

EV charging challenges:

Drivers' experiences on motorways and major 'A' roads

May 2025



Foreword

With a growing number of electric vehicles on our roads, it is essential to ensure users' needs are well met. One aspect of the driving experience many find particularly challenging is charging, or attempting to charge, their vehicle along England's motorways and major 'A' roads.

Our research provides valuable insights and highlights that the difficulties users face go beyond the number of available charge points. Even when operational, charging devices can be unreliable; delivering below the expected speed or power. The environment surrounding the charge point; the clarity and transparency of the information provided and perceptions of value for money all impact a charge point user's experience and help drive an overall satisfaction rating of just 68 per cent.

An important part of Transport Focus's business plan is championing road users' needs when charging an electric vehicle along the strategic road network. Our aim is to see all electric vehicle users enjoy a more seamless experience and we will soon be publishing further research exploring the changes and interventions drivers believe will have the greatest impact in addressing



their challenges. As the rollout of the charging network continues at pace, these are important considerations in improving satisfaction levels - not just for the introduction of new charging sites but also for the existing infrastructure.

Sadly, we know that the difficulties motorists experience in these areas disproportionately affect several key groups. Women, disabled people, drivers on longer journeys and users new to electric vehicles all have specific needs which are not always well met by the current electric vehicle charging infrastructure.

As the adoption of electric vehicles continues to rise in future, and the profile of the population evolves to include more motorists from these key user groups, addressing the challenges is crucial to fostering a more inclusive and user-friendly experience for all users.

We recognise that disabled users' needs in particular must be better met than is currently the case, especially if this user group are not to be left behind in the transition to electric vehicles. We will be conducting more

work into this area as we focus on helping to improve a situation which currently offers inadequate accessibility provision for disabled drivers when charging.

Transport Focus is committed to working in collaboration with key partners across industry, advocacy groups and government. In this way, we can help drive much needed improvements in satisfaction and shape a charging infrastructure that all electric vehicle users can feel confident to use.

Louise Collins

Director Transport Focus

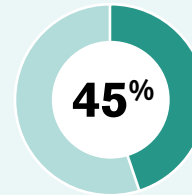
Stopping to charge

Our insight highlights that for most electric vehicle drivers, charging is a critical moment when using England's motorways and major 'A' roads.

One third of electric vehicle (EV) drivers stopped to top up their battery as a precaution, while 45 per cent would have been unable to travel much further on their journey without stopping to charge.

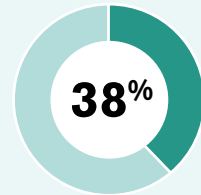
Furthermore, charging their vehicle was the primary purpose for stopping for two thirds of EV drivers when visiting a Motorway Service Area (MSA), a more common reason than using the toilet facilities, purchasing food and drink or using other on-site amenities.

Importance of charging stop for EV drivers



Critical

Could not have driven much further without charging



Important

Could have driven further but wanted to top up

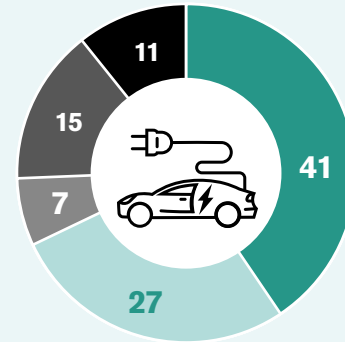
Reason for stopping at this chargepoint, Electric Vehicle Charging Survey, August 2023 - March 2024. Base: All who attempted to charge at site (321)

EV driver satisfaction could be improved

Only two thirds of the respondents we spoke to were satisfied with the charging experience on their strategic road network (SRN) journey with 26 per cent, or one in four drivers, fairly or very dissatisfied.



EV drivers' overall satisfaction with their charging experience (%)



Very satisfied



Fairly dissatisfied



Fairly satisfied



Very dissatisfied



Neither satisfied not dissatisfied

Overall satisfaction, Electric Vehicle Charging Survey, August 2023 - March 2024. Base: Among all who made a charge (274)

Factors influencing satisfaction when charging

There are a number of factors that can influence how satisfied EV drivers feel when charging on the SRN. The reliability and availability of charge points were the main issues for EV drivers. However, speed of charge, ease of use and the environment at the site were also key differentiators.



Factors influencing satisfaction with the EV charging experience on the SRN



Operational reliability



Availability of device/wait time to start using



Speed or power delivered in practice



Overall ease of use

Including accessibility, payment mechanisms, connecting vehicle and device



Environment at the site



Value for money

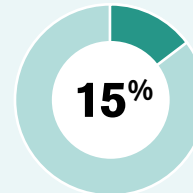
These factors are presented in order of how strongly they link to overall charging satisfaction. This ranking was determined using qualitative “free text” feedback in the survey, and by comparing differences in satisfaction amongst those who rated these factors well and less well. Electric Vehicle Charging Survey, August 2023 - March 2024.

Number of working chargepoints

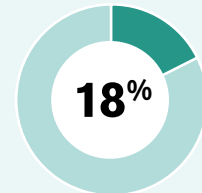
Availability and reliability of chargepoints were key concerns that ultimately determined whether an EV driver had a good or bad experience when charging. Drivers often expressed concerns about the inadequate number of chargepoints at the site they visited. In particular, the number of chargepoints which were working was an issue for drivers. Eighteen per cent of motorists we spoke to had left at least one earlier chargepoint site without charging - most often because the chargepoint was out of order.

Many of those drivers who reported a positive experience attributed it to being fortunate enough to find a working chargepoint without the need to queue. While queuing is sometimes expected, drivers want to see this managed properly in order to improve their experience.

Chargepoint reliability



Failed to charge at surveyed site



Tried a different charging site prior to this one and had not been able to charge there

% of respondents who failed to charge. Electric Vehicle Charging Survey, August 2023 - March 2024. Base: All who attempted to charge at site (321)

"The number of EV chargepoints [needs improving]. One chargepoint was not working and others were full. Had to wait 30 mins to get to a chargepoint."

Factors impacting satisfaction when charging

"Given all chargers were in use, people were queuing, but as there's no system, it was impossible to tell who was next, so folks were getting frustrated."

"It is totally inadequate to only have one charger with only one Combined Charging System connector. I had to wait ages for the previous driver to finish charging early at 85%. Countless electric car drivers came past and seeing I was waiting gave up and drove off. One gentleman decided to risk getting home with only a mile to spare."



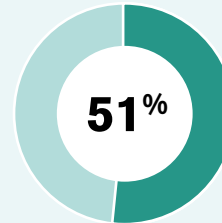
Speed of charge and value for money

Another factor that plays an important part in the length of time it takes to charge an EV is the speed or power of the device - particularly when this does not meet drivers' expectations or the chargepoint fails to deliver as advertised.

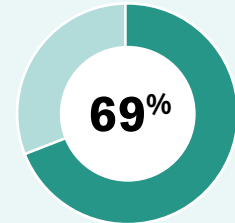
EV drivers do not want to, or often cannot, wait for a significant amount of time to charge. Disappointingly only half of those surveyed rated the information they were given about the speed of the device to be good. These problems are likely to be a key factor in determining motorists' overall experiences in this area. They are also a key driver of their perceptions of value for money which was rated at just thirty-five per cent for drivers.

"I will be late for a meeting as took too long to charge. Was expecting 150kwh but actual was 32kwh."

Speed of charge



Information on speed of device



Charge power delivered in practice

% 'good' or 'very good', Electric Vehicle Charging Survey, August 2023 - March 2024. Base: All rating information on speed of device for those who used the information (221), Charge power delivered in practice (274)

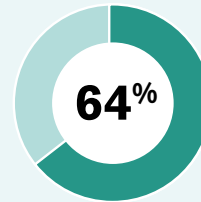
"Only pulling 83 on a 150kw machine. Not one single other car here! Very poor like paying for an expensive glass of wine and it is rubbish quality."

Overall ease of use and chargepoint environment

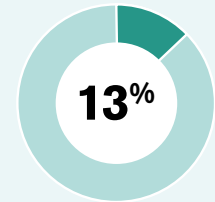
Further issues, including connection problems and difficulty making payments, were also encountered by EV users. This resulted in frustration, uncertainty and extended journey times for those drivers who experienced difficulties.

Our research highlighted that this is an area where there are significant opportunities to improve the experience for EV motorists. EV drivers often spend extended time at, and around, the chargepoint and surrounding area and satisfaction is low. The expectation of these problems force motorists to make extra effort when planning their trips and their charging stops along their route.

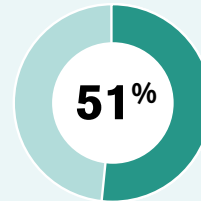
Chargepoint environment



Environment around chargepoint



Shelter provided



Signage to chargepoint from main road

% 'good' or 'very good'. Electric Vehicle Charging Survey, August 2023 - March 2024. Base: All rating information on Environment around chargepoint (274), Shelter provided (206) and Signage from main road (206)

Factors impacting satisfaction when charging

"When it rains the contact pads get wet and sometimes don't work properly. I think they need covers to keep the pads dry and maybe for the drivers too."

"Better signage for the right chargers. [I need help with] finding the right plug and need proper information about that."

"Nothing happened after going through plug in process - not sure if I have been charged for nothing yet."

We are still fairly early in the transition to electric vehicles but given the government's commitments to zero emissions targets, many more people will be planning to make the switch in the next few years. Currently, electric vehicle charging can be an unpredictable experience and this has implications in how confident new or potential EV drivers feel to make the move to using an electric vehicle.

While there needs to be a continued focus on expanding the charging network, it is equally crucial that the existing infrastructure is well-maintained and reliable. Providers must therefore ensure they are keeping pace with EV drivers' current and evolving needs at motorway or major 'A' road chargepoints.



EV user satisfaction with roadside facilities

EV drivers tend to spend more time at roadside facilities than those motorists with a petrol or diesel vehicle. Usually the longer time a customer spends at a MSA the better their overall experience, but this is not the case for EV drivers. EV drivers are less satisfied with their visits to MSAs than other visitors.

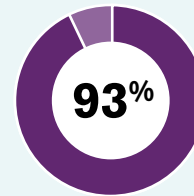
Unlike other motorists who choose to stay for longer, EV drivers do so out of necessity. Whether a vehicle is electric or not should have no bearing on how drivers experience other aspects of a MSA's facilities. However, the experience of EV charging is such a dominant factor that a negative charging experience colours all other aspects of a user's visit.

Visitors who drove an EV felt less valued than other visitors. Half of the EV drivers we surveyed felt that charging provision should be improved at the MSA they visited. This might explain why EV drivers were less satisfied across a range of touchpoints including: the level of cleanliness and the range of facilities provided and that overall roadside facilities fell short of meeting

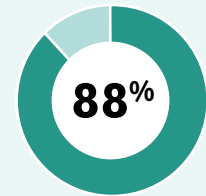
EV drivers' expectations.

MSA operators must consider the potential negative impact this growing group of customers may have on wider sentiment about their service areas and seek to address their needs.

Overall satisfaction with MSA visit by vehicle type



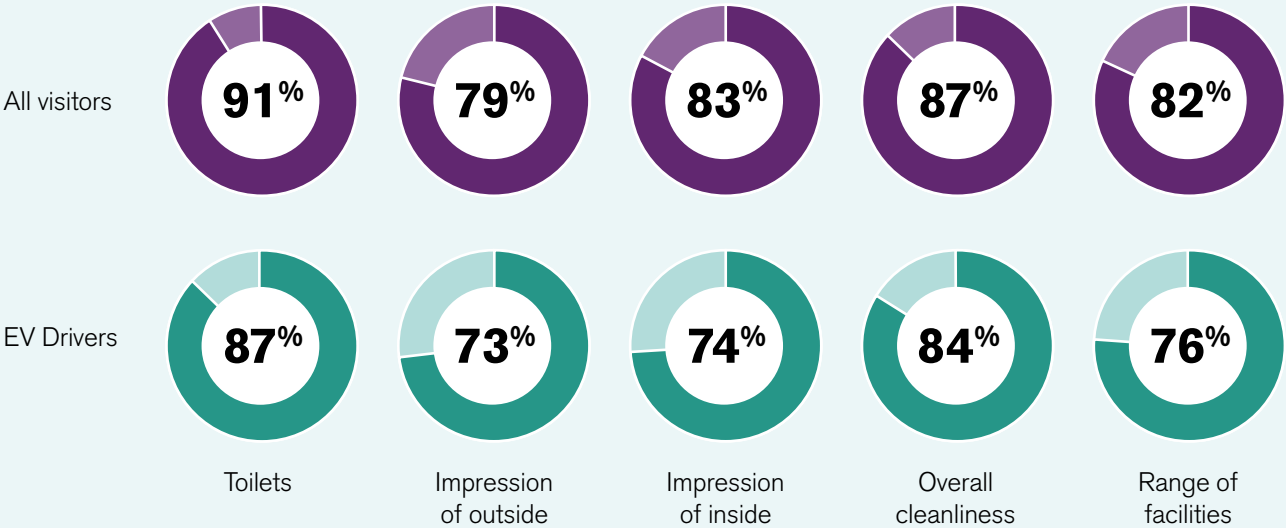
All visitors



EV drivers

Overall satisfaction with visit (% 'very good' or 'good').
Motorway Services User Survey 2023.
Base: All visitors (11,258) and EV (665)

Visitor satisfaction at Motorway Service Area by vehicle type



% 'very good' or 'good'.

Motorway Services User Survey 2023. Base: All visitors Toilets (9473) and EV (535), All visitors Impression outside (11,225) and EV (664), All visitors Impression inside (11,231) and EV (664), All visitors cleanliness (11,172) and EV (657) and All visitors Range (11,036) and EV (652)

Risk of overlooking key user groups

Our insight highlights four key groups of drivers who could be left behind in the transition to electric vehicles without deliberate efforts to accommodate them.

Female drivers

Although EV drivers are currently more likely to be men, the number of female EV drivers is growing and their needs and concerns can differ from each other.

While the main drivers of satisfaction and dissatisfaction are similar, female drivers show greater sensitivity to the chargepoint environment. This includes its upkeep, shelter and other amenities. Our insight also indicates lower satisfaction ratings for aspects such as lighting and safety, and that a larger number of female drivers encountered difficulties when charging. There was also a larger proportion of women than men who failed to charge their vehicle and they were also more likely to report being unwilling, unable or uncomfortable to wait for chargepoints to become available.

Queuing systems may, therefore, benefit women in particular to feel more comfortable when waiting to charge their EV.



"...some very aggressive vehicle owners demanding we left our chargepoint saying we had charged our vehicle sufficiently and needed to move on to let him in ...Threatened two females in our vehicle. I do feel though, that if there were more chargepoints it would ease driver frustrations."

New or less experienced drivers

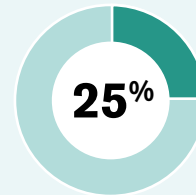
Drivers new to using an EV were less likely to successfully charge their vehicle on their first attempt.

When they did succeed in charging their vehicle, novice drivers were more often found to be satisfied with their charging experience than those drivers who had used an EV for longer.

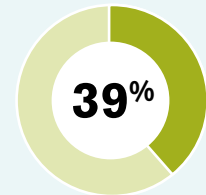
However, beneath their overall satisfaction levels there are indications that inexperienced drivers find the process less smooth overall. Novice EV drivers are not as positive about the ease of starting and paying for the charge, achieving a good charging speed, and the accessibility of the chargepoint location. They are also more likely to rely on any available information and seek help.

Over the next 5 years we can expect many more new EV drivers with little experience of charging an EV on the strategic road network.

Failed to charge at one or more sites on this occasion



Experienced
(used EV more than 1 year)



Novice
(used EV less than 1 year)

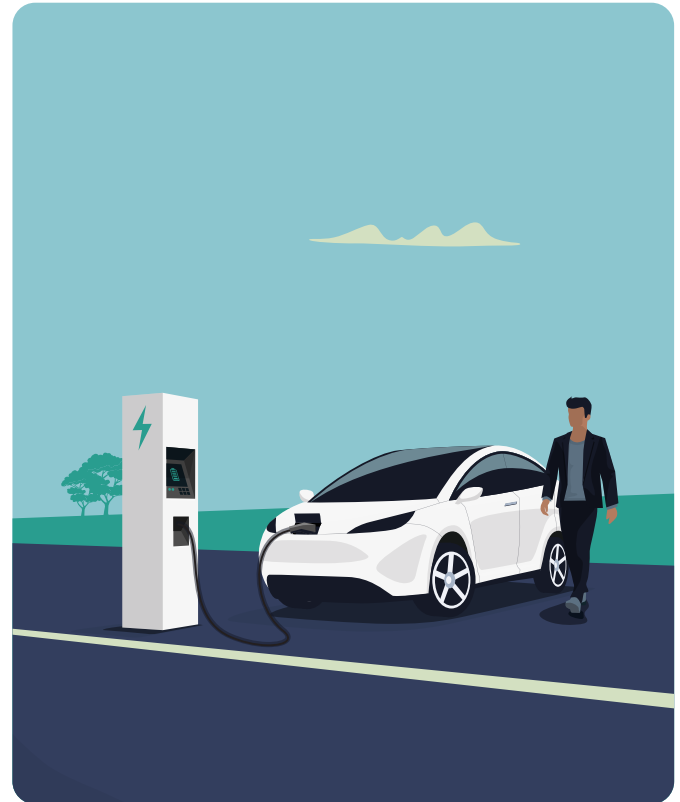
% of users attempting a charge, Electric Vehicle Charging Survey, August 2023 – March 2024. Base: All attempting charge Experienced/used EV more than 1 year (209) and Novice/used EV for less than 1 year (112)



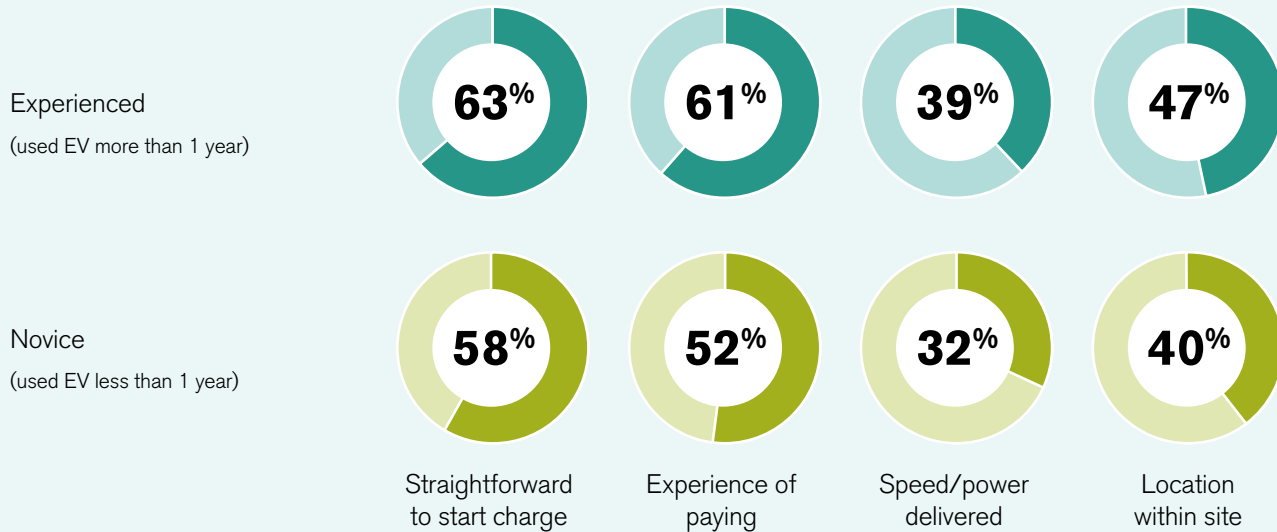
While EV drivers were once 'early adopters', this inherently enthusiastic, expert group will become ever more diluted. It is therefore important to understand their needs so new drivers have better experiences in future.

"The app is a problem. I can't cope with IT things, [they] need to be simplified for the elderly [like me]. Someone to help would be great."

"Just purchased [my EV] and not sure about how to charge but a guy there helped me."



Views on charging experience by EV driver experience



% 'very straightforward'/'very good'/'very satisfied'. Electric Vehicle Charging Survey, August 2023 - March 2024. Base: Experienced/used EV more than 1 year (184), and Novice/used EV for less than 1 year (90)

Long-distance drivers

As battery ranges improve and EV usage grows, average trip lengths will likely increase with people able to drive further before recharging. Our research already shows evidence of this with the journey time spent before stopping increasing from 71 minutes (2017 to 2020) to 85 minutes (2022 – 2023). This brings EV drivers' trip lengths more in line with those of all car drivers who in 2022-2023 spent on average 88 minutes travelling before stopping.

When vehicle batteries are running very low the stakes for users at chargepoints are higher. This may account for why those EV drivers on longer journeys have considerably lower satisfaction levels than those on shorter journeys.

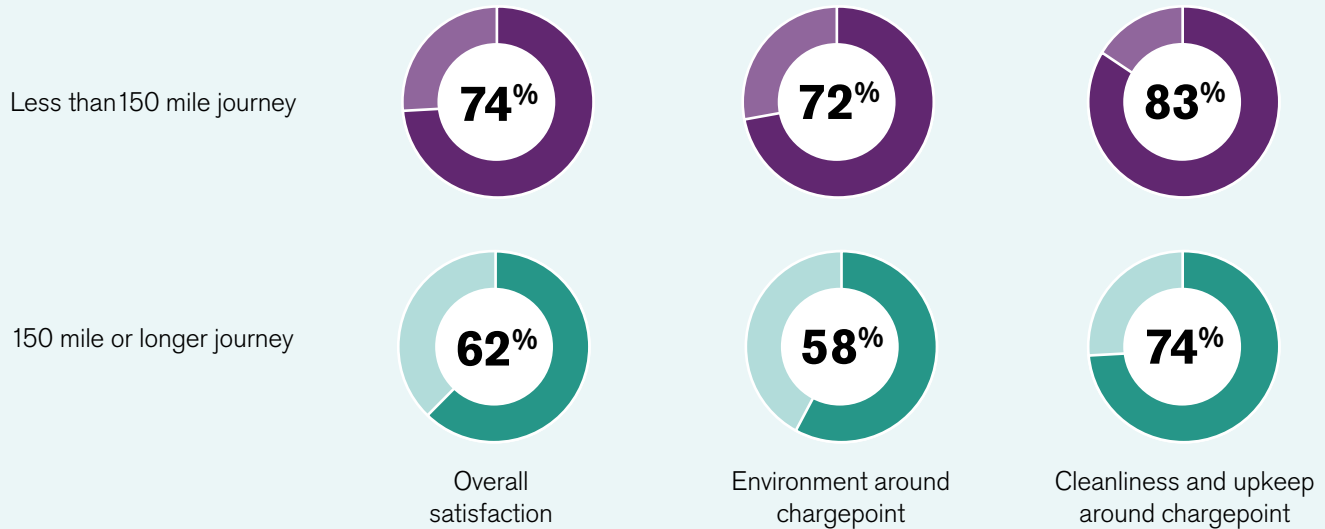
The key areas of chargepoint availability, reliability and charging speed are clearly critical factors in determining these EV drivers' satisfaction levels. However, the surrounding environment and its upkeep

are also especially important for this group given the majority (70 per cent) of those on longer journeys are travelling with others. It is important that their passengers' needs are also considered if their overall satisfaction is to improve.

"Despite paying for ultra fast charge (50kw) we only received 25kw. It doubled our stop time on an already long six-hour journey and we have been charged for a speed we didn't get."

"The supposedly faster chargers were all working at 22kwh ... a real problem as we have a long journey to the North of Scotland..."

Overall satisfaction and views on chargepoint environment by journey length



% 'very satisfied' or 'satisfied' (Overall satisfaction) and % 'very good' or 'good' (Environment around chargepoint/Cleanliness and upkeep around chargepoint), Electric Vehicle Charging Survey, August 2023 - March 20224. Base no more than 150 miles (147), less than 150 miles (127)

Disabled drivers

Our surveys suggest that at least 10 per cent of drivers stopping to use a SRN chargepoint are disabled (or have a disabled person within their party). Though a relatively small group now, it's important to recognise that many of these drivers are often overlooked, given the lack of available accessible chargepoints and infrastructure.

Overall disabled EV drivers were more likely to report lower feelings of safety. This may be as much about the pathways (or lack of) between the charging areas and service station buildings, as about the feeling of safety in the chargepoint locations themselves. Our insight highlights common themes for improvement:

- distance of chargers from the facilities building
- accessibility of charging bays and devices
- safety on the site.



"Toilets for disabled are very far to walk, I'm done in walking that far. It would be good if charging points were nearer an entrance also."

As electric vehicle ownership increases and the profile of users broadens, this group of drivers is only likely to grow. More than a fifth of the UK population has a disability, and up to half of all road users are expected to be reliant on [public charging infrastructure by 2035](#). Additionally, there will be growing accessibility needs among an increasingly ageing population. The number of those aged 65 and over is projected to rise from one in [six to one in four by 2050](#).

Their accessibility needs, at and around chargepoint devices, must be 'designed in' as the charging infrastructure expands and develops or there is a significant risk that disabled road drivers are excluded or left behind in the transition to EV.

"...[this] charger is designed for vehicles with charge port at front or rear of vehicle. While it is possible to pull out the ...cable to connect with a chargepoint on the side of the vehicle (as mine is) the mechanism is very heavy and difficult to align. Anyone who is not able bodied or below normal strength struggle[s] greatly."



Research method

This report highlights some key findings in our knowledge and insight to date about the experiences of EV drivers on the SRN.

We drew on findings from the following three pieces of insight:

Electric Vehicle Charging Survey

- In partnership with Zapmap, EV drivers were invited to feedback about their experience of charging, at the point of 'checking in' on their Zapmap app, at chargepoint locations on the SRN. The online survey asked about all aspects of this specific charging occasion.
- The survey of 321 SRN-based chargepoint users ran from August 2023 to March 2024.
- [Survey results are available our data hub.](#)

Strategic Roads User Survey

- The [Strategic Road User Survey](#) is the formal measure of user satisfaction for those driving on England's motorways and major 'A' Roads.

- Households within a representative sample of England's driving population are sent a letter inviting them to take part online.
- The survey asks about various aspects of the journey experience, focussing on a specific road within a recent journey.
- It has run continuously since April 2018; this report uses feedback from April 2022 to March 2024, from 460 EV drivers.

Motorway Services User Survey

- Visitors at all motorway service stations in England (and some in Scotland and Wales) are surveyed face to face, with optional extended questions online, about all aspects of their visit.
- The [Motorway Services User Survey](#) was conducted in 2017 - 2020; 2022 and 2023. This report uses feedback from 2022-2023, from 668 EV drivers.

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Transport Focus is the operating name of the Passengers' Council

Transport Focus

The voice of Britain's transport users

We listen to the public and find out their experience of using, or trying to use, Britain's railways and England's buses, coaches, trams and motorways and major 'A' roads.

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