14 (MERCEDES-BENZ AT Q2] EQB
- 31. [IF CODE 14 (MERCEDES-BENZ AT Q2] EQC
- 32. [IF CODE 14 (MERCEDES-BENZ AT Q2] EQS
- 33. [IF CODE 14 (MERCEDES-BENZ AT Q2] EQV
- 34. [IF CODE 15 (MG) AT Q2] MG ZS EV
- 35. [IF CODE 15 (MG) AT Q2] MG4 EV
- 36. [IF CODE 15 (MG) AT Q2] MG5 EV Extended Range
- 37. [IF CODE 15 (MG) AT Q2] MG5 EV
- 38. [IF CODE 16 (MINI) AT Q2] Mini Cooper Electric SE
- 39. [IF CODE 17 (NISSAN) AT Q2] Leaf
- 40. [IF CODE 17 (NISSAN) AT Q2] Ariya
- 41. [IF CODE 18 (PEUGEOT) AT Q2] e-3008 73 kWh
- 42. [IF CODE 19 (POLESTAR) AT Q2] Polestar 2 Long Range Performance
- 43. [IF CODE 19 (POLESTAR) AT Q2] Polestar 2 Long Range Single Motor
- 44. [IF CODE 20 (RENAULT) AT Q2] Zoe
- 45. [IF CODE 20 (RENAULT) AT Q2] Megane E-Tech
- 46. [IF CODE 20 (RENAULT) AT Q2] Scenic E-Tech
- 47. [IF CODE 21 (SKODA) AT Q2] Enyaq 85
- 48. [IF CODE 21 (SKODA) AT Q2]Enyaq iV

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49. [IF CODE 22 (TESLA) AT Q2] Model 3
50. [IF CODE 22 (TESLA) AT Q2] Model 3 LongRange Dual Motor
51. [IF CODE 22 (TESLA) AT Q2] Model Y
52. [IF CODE 22 (TESLA) AT Q2] Model Y Long Range Dual Motor
53. [IF CODE 22 (TESLA) AT Q2] Model S
54. [IF CODE 22 (TESLA) AT Q2] Model X
55. [IF CODE 23 (TOYOTA) AT Q2] bZ4X FWD
56. [IF CODE 24 (VAUXHALL) AT Q2] Astra Electric
57. [IF CODE 24 (VAUXHALL) AT Q2] Mokka-e
58. [IF CODE 25 (VOLKSWAGEN) AT Q2] e-Golf
59. [IF CODE 25 (VOLKSWAGEN) AT Q2] ID.3
60. [IF CODE 25 (VOLKSWAGEN) AT Q2] ID.4
61. [IF CODE 25 (VOLKSWAGEN) AT Q2] ID.4 Pro
62. [IF CODE 25 (VOLKSWAGEN) AT Q2] ID.7 Pro
63. [IF CODE 26 (VOLVO) AT Q2] EX30 Single Motor
64. Other (please specify)
998.
      Don't know
```

SINGLE CODE

Q4a.

What is the advertised range of the battery electric vehicle (BEV) that you drive?

If you are unsure, please give your best estimate.

Please select one option only

Up to 50 miles (Up to 81 kilometres) 51-100 miles (82-161 kilometres)

101-150 miles (162-242 kilometres)

151-200 miles (243-322 kilometres) 201-250 miles (323-402 kilometres)

251-300 miles (403-483 kilometres)

301-350 miles (484-563 kilometres)

351-400 miles (564-644 kilometres)

Over 400 miles (Over 645 kilometres)

Don't know

Prefer not to say

ASK ALL

SINGLE CODE

Q4b.

In the past three months, what is the typical mile range you have experienced when driving the battery electric vehicle (BEV)?

This may be the same or different to the advertised range specified by the manufacturer.

If you are unsure, please give your best estimate.

Please select one option only

- 1. Up to 50 miles (Up to 81 kilometres
- 1. 51-100 miles (82-161 kilometres)
- 2. 101-150 miles (162-242 kilometres)
- 3. 151-200 miles (243-322 kilometres)
- 4. 201-250 miles (323-402 kilometres)
- 5. 251-300 miles (403-483 kilometres)
- 6. 301-350 miles (484-563 kilometres)
- 7. 351-400 miles (564-644 kilometres)
- 8. Over 400 miles (Over 645 kilometres)

998. Don't know 999. Prefer not to say

NUMERIC | ALL YEARS BETWEEN 1897 - 2024

Q5.

What year did you first drive a battery electric vehicle (BEV)?

This does not have to be the current battery electric vehicle (BEV) you drive.

Please type the year in the box below

ASK ALL

SINGLE CODE

Q6.

On average, how often do you personally drive a battery electric vehicle (BEV)?

Please select one option only

- 1. Every day
- 2. 4-6 days a week
- 3. 2-3 days a week
- 4. About once a week
- 5. Every 2-3 weeks
- 6. About once a month
- 7. About once every three months
- 8. Once or twice a year
- 9. Less than once a year

998. Don't know

ASK ALL

SINGLE CODE

Q7.

On average, how many miles do you drive in a week using a battery electric vehicle (BEV)?

Please select one option only

- 1. 1-15 miles (1-24 kilometres)
- 2. 16-30 miles (25-48 kilometres
- 3. 31-60 miles (49-97 kilometres)
- 4. 61-120 miles (98-193 kilometres)
- 5. 121-200 miles (194-322 kilometres)
- 6. 201-300 miles (323-483 kilometres)
- 7. Over 300 miles (over 483 kilometres)

998. Don't know

ASK ALL

SINGLE CODE

Q8.

Which of these statements best describes your access to a charger for the battery electric vehicle (BEV) at home">home?

- 1. I have a dedicated electric vehicle charger installed at home
- 2. I do not have a dedicated electric vehicle charger installed at home, but have an alternative method of charging my battery electric vehicle (BEV) at home (e.g. running an extension cable through my window or letterbox, etc.)
- 3. I have no available method of charging my battery electric vehicle (BEV) at home and rely on the public charging network (e.g. a chargepoint on your street or a public chargepoint, etc.)

NEW SCREEN INTRODUCTION TO SRNs

Throughout the rest of the survey, you will be asked about your experiences when travelling on England's motorways and major A-roads, known as the Strategic Road Network (SRN).

The SRN in England comprises two components - motorways and major A-roads - that connect major towns and cities to provide the capacity and connectivity to support national and local economic growth. A map of the SRN is shown below, with motorways in blue and major A-roads in red, and you can view a more detailed map here.

This survey will also refer to long distance journeys in one direction, which are journeys of 100 miles or more in one direction in a battery electric vehicle (BEV) where you may need to stop and charge on your journey.

[INSERT IMAGE]



SINGLE CODE

Q9.

How often, if at all, do you typically drive long distance journeys that include travelling on England's <u>motorways</u> with a battery electric vehicle (BEV)? That is, journeys of 100 miles or more in one direction.

Please select one option only

- 1. Every day
- 2. 4-6 days a week
- 3. 2-3 days a week
- 4. About once a week
- 5. Every 2-3 weeks
- 6. About once a month
- 7. About once every three months
- 8. Once or twice a year
- 9. Less than once a year
- 10. Never

998. Don't know

ASK ALL

SINGLE CODE

 Ω 10

How often, if at all, do you typically drive long distance journeys that include travelling on England's <u>major A-roads</u> with a battery electric vehicle (BEV)? That is, journeys of 100 miles or more in one direction.

Please select one option only

- 1. Every day
- 2. 4-6 days a week
- 3. 2-3 days a week
- 4. About once a week
- 5. Every 2-3 weeks
- 6. About once a month
- 7. About once every three months
- 8. Once or twice a year
- 9. Less than once a year
- 10. Never

998. Don't know

ASK ALL

SINGLE CODE

Q11a.

What is the longest distance you have driven a battery electric vehicle (BEV) which has involved charging the vehicle at least once during a single journey? That is a journey in only one direction.

If you are unsure, please give your best estimate.

Please select one option only

- 1. 1-60 miles (1-97 kilometres)
- 2. 61-120 miles (98-193 kilometres)
- 3. 121-200 miles (194-322 kilometres)
- 4. 201-300 miles (323-483 kilometres)
- 5. Over 300 miles (over 483 kilometres)
- 6. Never charged battery electric vehicle (BEV) during the journey

998. Don't know

ASK IF Q11a = CODES 1-5

SINGLE CODE

Q11b.

On average, how often do you drive long distance journeys that involve <u>charging the vehicle</u> at least once during a single journey? That is, journeys of 100 miles or more in one direction.

Please select one option only

- 1. Every day
- 2. 4-6 days a week
- 3. 2-3 days a week
- 4. About once a week
- 5. Every 2-3 weeks
- 6. About once a month
- 7. About once every three months
- 8. Once or twice a year
- 9. Less than once a year
- 10. Never
- 11. 998. Don't know

ASK IF Q11=1, 2, 3, 4, 5

SINGLE CODE

NUMERIC

Q12. What is the most number of times you have charged a battery electric vehicle (BEV) during a <u>single journey</u>? That is a journey in only one direction.

Please type your answer in the box below

998. Don't know

ASK ALL

MULTI CODE

Q39.

Thinking about the last 12 months, for which of these reasons, if any, have you made a long distance journey as a driver in a battery electric vehicle (BEV) using England's motorways and major A-roads where you have had to stop and charge.

Please select all options that apply

RANDOMISE CODES 1-10

- 1. Commuting to or from your place(s) of work
- 2. Travelling for business purposes (excluding your usual commute)
- 3. Travelling to or from your school / college / university
- 4. Accompanying or escorting children to or from school / college / university
- 5. Travelling for holiday within the UK purposes, including day trips or longer breaks
- 6. Travelling for holiday abroad purposes, to get to an airport / station / port
- 7. Travelling for leisure including visiting friends or family
- 8. Shopping
- 9. Travelling to access entertainment / arts such as cinema, theatre, gallery, museum, sporting events, music events and concerts
- 10. I haven't driven a battery electric vehicle for a long distance journey where I needed to stop and charge
- 11. Other reason(s) (please specify) [FIX] 998. Don't know [FIX] [EXCLUSIVE]

ASK THOSE WHO SELECT MORE THAN ONE OPTION AT SCN1 [SCN1=CODE 3 AND AT LEAST ONE OTHER CODE]

RANDOMISE CODES

SINGLE CODE

Q13a.

If you were making a journey of 100 miles or more as a driver that included travelling on England's motorways and major A-roads, which of the following vehicle engine/motor types would you most likely use? That is a journey in only one direction.

Please select one option only

DISPLAY CODES SELECTED AT SCN1 ASK THOSE WHO SELECT ONLY CODE 3 [BEV] AT SCN1 [SCN1=CODE 3 ONLY] SINGLE CODE

Q13b.

You said that in the last 6 months you only have personally driven a battery electric vehicle (BEV), if you were making a journey of 100 miles or more as a driver that included travelling on England's motorways and major A-roads, which of the following vehicle engine/motor types would you most likely use? That is a journey in only one direction.

Please select one option only

- 1. I would most likely use a battery electric vehicle (BEV)
- 2. I would not use a battery electric vehicle (BEV), I would rent a different engine/motor type vehicle
- 3. I would not use a battery electric vehicle (BEV), I would borrow a different engine/motor type vehicle.
- 4. I would not use a battery electric vehicle (BEV), for a reason other than listed above.
- 5. Other (please specify)

998. Don't know

ASK THOSE WHO SELECT MORE THAN ONE OPTION AT SCN1 [SCN1=CODE 3 AND AT LEAST ONE OTHER CODE]

Q14a.

What are the <u>main reasons</u> you would most likely drive a [ANSWER FROM Q13a] engine/motor vehicle if you were making a journey of 100 miles or more as a driver on England's motorways and major A-roads? That is a journey in only one direction.

Please select all options that apply

RANDOMISE CODES 1-8

MULTIPLE RESPONSE

- 1. Reliability of refuelling / charging stations
- 2. Availability of fuel / charging stations
- 3. Mileage range
- 4. Cost to run (e.g. fuel / charging)
- 5. Refuel / recharge time
- 6. Environmental impact
- 7. It is the vehicle I am most familiar with
- 8. Driving experience (e.g. comfort, noise, acceleration, space, luggage capacity)
- 9. Other reason(s) (please specify) [FIX]
- 998. Don't know [FIX] [EXCLUSIVE]

ASK IF CODES 2,3 OR 4 AREA SELECTED AT Q13B [Q13b=2 OR 3 OR 4]

Q14b.

What are the <u>main reasons</u> you would most likely drive a different vehicle engine/motor type other than a battery electric vehicle (BEV) if you were making a journey of 100 miles or more as a driver on England's motorways and major A-roads? That is a journey in only one direction.

Please select all options that apply

RANDOMISE CODES 1-7

MULTIPLE RESPONSE

- 1. Reliability of refuelling / charging stations
- 2. Availability of fuel / charging stations
- 3. Mileage range
- 4. Cost to run (e.g. fuel / charging)
- 5. Refuel / recharge time
- 6. Environmental impact
- 7. Driving experience (e.g. comfort, noise, acceleration, space, luggage capacity)
- 8. Other reason(s) (please specify) [FIX]

998. Don't know [FIX] [EXCLUSIVE]

ASK ALL

Q15.

If you were making a journey of 100 miles or more as a driver on England's motorways and major A-roads, which factors would be important to ensure you were confident driving a battery electric vehicle (BEV)? That is a journey in only one direction.

Please select all options that apply

RANDOMISE CODES 1-9

MULTI CODE

- 1. Number of available 50kW to 149kW battery electric vehicle (BEV) charging points on route
- 2. Number of available 150kW+ battery electric vehicle (BEV) charging points on route
- 3. Cost of charging the battery electric vehicle (BEV)
- 4. Impact weather conditions have on driving range
- 5. Driving range of battery electric vehicle (BEV)
- 6. Distance between charging locations
- 7. Ability to plan route in advance to include stops to charge
- 8. Ability to view locations of chargepoints on a map
- 9. Road signage for charging locations
- 10. Other factor(s) (please specify) [FIX]

998. Don't know [FIX] [EXCLUSIVE]

ASK THOSE WHO SELECTED MORE THAN 1 CODE AT Q15 [Q15>1 CODE SELECTED] SINGLE CODE

Q16.

Which is the <u>most important factor</u> to ensure you were confident driving a battery electric vehicle (BEV) if you were making a journey of 100 miles or more as a driver on England's motorways and major A-roads? That is a journey in only one direction.

Please select one option only RANDOMISE CODES 1-9 INSERT CODES SELECTED AT Q15 998. Don't know [FIX]

SHOW HALF OF SAMPLE SECTION 3b FIRST

SHOW TEXT

INCLUDE 'CONTINUE BUTTON' AT BOTTOM OF SCREEN

The next set of questions are about you driving a battery electric vehicle (BEV) on <u>motorways</u> in England.

ASK ALL

SINGLE CODE

Q17.

Imagine you were driving a battery electric vehicle (BEV) on a <u>motorway</u> in England, at what battery percentage (%) would you stop to charge the vehicle?

Please select one option only

- 1. 0% 4%
- 2. 5% 9%
- 3. 10% 14%
- 4. 15% 19%
- 5. 20% 24%
- 6. 25% 29%
- 7. 30% 39%
- 8. 40% 49%
- 9. 50% 59%
- 10.60% 69%
- 11. 70% or higher
- 998. Don't know

ASK ALL

MULTI CODE

Q18a.

Here are a few factors that people may consider when deciding to stop and charge a battery electric vehicle (BEV) on England's <u>motorways</u>. Which of the following do you consider most important when deciding to stop and charge?

Please select all options that apply

RANDOMISE ROWS 1-10

- 1. Number of available 50kW+ battery electric vehicle (BEV) charging points on route
- 2. Number of available 150kW+ battery electric vehicle (BEV) charging points on route
- 3. Specific chargepoint operators (e.g. InstaVolt, Tesla, BP Pulse, etc.)
- 4. Service area facilities
- 5. Choice of charge speed
- 6. Payment options
- 7. Cost per kilowatt
- 8. Availability of alternative or additional charging options near the chosen route
- 9. Availability of more than one chargepoint operator at or near the location
- 10. Distance from planned route/motorway
- 11. Other factor(s) (please specify) [FIX]
- 998. Don't know [FIX] [EXCLUSIVE]

ASK THOSE WHO SELECTED MORE THAN 1 CODE AT Q18a [Q18a>1 CODE SELECTED] SINGLE CODE

Q18b.

Which is the factor you consider <u>most important</u> when deciding to stop and charge a battery electric vehicle (BEV) on England's motorways?

Please select one option only
INSERT CODES SELECTED AT Q18a
RANDOMISE CODES 1-10

ASK ALL

SINGLE CODE

Q19.

Thinking about the current availability of battery electric vehicle (BEV) charging points on motorways in England, how confident or not would you feel driving a journey of 100 miles or more in a battery electric vehicle (BEV)?

ASK ALL

SINGLE CODE

998. Don't know

10 - Extremely confident

Q20.

Imagine you are using <u>motorways</u> in England to make a journey of 100 miles or more as a driver in a battery electric vehicle (BEV), what is the minimum number of battery electric vehicle (BEV) charging points you would need to find at a Motorway Service Area to feel confident you will be able to charge?

- 1. 1 2. 2
- 3. 3
- 4. 4 5. 5
- 6. 6
- 7. 7 8. 8
- 9. 9
- 10.10
- 11. 11 12. 12
- 12. 12 13. 13+
- 998. Don't know

SINGLE CODE

Q21.

How willing, or not, are you to leave a <u>motorway</u> when making a long distance journey as a driver of 100 miles or more in a battery electric vehicle (BEV) to charge in a nearby location such as a town, supermarket or retail park?

Please select one option only

- 1. Very willing
- 2. Fairly willing
- 3. Not very willing
- 4. Not at all willing

998. Don't know

ASK IF VERY WILLING OR FAIRLY WILLING AT Q21 [Q21=1 OR 2]

SINGLE CODE

Q22.

You said, if the battery electric vehicle (BEV) needed charging, you would be willing to leave the <u>motorway</u> to charge in a nearby location such as a town, supermarket or retail park. How far off the motorway would you be willing to drive in this situation?

Please select one option only

- 1. Less than a mile
- 2. 1 mile or more but less than 2
- 3. 2 miles or more but less than 3
- 4. 3 miles or more but less than 4
- 5. 4 miles or more but less than 5
- 6. 5 miles or further away

998. Don't know

ASK ALL

SINGLE CODE

 Ω 23

How long, if at all, would you be willing to queue at a Motorway Service Area to charge a battery electric vehicle (BEV)?

Please select one option only

- 1. 5 minutes or less
- 2. 6-10 minutes
- 3. 11-15 minutes
- 4. 16-20 minutes
- 5. 21-30 minutes
- 6. 31-45 minutes
- 7. 46-60 minutes
- 8. More than 60 minutes

998. Don't know

SINGLE CODE

Q24.

For how long, if at all, would you have to queue to charge a battery electric vehicle (BEV) at a Motorway Service Area for you to be having a poor recharge experience or feel your journey has been disrupted?

Please select one option only

- 1. 5 minutes or less
- 2. 6-10 minutes
- 3. 11-15 minutes
- 4. 16-20 minutes
- 5. 21-30 minutes
- 6. 31-45 minutes
- 7. 46-60 minutes
- 8. More than 60 minutes

998. Don't know

ASK ALL

SINGLE CODE

Q25.

Is the number of different chargepoint providers at the same location or very near the same location on England's <u>motorways</u> important to your decision to stop and charge a battery electric vehicle (BEV)?

Some examples of chargepoint providers include BP Pulse (Chargemaster), Chargeyourcar, Fastned, Geniepoint, Gridserve (Ecotricity), Instavolt, Ionity, Osprey/Engenie, Pod Point, Shell Recharge and Tesla.

Please select one option only

- 1. Yes Important
- 2. No Not important

998. Don't know

IF YES AT Q25 [Q25=1]

MULTI CODE

Q26.

What are the main reasons that <u>different</u> chargepoint providers on England's <u>motorways</u> are important?

Please select all options that apply

RANDOMISE CODES 1-7

- 1. I don't have all the provider applications
- 2. Some providers are more expensive than others
- 3. Some providers don't allow contactless payment
- 4. Some providers are easier to use than others
- 5. Some providers are more reliable than others
- 6. Some charging points might not work and need to use another provider
- 7. Some providers have shorter queues
- 8. Other reason(s) (please specify) [FIX]
- 998. Don't know [FIX] [EXCLUSIVE]

NUMERIC

Q27.

How many different chargepoint providers do you aim to see at, or very near, the same location on England's motorways?

Please type your answer in the box below

1. [TEXT BOX]

998. Don't know

SHOW HALF OF SAMPLE SECTION 3c FIRST

SHOW TEXT

INCLUDE 'CONTINUE BUTTON' AT BOTTOM OF SCREEN

The next set of questions are about you driving a battery electric vehicle (BEV) on <u>major A-roads</u> in England.

ASK ALL

SINGLE CODE

Q28.

Imagine you were driving a battery electric vehicle (BEV) on a <u>major A-road</u> in England, at what battery percentage (%) would you stop to charge the vehicle?

Please select one option only

- 1. 0% 4%
- 2. 5% 9%
- 3. 10% 14%
- 4 15% 19%
- 5. 20% 24%
- 6. 25% 29%
- 7. 30% 39%
- 8. 40% 49%
- 9. 50% 59%
- 10.60% 69%
- 11. 70% or higher
- 998. Don't know

ASK ALL

MULTI CODE

Q29a.

Here are a few factors that people may consider when deciding to stop and charge a battery electric vehicle (BEV) on England's <u>major A-roads</u>. Which of the following do <u>you</u> consider most important when deciding to stop and charge?

Please select all options that apply

RANDOMISE ROWS 1-10

- 1. Number of available 50kW+ battery electric vehicle (BEV) charging points on route
- 2. Number of available 150kW+ battery electric vehicle (BEV) charging points on route
- 3. Specific chargepoint operators (e.g. InstaVolt, Tesla, BP Pulse, etc.)
- 4. Service area facilities
- 5. Choice of charge speed
- 6. Payment options
- 7. Cost per kilowatt
- 8. Availability of alternative or additional charging options near the chosen route
- 9. Availability of more than one chargepoint operator at or near the location
- 10. Distance from planned route/motorway
- 11. Other factor(s) (please specify) [FIX]
- 998. Don't know [FIX] [EXCLUSIVE]

ASK THOSE WHO SELECTED MORE THAN 1 CODE AT Q29a [Q29a>1 CODE SELECTED] SINGLE CODE

Q29b.

Which is the factor you consider <u>most important</u> when deciding to stop and charge a battery electric vehicle (BEV) on England's major A-roads?

Please select one option only RANDOMISE CODES 1-10

INSERT CODES SELECTED AT Q29a

998. Don't know

ASK ALL

SINGLE CODE

Q30. Thinking about the current availability of battery electric vehicle (BEV) charging points on major A-roads in England, how confident or not would you feel driving a journey of 100 miles or more in a battery electric vehicle (BEV)?

Please select one option only

REVERSE SCALE FOR HALF OF RESPONDENTS

10 - Not at all confident

10

10

10

10

10

10

10 10

10

10 - Extremely confident

998. Don't know

ASK ALL

SINGLE CODE

Q31.

Imagine you are using <u>major A-roads</u> in England to make a journey of 100 miles or more as a driver in a battery electric vehicle (BEV), what is the minimum number of battery electric vehicle (BEV) charging points you need to find at or near a charging location to feel confident that you will be able to charge?

- 1. 1
- 2. 2
- 3. 3
- 4. 4
- 5. 5
- 6. 6
- 7. 7
- 8. 8
- 9. 9
- 10.10
- 11.11
- 12.12
- 13. 13+
- 998. Don't know

SINGLE CODE

Q32.

How willing, or not, are you to leave a <u>major A-road</u> when making a long distance journey of 100 miles or more as a driver in a battery electric vehicle (BEV) to charge in a nearby location such as a town, supermarket or retail park?

Please select one option only

- 1. Very willing
- 2. Fairly willing
- 3. Not very willing
- 4. Not at all willing

998. Don't know

IF WILLING (1 OR 2) at Q32

SINGLE CODE

Q33.

You said you would be willing to leave the <u>major A-road</u> to charge in a nearby location such as a town, supermarket or retail park. How far off the major A-road would you be willing to drive in this situation?

Please select one option only

- 1. Less than a mile
- 2. 1 mile or more but less than 2
- 3. 2 miles or more but less than 3
- 4. 3 miles or more but less than 4
- 5. 4 miles or more but less than 5
- 6. 5 miles or further away

998. Don't know

ASK ALL

SINGLE CODE

Q38.

How long, if at all, would you be willing to queue at a Service Area on a major A-road to charge a battery electric vehicle (BEV)?

- 1. 5 minutes or less
- 2. 6-10 minutes
- 3. 11-15 minutes
- 4. 16-20 minutes
- 5. 21-30 minutes
- 6. 31-45 minutes
- 7. 46-60 minutes
- 8. More than 60 minutes
- 9. 998. Don't know

SINGLE CODE

Q34.

For how long, if at all, would you have to queue to charge a battery electric vehicle (BEV) at or near a charging location on a <u>major A-road</u> for you to be having a poor recharge experience or feel your journey has been disrupted?

Please select one option only

- 1. 5 minutes or less
- 2. 6-10 minutes
- 3. 11-15 minutes
- 4. 16-20 minutes
- 5. 21-30 minutes
- 6. 31-45 minutes
- 7. 46-60 minutes
- 8. More than 60 minutes
- 9. 998. Don't know

ASK ALL

SINGLE CODE

Q35.

Is the number of different chargepoint providers at the same location or very near the same location on England's <u>major A-roads</u> important to your decision to stop and charge a battery electric vehicle (BEV)?

Some examples of chargepoint providers include BP Pulse (Chargemaster), Chargeyourcar, Fastned, Geniepoint, Gridserve (Ecotricity), Instavolt, Ionity, Osprey/Engenie, Pod Point, Shell Recharge and Tesla.

Please select one option only

- 1. Yes Important
- 2. No Not important

998. Don't know

IF YES AT Q35 [Q35=1]

MULTI CODE

Q36.

What are the main reasons that <u>different</u> chargepoint providers on England's <u>major A-roads</u> are important?

Please select all options that apply

RANDOMISE CODES 1-7

- 1. I don't have all the provider applications
- 2. Some providers are more expensive than others
- 3. Some providers don't allow contactless payment
- 4. Some providers are easier to use than others
- 5. Some providers are more reliable than others
- 6. Some charging points might not work and need to use another provider
- 7. Some providers have shorter queues
- 8. Other reason(s) (please specify) [FIX]
- 9. Don't know [FIX] [EXCLUSIVE]

ASK ALL

NUMERIC

Q37.

How many different chargepoint providers do you aim to see at, or very near, the same location on England's major A-roads?

Please type your answer in the box below

1. [TEXT BOX]

998. Don't know

Our standards and accreditations

lpsos' standards and accreditations provide our clients with the peace of mind that they can always depend on us to deliver reliable, sustainable findings. Our focus on quality and continuous improvement means we have embedded a "right first time" approach throughout our organisation.



ISO 20252

This is the international specific standard for market, opinion and social research, including insights and data analytics. Ipsos UK was the first company in the world to gain this accreditation.



Market Research Society (MRS) Company Partnership

By being an MRS Company Partner, Ipsos UK endorse and support the core MRS brand values of professionalism, research excellence and business effectiveness, and commit to comply with the MRS Code of Conduct throughout the organisation & we were the first company to sign our organisation up to the requirements & self-regulation of the MRS Code; more than 350 companies have followed our lead.



ISO 9001

International general company standard with a focus on continual improvement through quality management systems. In 1994 we became one of the early adopters of the ISO 9001 business standard.



ISO 27001

International standard for information security designed to ensure the selection of adequate and proportionate security controls. Ipsos UK was the first research company in the UK to be awarded this in August 2008.



The UK General Data Protection Regulation (UK GDPR) and the UK Data Protection Act 2018 (DPA)

Ipsos UK is required to comply with the UK General Data Protection Regulation (GDPR) and the UK Data Protection Act (DPA). These cover the processing of personal data and the protection of privacy.



HMG Cyber Essentials

Cyber Essentials defines a set of controls which, when properly implemented, provide organisations with basic protection from the most prevalent forms of threat coming from the internet. This is a government-backed, key deliverable of the UK's National Cyber Security Programme. Ipsos UK was assessed and validated for certification in 2016.



Fair Data

Ipsos UK is signed up as a "Fair Data" company by agreeing to adhere to twelve core principles. The principles support and complement other standards such as ISOs, and the requirements of data protection legislation.

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About Ipsos Public Affairs

Ipsos Public Affairs works closely with national governments, local public services and the not-for-profit sector. Its c.200 research staff focus on public service and policy issues. Each has expertise in a particular part of the public sector, ensuring we have a detailed understanding of specific sectors and policy challenges. Combined with our methods and communications expertise, this helps ensure that our research makes a difference for decision makers and communities.

