Plugging the gap: drivers' experiences with electric cars

September 2021

transportfocus

Foreword

As reaffirmed in the Government's *Decarbonising Transport: A Better, Greener Britain* plan, sales of new petrol and diesel cars and vans will end in 2030. As part of our work representing the interests of users of England's motorways and major 'A' roads, Transport Focus wanted to understand what those already driving electric vehicles like about them and what they want to see improved.

In this document we summarise the findings of our qualitative research. We found that, overall, those who have an electric vehicle tend to love the experience and are committed to this type of vehicle. However, they say that using an electric vehicle requires more effort and they have identified improvements that would help minimise that extra effort:

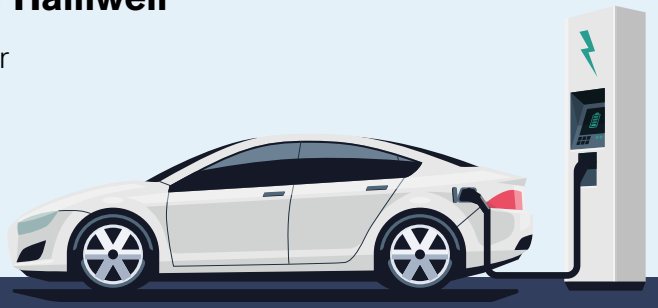
- maintaining the existing charging infrastructure properly and expanding it to meet increasing demand
- simplifying and improving information available to plan trips and help road users manage the charge in their battery
- tackling complexity arising from there being multiple providers of charging infrastructure.

We used these findings to inform our response to the Office for Zero Emissions Vehicles (OZEV) consultation on the consumer experience at public electric vehicle chargepoints[1]. It is reassuring that many of the issues we identified are covered by the proposals on which OZEV has consulted. I hope the findings are also useful to the charging infrastructure industry, vehicle manufacturers and National Highways (the new name for Highways England).

Transport Focus is currently developing plans to measure satisfaction with the charging experience on the motorways and major 'A' roads managed by National Highways. We know from our work in other sectors that this type of satisfaction benchmarking is powerful at bringing increased focus on the customer experience. Improving the experience when charging up away from home will be key to encouraging consumers to have the confidence to switch to an electric vehicle.

Jeff Halliwell

Chair



[1] https://www.gov.uk/government/consultations/the-consumer-experience-at-public-electric-vehicle-chargepoints

Summary of key findings

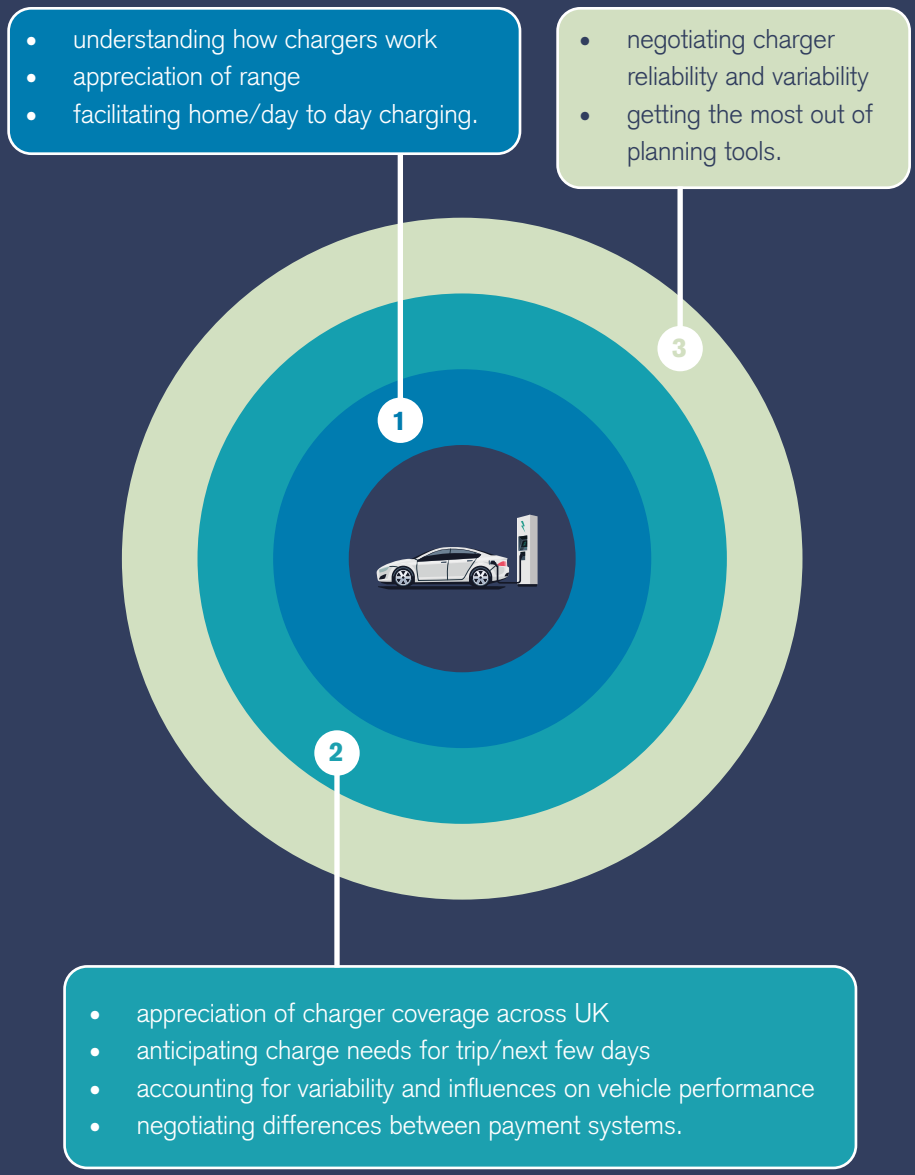
Electric vehicles bring benefits and even enjoyment to their users. People tend to love their vehicles for three main reasons:

- the running cost in comparison with petrol or diesel
- they give a calmer, quieter, more enjoyable driving experience
- the environmental benefit, although this is dwarfed by cost savings as a factor.

But using an electric vehicle requires more effort than using a petrol or diesel vehicle. While not insurmountable, the extra effort required centres on:

- practical issues around using public chargepoints including payment arrangements
- planning trips and managing the charge in the battery.

The layers of greater effort include...



Those who currently have an electric vehicle tend to be engaged, willing to put in the extra effort and are reasonably confident with technology. Nevertheless even they get caught out by things like incorrect information or not having the right app. Current users would like to see improvements, but are not put off by the challenges. It is important to recognise that as electric vehicle use extends beyond the committed 'early adopters' the extra effort required may become a problem for consumers unless efforts are made to reduce it.

The areas where road users feel work is required to reduce that extra effort are:

- properly maintaining the charging infrastructure and expanding it to meet increasing demand
- simplifying and improving information available to plan trips and help road users manage the charge in their battery
- tackling complexity arising from there being multiple providers of charging infrastructure.

Disabled users of electric vehicles who charged them at home are pleased that they no longer need to use petrol stations. They want public chargepoints to be designed from the outset with their needs in mind, rather than requiring retrofitting later to make them fit for purpose.

> "The planning took about an hour and even then I made a mistake and didn't realise until the charger I was planning to use was showing on the wrong side of the motorway! I had to travel to the next junction, get back on the other side of the motorway and go to the services where the charger was, then travel to the next junction, come off the motorway again and then back on the other side!"
>
> Female, 45, 1-2 years EV user

The experience on the ground

Most of the time charging at a public chargepoint is straightforward, but there can be problems that cause frustration that spoils a journey. There is a sense that the occasional negative experience, coupled with word of mouth or media stories, creates nervousness around reliability. In some cases it can result in people avoiding certain types of trip in an electric vehicle and opting to use an internal combustion engine option instead.

Problems with public chargepoints can be categorised under three headings:

- reliability
- complexity
- physical.

> "My feelings about using public chargers? Wonderful sailing on a beautiful sea, but with hidden, unexpected rocks."
>
> Female 62, 5+ years EV user

> "It has caused me a little bit of anxiety and nervousness... I'm not 100% sure how it's going to work out... I haven't had one fail on me yet but... you do read some horror stories when you look at Facebook."
>
> Male, 45 years, EV user for less than 6 months

Typical **reliability** problems fall into three categories, illustrated below:

- faults
- dependency on an app
- customer support.

Electric vehicle users experience occasional faults themselves. But they also see first-hand, on apps or online, faults that were reported months earlier that have not been addressed (or are not confirmed as having been addressed). This leads to an underlying 'will it be working?' nervousness. There seems to be a particular problem with chargers that appear to have a fault but actually need a simple reset. This is perceived to happen when somebody needs to stop a charge before it is complete. There is a sense that there must be a better way to do these 'emergency stops' without requiring the charger to be reset before the next person can use it – or making it clear how the next user can do the reset themselves.

In terms of apps, simply having to have different apps depending on the provider where you are charging is an irritation. But users also say that it isn't uncommon for an app not to 'talk' properly to the charger.

On customer support, a key observation is that the roads and the charging infrastructure are usually available 24 hours each day – but the customer support often isn't.

Despite these points, there is a general feeling that reliability is improving – as is the number of chargepoints available. There remain unhelpful gaps in provision but finding a chargepoint seems to be less of an issue for electric vehicle users than it is perceived to be by those driving petrol or diesel vehicles. Electric vehicle users want charging infrastructure capacity to keep pace with increased uptake, but ensuring the reliability of chargepoints is just as important to them as the overall number installed.

"So preferably I'd be looking at the better networks that I know are more reliable... even if they're slightly more expensive, reliability is key. You don't really want to be pulling up to a charger that doesn't work and having to find another one."

Male, 44 years, 1-2 years EV user

The experience among Tesla users is notably different with less effort and frustration reported because of widely available and reliable charging. Road users recognise that this is a premium versus standard product situation. Nevertheless, from the user perspective Tesla's charging infrastructure sets a benchmark for the rest of the industry to emulate.

Driven partly by how much cheaper electric motoring is overall, some are clear that they would be willing to pay a bit more to ensure the reliability of the infrastructure.

"There's so many chargers now that you can... choose to stop... depending on how hungry you are, what time of day it is, what the traffic is like."

Female, 62, 5+ years EV user

When it comes to **complexity**, road users want charging a car, including the payment process, to be as easy as buying petrol or diesel. Or easier – ideally with the charger detecting who you are and billing you behind the scenes (as they know is possible for Tesla customers). As a minimum, users want straightforward payment by contactless bank card. There is a sense that the public charging network is overly complicated because there are multiple providers. Road users did not argue that there should be a monopoly, but they did say that the consumer experience should be simplified. Buying and paying for petrol or diesel is generally not complex, despite there being multiple providers in the market.

"The ideal would be that your car would be registered and you would plug in... [and] the machine would go, "oh! It's this car with this reg so we'll bill this account". But... a solid win is always... to just pay by card, like at a petrol station."

Female, 35, 6-12 months EV user

The **physical** issues relate to where chargers have been installed at a site. It is perceived that they have been 'stuck in' wherever there was space and often without much thought for the user experience. There are two themes – location and access.

Those around **location** include:

- concerns about personal security when chargers are 'tucked away' at the periphery of a site, often with poor lighting
- concerns about being out in the rain charging your car, whereas a canopy is provided to keep those buying petrol or diesel dry.

Those around **access** include:

- physically finding the chargepoints within a large car park, partly because signs are felt to be less good than to petrol/diesel pumps
- sometimes sharing the space with other facilities, for example for air and water top up
- sometimes being on private land which can be closed off 'out of hours'
- sometimes located in awkward spots which are difficult to manoeuvre into or out of.

"My big problem... is that it is all too often one chargepoint in the back of a car park with no lighting. And as a woman that is quite intimidating, it's a very scary situation."

Female, 35 years, 6-12 months EV user

"The charger was in the same place where you would... pump up tyres and refill your water... so if anybody was using that... I wouldn't be able to charge. But also I was sat there for 15-20 minutes... [so] they wouldn't have been able to [use air and water]... definitely... not thought out there."

Female, 45 years, 1-2 years EV user

"Unlike petrol stations which tend to have a big canopy, there is little shelter considered for EV owners while charging... when it's pouring down it's not a fun experience. The same can be said for lighting – in winter or at night it's not easy to locate charge ports and deal with chargers."

Male, 44 years, 1-2 years EV user

What makes the experience good, bad and somewhere in the middle?

Electric vehicle users are positive about public charging when:

- it works first time
- it is straightforward
- it is tethered (that is, they don't need to bring their own cable)
- they can plug, tap and go
- it's a familiar brand. (familiar = knowing how to do it)
- there's no queue, or a short queue, to use the chargepoint
- paying is easy
- the car charges fast.

On most occasions it's basically fine, but with small irritations:

- needing multiple apps and/or payment cards
- straightforward in the end, but planning/finding it has been challenging
- there is no redress even though there was an operational issue
- there was a problem, but the telephone support was good
- location of the chargepoint leads to personal security or other concerns
- they get wet plugging in while those buying petrol and diesel stay dry.

They are negative when:

- they can't connect/disconnect
- the charge fails
- charger spaces are blocked (by internal combustion engine vehicles but also inconsiderate electric vehicle users)
- there's a problem and telephone support is not available or doesn't answer quickly
- using the charger and/or paying is complicated.

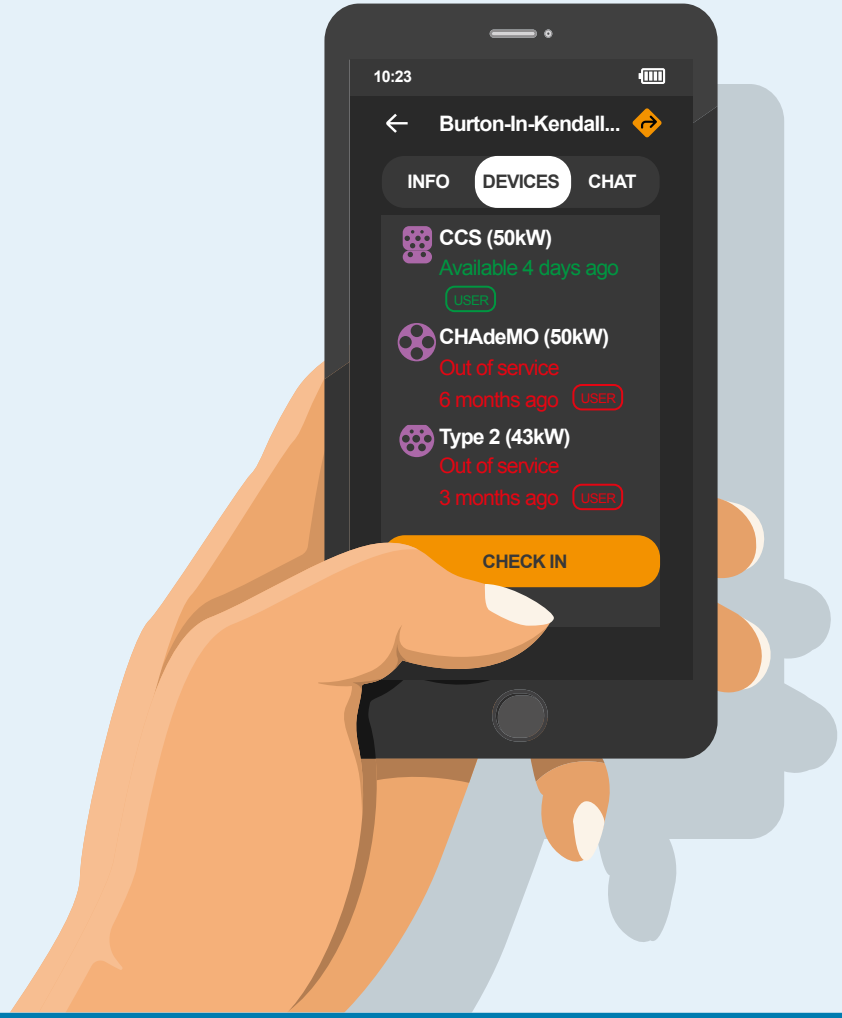
Information to plan journeys and manage the battery charge

Managing the charge in a battery and planning where to recharge is supported by useful, easily accessible information tools. As a result, most of the time this works well. However, consumers do encounter problems and the task can be complex.

Users' key priorities for improvement are:

- More accurate and comprehensive charger location data. This is driven by users discovering chargepoints that aren't listed and finding listed chargepoints that are not actually available to the public. Some people reported using more than one app to be sure they had the full picture.

> "The fact I'm having to use two different apps makes no sense at all. What would really do it for me is if that whole process was actually built into the car's sat nav system. Currently... my [sat nav] has got charging points on it, but there's no live data. It just tells you where some of the chargepoints are [not] if they're working or even what speed they're charging at."



- Up to date – and ideally real-time – chargepoint status information. This is driven by the need for confidence that you are heading for one that is going to be working and that nobody else is currently using it.
- Better tools to estimate the remaining charge in a battery. Users would value being able to factor in things like the weather (for example, needing to have the heating on full blast if it's snowing), weight of luggage and passengers, wind resistance with bikes on the roof or gradients on the route. While possible now if you work hard and use a combination of apps, users would welcome their car's onboard system making suggestions about where to stop, using this information and real-time knowledge of the location of working chargepoints.

> "But can you see it's out of service? Six... three months ago... it's really frustrating that either this has not been updated and they are in service – but I can't take the chance on that – or that it... still hasn't been fixed."
>
> Female, 45 years, 1-2 years EV user

Looking to the future

Electric vehicle users are cautiously optimistic about the future in which new petrol and diesel vehicles are not available.

But they want more to be done to bring charging infrastructure and the consumer experience up to speed – including a mindset change that charging an electric vehicle is given the same ‘status’ as filling up a petrol or diesel vehicle.

And there is a plea for all players, whether businesses or parts of the public sector, to become more aligned to give a simple, reliable experience. This would give them confidence that everyone is working together to achieve the big ambitions that the Government has set out.

Summary of desired improvements

Desired operational improvements

Better availability

- reduce out-of-service instances
- faster repairs when faults
- have enough to cope if one isn't working
- improve 'emergency stop' and reset functions
- learn from Tesla's perceived operational excellence.

Better information

- be clear about the charge supplied
- be clear about the speed of charge.

Better support

- 24/7 helplines
- ideally, one number for all suppliers.

Desired mindset changes

Make paying simple

- contactless
- automatically charge to an account.

Treat people fairly

- if something has gone wrong, give a free charge.

Fees

- pay for the electricity, not to connect as well.

Promote good etiquette

- discourage space blocking/hogging.

Desired improvements at the sites

Access

- easy to find within the site
- easy to park (right size and shape).

Location

- not tucked away
- near other facilities (refreshments, toilets).

Quality

- protected from the weather
- well lit.

Methodology

In late March 2021, we set 26 electric vehicle users in England a series of tasks using the smartphone/ online research platform Indeemo.

Tasks included:

- describing the way they use their electric vehicle
- saying what they like and dislike about how things are set up for electric vehicle use in England (with an emphasis on the motorways and major 'A' roads managed by National Highways)
- demonstrating where and how they charge their car at public chargepoints
- demonstrating how they go about planning for journeys that will involve a charge.

Participants responded to these tasks by making short videos, uploading captioned images and typing text answers in their own words. They also made screen recordings with spoken commentary, and took screen shots and photos to demonstrate how they used apps and other tools (for example maps) on their smartphones or desktop computer. The research moderator probed with additional questions for more detail or clarification where needed.

The responses provided rich qualitative insight into the way electric vehicles fit into users' lives and how people manage all aspects of owning and running an electric vehicle in 2021. The material also provides valuable, engaging, visual evidence for the highs and lows of electric vehicle usage as well as users' attitudes and priority needs for the future.

This research took place while Covid-19 rules were in place to restrict travel, meaning journeys made during this time were less frequent and over shorter distances than they typically would be. Therefore, some demonstrations of chargepoint usage were made using local chargepoints, rather than always being those along National Highways' roads. Nevertheless, the demonstrations given were highly revealing, acting as useful stimulus for participants to commentate on their usual experiences and attitudes to the charging infrastructure.

26 electric vehicle owners took part in this in-depth qualitative research. All participants had experience of using the National Highways network and the chargepoint infrastructure along it as well as local chargepoints.

Mix of ages (23-67), gender and ethnicity.

Living in regions all across England, and with experience of a range of motorways and A-roads.

Range of experience with electric vehicles.

(From under six months to over 5 years).

Owners of different models.

(Six Tesla owners, three electric van owners, several owned more than one electric vehicle, and/or petrol or diesel cars as well).

Three explicitly mentioned having a physical or mental health condition which affected their daily lives. A further two had experience of travelling with a family member with a disability or health condition.

Most had access to charging facility at home (usually but not always on a private driveway) or work.

Two had no access at either home or work.

Variety of typical usage frequencies, distances, and journey purposes.

Contact Transport Focus

Any enquiries about this report should be addressed to:
Guy Dangerfield
Head of strategy
guy.dangerfield@transportfocus.org.uk

Transport Focus
Albany House
86 Petty France
London
SW1H 9EA
www.transportfocus.org.uk

Transport Focus is the operating name of the Passengers' Council

Transport Focus is the independent consumer organisation representing the interests of:

- bus, coach and tram users across England outside London
- rail passengers in Great Britain
- all users of England's motorways and major 'A' roads (the Strategic Road Network).

We work to make a difference for all transport users.

transportfocus