IMPROVING THE EV CHARGING EXPERIENCE ON THE STRATEGIC ROAD NETWORK

BACKGROUND, OBJECTIVES & METHODOLOGY

Background

Electric vehicles (EV's) are a key part of the move to a more sustainable transport network in the UK. Government policy, to phase out new petrol and diesel cars from 2030, has driven an increase in the sales of EV's. This growth in EV's naturally puts increased pressure on the public charging network.

Transport Focus commissioned this study to gain deeper insight into the changes electric vehicle (EV) users believe would make their charging experience more seamless, and to identify which improvements would have the greatest impact.

Note

Throughout this report verbatim comments are accompanied by where they were gathered and if known the length of time the individual had been driving an EV.

Research method

The research approach consisted of:
- Focus groups with EV drivers
- Depth interviews to identify and discuss potential improvements
- A series of observation days at service stations to discuss potential improvements with EV drivers.

Throughout all stages of the research drivers with a mixture of experience and attitudes towards driving EV's were recruited. All drivers recruited for the focus groups and depth interviewers were required to have used a charger on the Strategic Road Network (SRN) in previous three weeks.

Fieldwork took place between 31 January and March 4 2025.

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CURRENT STATUS OF EV CHARGING ON THE SRN

Currently EV drivers face a series of challenges when charging on the SRN

PHYSICAL SITE EXPERIENCE
Practical elements of the charging sites cause difficulties for users

CONNECTIVITY
Inconsistent connections between vehicles / chargers / apps can cause issues

QUEUING & WAITING
Lack of clear queuing systems leads to issues between users and unnecessary waiting

PRICING & PAYMENTS
Cause of confusion due to the lack of clarity and inconsistency with multiple providers and apps

SIGNAGE
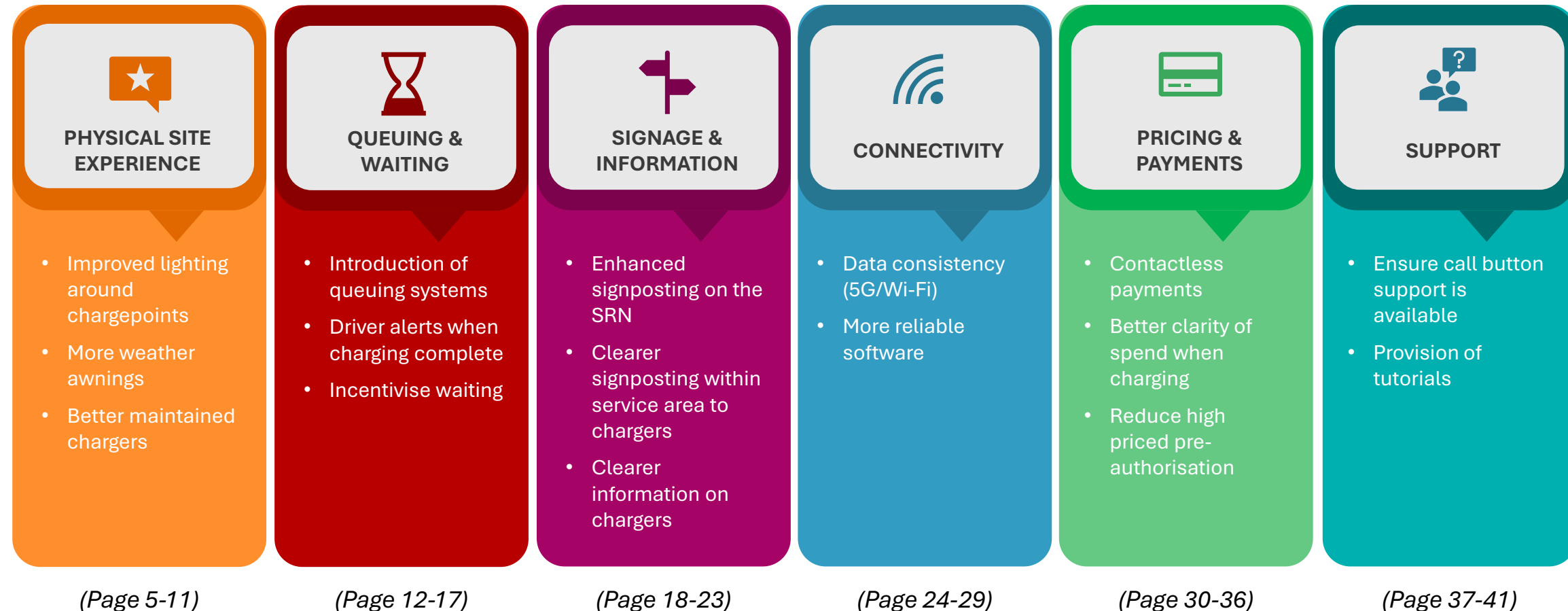Lack of signage on the SRN and at service areas causing frustration for users

SUPPORT
Difficulty finding adequate help at service areas to help troubleshoot problems on site

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SUMMARY – USER IDENTIFIED IMPROVEMENTS

Users identified a series of improvements that would make the biggest difference to them across various aspects of the EV charging experience

PHYSICAL SITE EXPERIENCE

- Improved lighting around chargepoints
- More weather awnings
- Better maintained chargers

(Page 5-11)

QUEUING & WAITING

- Introduction of queuing systems
- Driver alerts when charging complete
- Incentivise waiting

(Page 12-17)

SIGNAGE & INFORMATION

- Enhanced signposting on the SRN
- Clearer signposting within service area to chargers
- Clearer information on chargers

(Page 18-23)

CONNECTIVITY

- Data consistency (5G/Wi-Fi)
- More reliable software

(Page 24-29)

PRICING & PAYMENTS

- Contactless payments
- Better clarity of spend when charging
- Reduce high priced pre-authorisation

(Page 30-36)

SUPPORT

- Ensure call button support is available
- Provision of tutorials

(Page 37-41)

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SITE EXPERIENCE - CHALLENGES

Sites across the SRN are critical touchpoints for EV drivers, who can arrive in nervous and anxious mindsets due to EV batteries running low. Sites need to work for drivers in states of stress; however, their complexity can lead to EV drivers feeling more stressed and overlooked.

- **Lack of real-time information ahead of and upon arrival** can influence users' overall experience e.g., Out of order chargepoints which users frequently report to be an issue

- Chargepoints pose several challenges including:

  - **Slower rates** (than advertised)
  - Inability to charge at the same time as another vehicle (e.g., two cables but only one parking space)

- **Location of chargepoints –** chargepoints are often some distance away from the main service area. While inconvenient for some, it can be particularly disconcerting for individuals who may have concerns about their safety, as well as newer or less confident users who may require assistance

- **Difficulty charging in adverse weather conditions** – chargepoints often lack overhead covers to protect drivers from the elements when charging their vehicle. Equally, screens can be hard to read **in direct sunlight**

- **Vandalism of charging infrastructure** (predominantly graffiti) obscuring signage, causing anxiety for users

"I think, as a woman in a service area where I went. You've got a lot of men there. I think the proximity to the main services, lighting, cleanliness and keeping dry is your first thing on arrival… it can be challenging… you can be quite vulnerable."

(Female, More than 2 years)

"I have been to a couple where they've been vandalised."

(Male, 12 months or less)

Really easy to read screens at night, much less clear when in direct sunlight.

Canopy / shade would be a benefit for more than just as protection from the rain

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WHY THE CHALLENGES MATTER

Drivers can feel unsafe, anxious and unable to anticipate charge times

Lack of real-time information ahead of and upon arrival

Slower charging rates (than advertised)

Difficulty charging in adverse weather conditions

Poor location of chargepoints

Vandalism of charging infrastructure

Inability to plan ➡ **anxiety & frustration**

Journey planning becomes challenging as drivers **cannot truly anticipate** charging times, charger availability and working conditions. A 3-4-hour journey could turn into a 5-6-hour journeys if drivers are made to wait longer or find different chargepoints. A lack of information, unpredictability and unreliability **induce frustration and/or anxiety within the most experienced drivers.**

Safety concerns ➡ **feeling unsafe/worry**

Drivers feel unsafe in different ways, depending on the time of the day and when it's dark. Addressing these issues would help increase driver confidence in the SRN as they would feel safer.

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SITE EXPERIENCE - IMPROVEMENTS

Site related improvements could help drivers feel like the EV charging experience isn't an 'afterthought', and help them feel less vulnerable

PHYSICAL SITE EXPERIENCE

- Improved lighting around chargepoints
- More weather awnings
- Better maintained chargers

*For safety and practical reasons. Lighting will make drivers feel **less vulnerable** and help them to complete practical tasks around the car after dark.*

*Getting wet and completing tasks in the dark can be difficult / uncomfortable even when there aren't issues. Weather protection helps **drivers feel less vulnerable**.*

*It is not uncommon for chargers to be out of order, which can cause problems with capacity and queuing during busy periods. Along with when they are **left vandalised,** it can suggest that the charging provider is not adequately focussed on maintenance and make **drivers feel vulnerable.***

*The location of chargers – often on the **periphery of service area** car parking – can cause a variety of problems which are exacerbated by other issues, e.g. **having to walk long distances in the dark**, being far from cover when charging the car, being able to find the chargers with poor signage, and keeping young children entertained.*

"...some of them are poor. I mean the M6 corridor is particularly poor up towards Manchester."

(Intercepts)

*"Yeah, **darkness is a big thing**... would have been dark and I would not have felt comfortable because of where it was, where it was positioned."*

(More than 2 years)

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EXPLORE IMPROVED LIGHTING

Improve lighting on, around and en route to chargepoints.

- Improved lighting holds the potential to:
  - Help drivers feel safe at chargepoints
  - Help drivers feel safe moving between chargepoints and main service stations
  - Help drivers to better see and follow chargepoint instructions

*"...the right lighting for the evenings when it's dark. [It's] **nice to be able to see what you're doing.**"*

(Intercepts)

Well lit around the chargers, but walk to services in the dark is poorly lit

*"Depending on the time of the day and night you're charging sometimes... **it feels spooky**"*

(Male, 12 months or less)

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CONSIDER IMPROVED WEATHER PROTECTION

Awnings to protect drivers from all weather conditions

- Drivers find themselves standing in the rain when trying to charge their cars

- Awnings over the charging stations can help with shade when there is strong direct sunshine, which can impact how easy it is to view the screens on chargers

- Some have safety concerns about charging their cars in the rain

*"Having **covered areas**. I think that would be **really good in the middle of winter when it's freezing cold**, pouring with rain, particularly if you if you're someone that's got mobility issues…you're in a wheelchair, **you don't want to be outside exposed to the elements once you're trying to plug it in**. "*

(Intercepts)

*"**You don't want to be standing outside in the pouring rain trying to download a flipping app!**"*

(Female, More than 2 years)

*"If it's raining it would be a bit of pain. **Cover it with a roof and put some solar panels on it.** Use the solar panels to charge the battery."*

(Intercepts)

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EXPLORE WAYS TO BETTER MAINTAIN CHARGERS

Improve chargepoint maintenance to reduce chargepoint downtime

- Drivers can be led to chargepoints that do not work

- Chargepoints are sometimes vandalised and covered in graffiti

- Chargepoints frequently present hardware and software related connection issues

"Oh, this machine (Tesla) has been, you know, pleasure to work with. Not a lot of them are, they're becoming a lot more user friendly. I must be honest but and this one was very user friendly."

(Intercepts)

There was a general sense that Tesla drivers – and those who can use the chargers – are better served than other EV drivers

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EXPLORE IMPROVED CHARGER LOCATIONS

Where possible, locate chargepoints closer to service station amenities or within petrol stations.
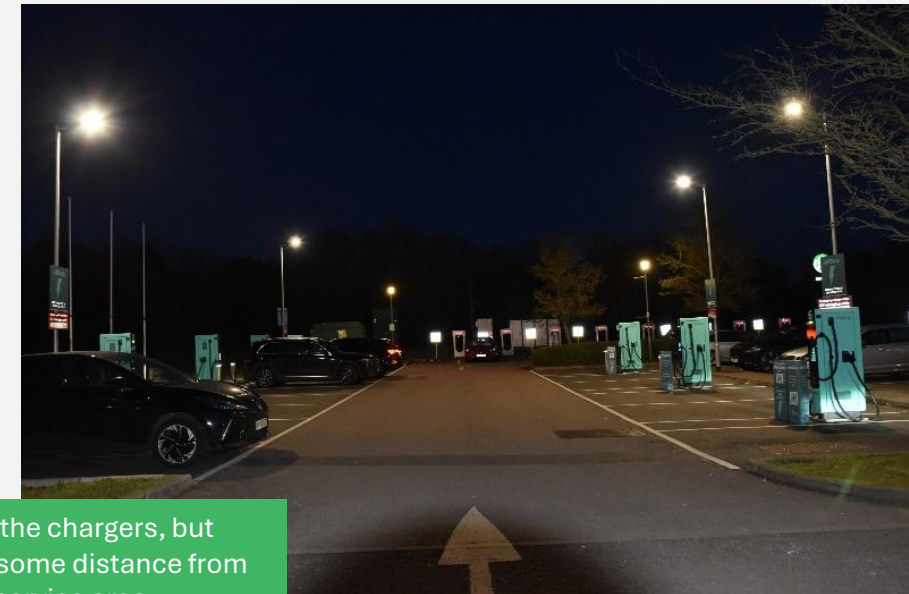
- Drivers, especially those with families, would like chargepoints to be closer to shops and amenities

- Chargepoints in distant or out-of-sight locations make some drivers feel vulnerable and unsafe – particularly females

- Chargepoints closer to amenities hold the potential to reduce wait times and potentially reduce instances of drivers overstaying in the parking bays because they are more likely to keep charging front-of-mind

*"[There should be] some **safer means** of getting access to the facilities from the charging unit."*

(Intercepts)

"There should be something around the place, if you need the toilet, if there's some shops... close to the charging area."

(Female, 1-2 years)

Well lit around the chargers, but chargepoints are some distance from the main service area

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QUEUING & WAITING - CHALLENGES

QUEUING & WAITING

Instances of queuing and waiting across the SRN are largely unforeseen and significantly diminish the ability for drivers to determine journey times and arrive at destinations as expected.

Largely service areas are reported to have adequate chargepoint provision. However, when they are busy and queues form, it creates frustration, particularly because users are often unsure how long they will have to wait for chargepoints to become free:

- **Queues force users to make a difficult choice** i.e., whether to stay at the service area, or look elsewhere to charge

- Currently the lack of clear queuing systems can result in arguments, with users reporting instances of **'fighting' over chargepoints** during particularly busy periods

- **Delays from waiting in queues** have a knock-on effect, extending users' journey times significantly – if you are in a rush, it can be a major inconvenience

*"...you have to queue for quite a few of them too, especially at the service stations... it's a lot of hassle because not a lot of people have electric cars... there are quite a few service stations on the M6 which don't have a lot of charging points, and **you have to wait for quite a while**."*

(Female, 12 months or less)

*"**It's the wait time that you have that will put people off if they're in a hurry**. Then if you go into services, so you drive into some of the services, and you've got say, three charging points. Invariably one never works. **You check how long they've got, and you weigh it up**... you weigh up the fact that you've got to literally sit and wait for someone to finish before you can even go in and get a coffee."*

(Female, more than 2 years)

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WHY THE CHALLENGES MATTER

Drivers can feel unsafe and unable to consistently arrive at destinations on time.

| Queues force users to make a difficult choice |
| 'Fighting' over chargepoints |
| Delays from waiting in queues |

Lack of control ➜ uncertainty & concern

Drivers are forced to stick or shift to other charging locations. The need to hop between stations or wait for long durations. This **prevents them from accurately planning and predicting journey times** on the SRN, which has a knock-on impact on their plans.

Safety concerns ➜ feeling unsafe/worry

Drivers feel unsafe and vulnerable in situations of unnecessary confrontation where people are arguing for places in busy queues.

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QUEUING & WAITING - IMPROVEMENTS

Demand management and booking systems could help to reduce queues and wait times and, in-turn, allow drivers to more reliably plan journeys

QUEUING & WAITING

- Introduction of queuing systems
- Driver alerts when charging complete
- Incentivise waiting

Queuing systems could potentially help make charging less stressful as they may **reduce the time drivers spend in their vehicles waiting** to charge.

Driver alerts could help **reduce queues and wait times** as they could reduce the number of drivers that overstay at chargepoints.

The incentivisation of waiting could help to **reduce queues and wait times** during busy periods by directing non-essential charging away from chargepoints.

Capacity management improvements hold the potential to better manage chargepoint demand and allow drivers to **better plan and pre-book chargepoints**.
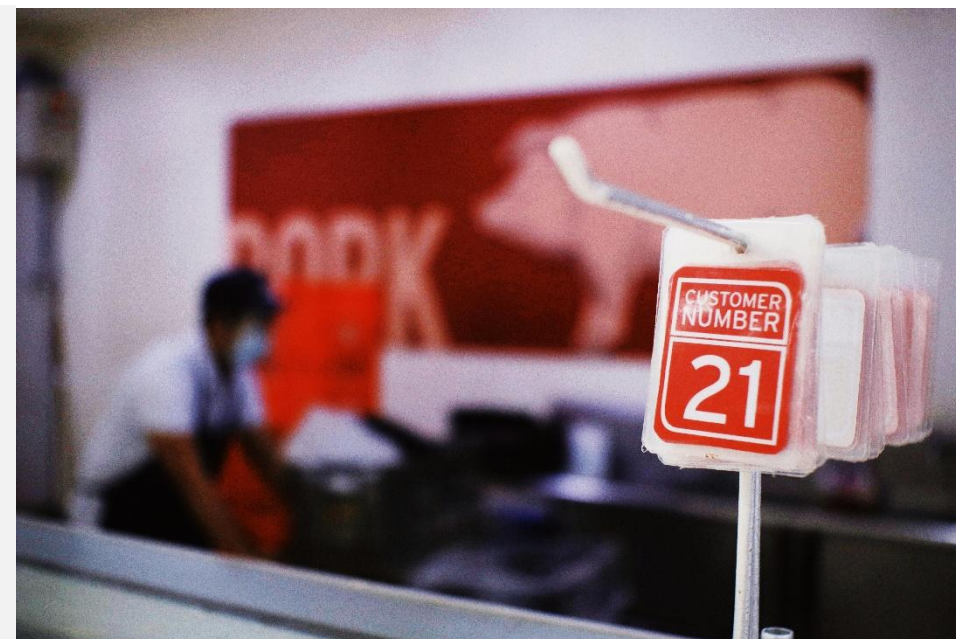
"I'd like to see a queuing system so that you have to follow the next vehicle in into the charging area and so the first vehicle gets the next charger as it becomes available."*

(Intercepts)

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EXPLORE QUEUING SYSTEMS

Test systems that mimic existing queuing and waiting systems in retail (e.g. ticket number systems).

- At present, no established queuing etiquette or system exists for EV drivers, which can lead to tension and confrontation in extreme situations

- Ticketing systems can also help to reduce wait times and reduce queues as drivers can understand their number/position and return when chargers become available

*" So, it was me and two men and then a couple of other families showed up and **we were all organising it ourselves**. And **you did feel like you had to like, hold your ground** and be like, 'no', because everyone had like a reason, they needed to be next, you know?"*

(Intercepts)

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EXPLORE DRIVER ALERTS WHEN CHARGING IS COMPLETE

Notifications sent to users notifying them of charge completion and the need to need to move their vehicle promptly.

- 'Chargepoint squatting' leads to unnecessary waiting and long queues for EV drivers
- Tesla style system of penalising drivers for squatting could, in combination with other improvements, reduce queuing and waiting times

"I drove around to see because I thought, well, if someone' s got 5 minutes, I'll wait. But the majority of people had longer lengths of time"

(Female, More than 2 years)

"If there's a limited number of charges and then there's someone already plugged in and you've got to sit and wait."

(Female, More than 2 years)

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CONSIDER INCENTIVISING WAITING

Test incentives for drivers to wait longer and defer their charge during busy periods.

- Queues and wait times often become longer during busy periods

- 'Peak' or 'surge' pricing was unpopular among EV drivers. Perhaps an opportunity lies in testing an inverse improvement that is grounded in behavioural science (i.e. rewarding good behaviours and creating time and space for drivers that are in more of a hurry than others)

" Waiting for someone else to move from these other chargers... you'd be waiting there more than what you're supposed to"

(Female, 12 months or less)

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SIGNAGE & INFORMATION - CHALLENGES

Signage across the SRN and within sites was primarily designed for petrol/diesel drivers. In their current form, sites and roads lack the critical information and direction EV drivers require to locate and use chargepoints. As a result, some drivers feel the need to over-rely on third party apps.

A pressing current issue, with users reporting a **lack of appropriate signage on the SRN** (approaching), within the **service areas** (directing to the chargepoints) and **on the chargepoints** themselves

This leads to:

- Users **not knowing if there are chargepoints available** to them at service areas
- **Missing the entrance** to chargepoints
- Difficulty **locating chargepoints**
- Not knowing the **overall cost** of charging

Bays without separate card readers. Payment must be made at central contactless reader for six chargers. Many users missed this.

"...you see those big signs for fuel that say how much per litre or whatever, but you don't see that for the EV charging. ...You have to go onto the app or even most of the actual charging points don't even display it on the charging point. You know, **it might just be one with the QR code and that's it. It's not always completely obvious what you're going to pay.**"

(Male, 12 moths or less)

"...there are two main issues, **sometimes you plug it in, it doesn't work** and on the actual charger cable point, it doesn't say it's out of service. So, you're struggling... they need to tell you, to at **least put a sign there that says, 'please do not use' or 'it's not working'** because when you've got a time limit, you want to get to that destination at a certain time."

(Female, 12 months or less)

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WHY THE CHALLENGES MATTER

Drivers do not always feel in control of their spending and sometimes feel 'pushed' to find chargepoints instead of being shown where they are

- Knowing if there are chargepoints available
- Missing the entrance to chargepoints
- Difficulty locating chargepoints
- Not knowing the overall cost of charging
- Unsure of the benefits of using 'fast chargers'

Lack of information → journey stress

Trying to locate available and working chargepoints is a challenging exercise for EV drivers as obscure locations and unclear signage **bring further uncertainty** to driving on the SRN and **compound journey stress.** EV drivers can feel that chargepoint provision is an afterthought as are they left chasing chargepoints in **'random locations'.**

Lack of understanding → confusion

All factors make **drivers feel confused and uncertain.** The unfamiliar and technical nature of charging terminology **further complicate a charging experience which is not standardised in other ways.**

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SIGNAGE - IMPROVEMENTS

Enhanced EV signage and information at sites would support drivers by increasing their confidence in locating and using chargepoints.

SIGNAGE & INFORMATION

- Enhanced signposting on the SRN
- Clearer signposting within service area to chargers
- Clearer information on chargers

*Improved signage on the SRN could **support and direct drivers to EV charging stations** and reduce their over-reliance on apps and technology bound to mobile connectivity.*

*Improved service area signage could better **support and direct drivers** toward chargepoints which can be challenging to locate.*

*Clear, easy to read instructions would allow drivers to **feel supported** and **confident** in using chargepoints.*

*Digital signage holds the potential to **better support drivers** by redirecting them between sites without having to fully enter sites and exit their vehicles.*

*"I have been in positions before where I've got to 0%, **literally 0% looking for chargers**. Yeah. And on, on both Waze and on Google Maps, it'll say, Nope, they're all working. **There's three or five available and you arrive, and the cables are cut.**"*

(Intercepts)

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SEEK TO OPTIMISE SIGNPOSTING ON THE SRN

Consider introducing new signs on the SRN to indicate the availability of EV charging facilities.

*"**Signage on the motorway** and knowing number of charging points would be really useful. You have to use the app for that at the moment."*

(Intercepts)

- When driving on the SRN, EV drivers can fail to distinguish which sites have EV charging facilities vs. those that do not

- Sometimes EV drivers, especially those who are inexperienced in driving EVs, visit multiple service stations to find EV chargepoints

- Physical or digital signs also place less reliance on apps and navigation systems, and facilitate a driving experience that EV drivers are familiar with

Prior details about charging facilities at the next services would help EV drivers to plan and potentially save time

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EXPLORE WAYS TO OPTIMISE SERVICE AREA SIGNAGE

Design and test improved on-site signage which more effectively leads EV drivers to chargepoint locations.
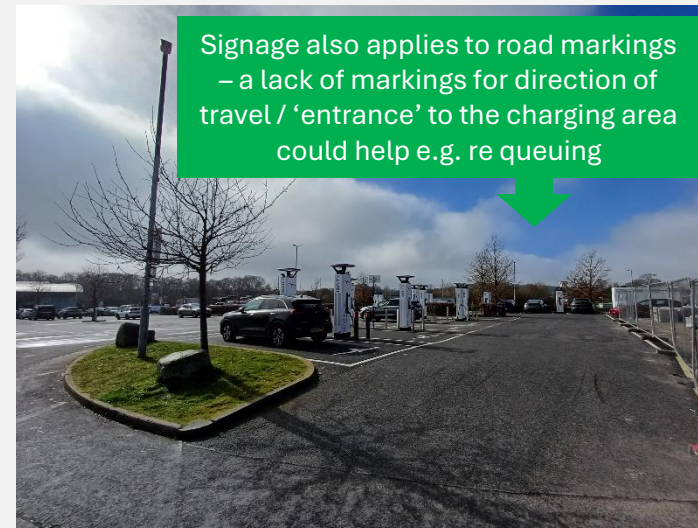
- Upon entering service stations drivers sometimes find it challenging to locate chargepoints

- The inability to easily locate chargers compounds the stresses of charging an EV on the SRN

*"**There was no signage** in terms of where the EV chargers are. But to be honest, with that, stereotypical of all of the service stations in terms of actually guiding you to where the EV charging is. But **most of them you have to try and hunt for them**."*

(Intercepts)

*"I think **some of the basics when you drive in, you want it to be really clear** where the charging stations are. The signs are too small and if you're coming off a busy motorway and you've got somebody right behind you, you don't want to slow down too much because you're going to hold them up."*

(Intercepts)

Signage also applies to road markings – a lack of markings for direction of travel / 'entrance' to the charging area could help e.g. re queuing

Broken signage

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LOOK TO PROVIDE STANDARD INFORMATION ON CHARGEPOINTS

Explore ways to provide step-by-step instructions for chargepoints.

- There is no one standard way to use chargepoints on the SRN
- Chargepoints are made by different companies and do not have standardised user interfaces or instructions
- Well-lit, easy to follow instructions hold the potential for drivers to feel more confident in moving between different types of chargepoints across the SRN

*"It'd be helpful if they gave you **a sign or a notification** saying, 'sorry, this charger is not working, please move on to the next charger', because you can't try three charges. Then move on to the next time when you're **wasting too much time**."*

(Intercepts)

*"Like most of us with EVs, I have **plenty of problems**…plugging it in then trying, trying to get it to work. **I think just an idiot's guide on step, step, step, would be good**. I guess some standardisation - that's where the pain point is."*

(Intercepts)

Out of order   Working

It is often not clear enough when chargers are not working – sometimes you need to tap the screen – ideally you can see without leaving your car

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CONNECTIVITY - CHALLENGES

Connectivity challenges prevent drivers from efficiently charging and paying, which leads to a greater disruption of journeys and further wait times and queues. As with other topics, drivers generally see these as avoidable issues, which can lead to frustration.

19 apps and counting!

Mobile telephone connection:

- Users frequently mention experiences of a **lack of mobile service** (4 or 5G connectivity) and **poor Wi-Fi signals** from the main buildings (due to the location of chargepoints)
  - If contactless payment is not available, often users must download different payment apps on site and struggle to do this with the current provision

Charge point connectivity

- There can be **connection issues/reliability**; in some instances, users experience faulty charging cables
  - Causes stress and a dent to confidence when chargepoints are not working as expected
- **Wide variety of apps used by users can create frustration** and confusion around conflicting information about service areas

"It can be a little bit frustrating. I prefer to pay by contactless because otherwise you can download so many apps, and it's just kind of unnecessary."

(Female, 12 months or less)

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WHY THE CHALLENGES MATTER

Inconsistencies and unpredictability prevents drivers from efficiently charging and they can be left feeling frustrated

- Lack of mobile service
- Connection issues/reliability
- Wide variety of apps used

Unpredictability ➜ stress & frustration

Connectivity issues appear to be caused by a combination of data availability, software interoperability and hardware interoperability issues. At times, the charging experience is negatively impacted by one or more of the issues at the same time. Overall, connectivity issues greatly **reduce reliability** and **increase unpredictability** of charging provisions on the SRN and they **perpetuate inconsistencies in the charging experience.**

Complicated process ➜ frustration

Overall, multiple apps **complicate connection** by adding a software and cellular-data dependent component to the connection process. Drivers **feel frustrated** when they need to download and get used to multiple apps for charging on the SRN. Too many apps **multiply occurrences of connectivity failure.**

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CONNECTIVITY - IMPROVEMENTS

Improving signal strength at sites with unreliable signal (e.g. installing a booster) would help increase the reliability of EV charging by limiting technical difficulties experienced during charging.

CONNECTIVITY

- Data consistency (5G/Wi-Fi)
- More reliable software

*Consistent connectivity standards would allow drivers to receive a more **reliable charging experience**, with fewer connection issues.*

*Potentially reducing software interoperability issues would **increase reliability** of the EV charging experience.*

*Potentially reducing car-to-chargepoint connections would **increase reliability** of the EV charging experience.*

*"So, I definitely would suggest, if there is any way to put a booster in, to be able to **help boost mobile phone signal where it's known to be poor."***

(Intercepts)

"You rely on having a phone signal... they should have a good signal."

(Depths, Male, More than 2 years)

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EXPLORE METHODS TO INCREASE DATA CONSISTENCY

i) Minimum viable connectivity

Explore ways to ensure all chargepoints and service stations have 'minimum viable connectivity' standards.

- Poor connectivity delays transactions, the use of apps and creates challenges with the processing of card payments
- MVC standards could help to ensure chargepoints are connected well to enough for a standard set of transaction operations without glitch

ii) High speed connections

Explore ways for chargepoints and service stations to have high speed/bandwidth connectivity (Wi-Fi) to allow payment systems to connect efficiently and allow drivers to use the web whilst they wait.

- Providing drivers with free high-speed/bandwidth connectivity provides them with an incentive to stay in their cars whilst they charge thus reducing wait times and queues

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CONSIDER WAYS TO IMPROVE SOFTWARE: CAR/CP CONNECTIONS

Explore rigorous and frequent testing of car-to-charger connections to ensure maximum reliability.

- Chargepoints often do not connect properly or show error messages
- Issues allude to interoperability issues between EV and chargepoint software

"Biggest challenges have been actually connecting the car to the charger and for it to know that charges, to know that the car is there. I have to disconnect and then reconnect and try several times. It's better using the app I seem to find, but sometimes that's not enough."

(Intercepts)

"No matter how knowledgeable you are with it, if it's not working, if they can't reset it… whatever needs to be done in the background to get it to work, it's still not going to get it to work, is it?

(Female, More than 2 years)

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CONSIDER IMPROVING HARDWARE: CAR/CP CONNECTIONS

Explore testing structures for chargepoint docking and un-docking to ensure chargepoints work consistently with all brands of cars.

- Chargepoint plugs sometimes do not properly click into EVs
- Drivers are sometimes trying to click on and off to establish a connection

*"When you do come and charge it, you put your charger in, you start charging it. About two, 3-4 minutes later, it only charges 5%. Then **it just suddenly stops, and it doesn't notify you**. So, you're sitting in the car for half an hour, but you still haven't charged."*

(Intercepts)

*"It plugged into my first charger using the app and **for some reason couldn't get a connection**. I felt like I'd got locked in and the app connected to a single machine. Managed to get out of that, tried on a different charger, still wouldn't work."*

(Intercepts)

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PRICING & PAYMENT - CHALLENGES

Clarity of costs/pricing and problematical payment methods, unnecessarily complicate the last stage of charging experience across the SRN. Drivers can feel like they do not have control over how they pay and how much they're charged.
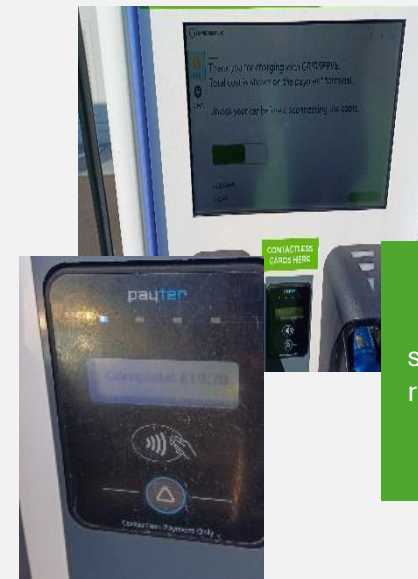
*"I think sometimes **clarity over the prices**. It'll tell you the charging speed, but sometimes **you've got to log on to the app to see how much it's going to be**, actual price per like whatever the charging speed is... or sometimes I don't know how much I'm going to need exactly. **It's be nice to have clarity over the expected**."*

(Female, more then 2 years)

Unclear pricing

- While some users are willing to accept unclear pricing it can be a point of annoyance and anxiety, there are reports of 'blindly swiping' payment cards and having no indication of the cost of charging

Payment issues

- Users often need to download new/different payment apps to process payments if they have not used certain branded chargepoints before
- Juggling apps and chargepoints can feel unfamiliar for newer EV drivers who are familiar with petrol charging, creating additional anxiety during the payment process

Final price only appears on the small card screen rather than visibly on main screen

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WHY THE CHALLENGES MATTER

Unwanted complexity leads to drivers feeling suspicious and frustrated

- No indication of the cost of charging
- 'Tussling' between chargepoints and apps
- Downloading new/different payment apps
- Not all chargepoints offer contactless payment

Unnecessary complication ➜ fatigue & frustration

Price variances and the need to continuously download new apps result in a complicated EV charging experience on the SRN. Apps bring **nuances to chargepoints that become fatiguing and frustrating for drivers.** The price of petrol always varies; however, the way it's paid for remains largely the same.

Deprioritised user ➜ unvalued customer

Drivers become suspicious when contactless doesn't work and they are pushed to download apps; some **feel like data harvesting, marketing and monetisation of their behaviours take priority over the charging experience.**

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PRICING & PAYMENTS - IMPROVEMENTS

Simplified pricing and payments would allow for a more standardised experience and potentially reduce payment issues/ anxiety when charging

PRICING & PAYMENTS

- Contactless payments
- Better clarity of spend when charging
- Reduce high priced pre-authorisation

Card payments **allow EV drivers to pay for charging across the SRN in a consistent way**, which is not connected to phones or apps.

Simplified pricing language and terminology would be **more user friendly**, giving drivers better **confidence to manage costs**.

Reducing the volume of pre-authorisations would give drivers the **confidence to manage costs** as their cards and bank accounts are not repeatedly pre-charged.

A universal charging app would allow drivers to build confidence through getting used to and reliant on a single, **consistent app experience**.

"I wouldn't have a clue whether one [charger] was cheaper than the other."
(Intercepts)

*"I've had a similar thing where I've tapped my card, I've unplugged and I thought, 'well has it gone through?' **Have I actually paid for it?'"***
(Female, Less than 12 months)

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EXPLORE CARD PAYMENT CONSISTENCY

Explore ways to facilitate easy contactless payments at all chargepoints on the SRN.

- Drivers are often frustrated with having to download multiple apps to pay for charging across the SRN

- Even in locations where contactless payment is available, it doesn't always work and drivers must resort to downloading apps they might not use again

- Some apps hold credit balances which drivers are unlikely to get back

*"...some of the chargers **force you to download their apps** ...they won't let you do contactless. They've got the scanner, but they don't want you to do it...**I just want to turn up, tap it and go**."*

(Intercepts)

Out of order

Contactless payment is not always accepted at every chargepoint. One contactless touchpoint was out of order with no indication, aside from the blue light being unlit to alert customers.

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EXPLORE WAYS TO INCREASE CLARITY OF SPEND

Explore ways to ensure chargepoints have standardised easy to understand information on pricing and cost.

- Drivers require new ways to understand, roughly, how many miles they are likely to receive for time spent charging and cost of charge

- Many drivers find Kilowatt metrics confusing

- Drivers want to understand the estimated range acquired for cost and time.

"...you've got the kilowatts and this watt...then you've got no mileage on your car."

(Female, More than 2 years)

*"It'd be helpful if you could show us **how much we've paid**. It only comes up on the small screen, and it just pops up and pops out again. **It's like somebody's stealing your money.**"*

(Intercepts)

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EXPLORE PRE-AUTHORISATION REDUCTIONS

Explore ways to reduce repeated card payment pre-authorisations

- Pre-authorisations cause cash-flow issues for people when they have to move between different chargers on the same day

- Some drivers are not used to pre-authorisations

*"What I'm not comfortable with is that **the machines want to hold £40 to £50 on my card before I can actually charge.** My car is not capable of taking a charge the size of an SUV...and **I don't necessarily have £50 in my account** just lying around".*

(Intercepts)

*"I don't know how it checks how much money is in your current account, but there's obviously something that goes on in the background that says, 'this person doesn't have enough money there to be able to potentially do a full charge' and **it will flat out decline the payment."***

(Female, 12 months or less)

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EXPLORE A UNIVERSAL APP

Consider ways to provide a single app that allows drivers to find and pay for charging in one go.

- Drivers are frustrated with having to download multiple apps to pay for charging across the SRN

- Some apps hold credit balances which drivers are unlikely to get back

- Using different apps to find and pay makes drivers feel stressed when they're pressed to reach a destination or have a low battery

*"It would be easier, especially for storage space and having multiple accounts, just to **have one app that covers everything. It would be a lot more straightforward.**"*

(Intercepts)

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SUPPORT - CHALLENGES

Due to each phase of the EV charging experience containing its own challenges, EV drivers need support at critical touchpoints. However, most feel drivers stranded and unsupported when things go wrong.

Support on-site is not always required by users, however, there is an appetite for **greater EV focused support** at service areas:

- Lack of support is a **bigger issue for less experienced users** and can cause high levels of anxiety

- At many locations there is **no accessible or reliable customer service operative** to speak on site when issues arise

- Additionally, users have experienced **inadequate support from customer service operatives** who do not have the relevant training or knowledge of charging points

*"...**it's quite embarrassing** in a way as well, because when there are people waiting and stuff and you're sort of, you don't know what you're doing...when you're putting fuel in your car, people know what to do...but **it's not as easy when you're charging.**"*

(Male, 12 months or less)

*"...there's nobody who would you talk to maintenance wise. You could, you know, and when you go, **there is nobody there.**"*

(Female, 12 months or less)

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WHY THE CHALLENGES MATTER

The unpredictable nature of EV charging can make drivers feel vulnerable and unsupported

Bigger issue for less experienced users

No accessible or reliable customer service operative

Inadequate support from customer service operatives

Lack of support ➜ anxiety & frustration

A lack of support (in varying ways) **compound driver anxiety** when things go wrong or do not work. Drivers feel **vulnerable and exposed** when they cannot operate chargepoints by themselves.

Unreliable support ➜ unvalued customer

A lack of support when issues arise adds to feelings of EV charging on the SRN being **unpredictable and unreliable.**

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SUPPORT - IMPROVEMENTS

Onsite and offsite support solutions could help prepare drivers and effectively troubleshoot charging experiences across the SRN

SUPPORT

- Ensure call button support is available
- Provision of tutorials

Support buttons would provide **a reassuring way for drivers to receive support** in a way that is not reliant on phone numbers, mobile signal or human error during stressful moments.

Online tutorials would allow drivers to **confidently crossover from a 'petrol mindset'** and receive the information they need to **mitigate stressful charging** experiences.

*"When you get there and you find something is wrong, I mean, **they should actually have somebody to have that knowledge in service station** to see what they could do...you can't really do much on the phone, can you really?"*

(Female, 12 months or less)

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CONSIDER THE PROVISION OF SUPPORT BUTTONS

Consider ways to provide support buttons at chargepoints

- Drivers require quick assistance when they are stuck as charging issues can create stress and anxiety

- Support line phone numbers are a good measure; however, this can be a challenge in areas where connectivity is problematic and phones do not work

*"…if you're somewhere and the phone signals poor, **you can't always phone the numbers** that are on there."*

(Female, More than 2 years)

*"For people who have, who have got new vehicles or aren't used to charging, then maybe it would be good to **have an intercom** or something to go into somebody to say, well, you know, how does this charger work? "*

(Intercepts)

While a helpline is present there is no guarantee that help will be immediately available when charging outside working hours.

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CONSIDER PROVIDING ONLINE TUTORIALS

Explore ways to deliver online tutorials for new drivers on how to plan journeys, charge EVs and use charging stations correctly.

- A knowledge gap potentially exists about EV range and the considerations required to keep EVs charged at optimum levels
- As EV ownership grows, more non-technically minded drivers will require more help to transition

*"**Lack of support** is probably a big thing."*

(Female, More than 2 years)

Unfamiliarity with EVs is an issue for new drivers:

"The company are moving from their car scheme from the traditional petrol and diesel cars, initially offering hybrids.. then only electric ones on the scheme. If you've got a petrol car, you get used to it..."

(Male, More than 2 years)

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SUMMARY

An inconsistent customer experience leads to low confidence in future charging, disrupted journeys and a sense that EV drivers are undervalued at service areas on the SRN.

Challenge	User need	Improvements
Physical site experience (e.g. Lack of lighting and awnings)	• To feel safe after dark • To avoid getting cold and wet when charging my EV • To save time when using the main facilities at the service station	• Improved lighting around chargepoints • More weather awnings • Better maintained chargers
Queuing & Waiting (e.g. Lack of clarity around waiting times at services)	• To avoid arguments with other users • To understand how long I will need to wait and help me plan ahead • To avoid causing unnecessary delays / hassle for other users • To keep my journey time to a minimum	• Introduction of queuing systems • Driver alerts when charging complete • Incentivise waiting
Signage & Information (e.g. Poorly signed and located chargers)	• To keep my journey time to a minimum • To avoid wasted time in service areas / charging my vehicle • To understand how long it will take to change my vehicle	• Enhanced signposting on the SRN • Clearer signposting within service area to chargers • Clearer information on chargers
Connectivity (e.g. Unreliable chargers)	• To simply and smoothly pay for EV charging • To charge my vehicle without unnecessary delays or issues	• Data consistency (5G/Wi-Fi) • More reliable software (e.g., car-to-charger connection)
Pricing & Payments (e.g. Lack of clarity of spend)	• To simply and smoothly pay for EV charging • To help me manage my finances	• Contactless payments • Better clarity of spend when charging • Reduce high priced pre-authorisation • Fewer apps required for charging
Support (e.g. Lack of accessible customer support)	• To easily access assistance when I need it • To avoid any unnecessary delays in charging my EV • To feel supported if a problem arises	• Ensure call button support is available • Provision of tutorials

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