



UNDERSTANDING CONSUMER BARRIERS TO THE ELECTRIC VEHICLE TRANSITION



Contents

INTRODUCTION	3
METHODOLOGY	4
FINDINGS	6
CONCLUSIONS AND RECOMMENDATIONS	8

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Introduction

There's no doubt about it: the electrification of road transport is accelerating! Electric Vehicle (EV) sales are increasing, the variety of electric models is expanding, and the UK Government has plans to decarbonise the transport system.

Some might argue that the job is now done. However, the deployment of charging infrastructure has historically not kept pace with vehicle uptake, meaning the disconnect between reliable and accessible charging infrastructure and vehicle adoption rates still exists. Additionally, we are yet to achieve the like-for-like convenience of EV charging when compared to refuelling and driving an internal combustion engine (ICE) vehicle.

Therefore, despite an increasingly favourable landscape and significant Government investment in charging infrastructure over the last year, barriers to EV adoption remain. To be successful,

we need consumers to have trust, confidence, and a positive experience when it comes to adopting an EV.

There are 900,000¹ battery electric cars and 49,882² public chargepoints in the UK today. As a part of the electric vehicle infrastructure strategy announced in 2022³, the Government unveiled its plan for a near-tenfold increase in public charge points to 300,000 by 2030.

National deployment at this rate will necessitate more collaboration from all stakeholders involved in the EV transition, not just the transport or energy sectors. Collaboration amongst stakeholders will be critical in guiding EVs into the mainstream.

1 - [How many electric vehicles are there in the UK - EV market statistics 2023 \(zap-map.com\)](#) as of end of Sept 2023

2 - [How many EV charging points are there in the UK - Zapmap \(zap-map.com\)](#) as of end of Sept 2023

3 - Department for Transport, [Taking charge: the electric vehicle infrastructure strategy](#) - (2022)



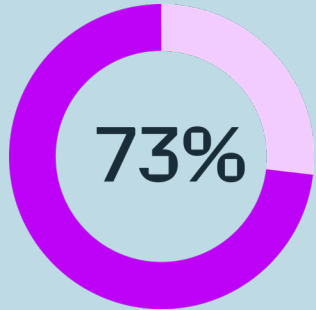
Methodology

Despite sometimes poor media perceptions and portrayals, EVs have seen considerable market growth in recent years. However, given the current economic challenges, AtkinsRéalis wanted to investigate whether this trend is set to continue. Working in partnership with Transport for the North, we conducted consumer research into EV adoption. We originally set out to understand if the current cost-of-living crisis is a barrier to adopting hybrids, plug-in hybrid electric vehicle (PHEVs) and EVs by surveying 204 car and van drivers from across the North of England. 92% of respondents had one or more petrol or diesel cars, while 13% already drive a hybrid, PHEV or electric vehicle. The data collected from the survey was statistically analysed to identify key trends and findings.

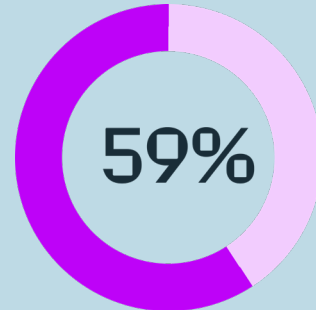
We subsequently spoke to a subset of 15 survey respondents during two focus groups that explored the factors which enabled or inhibited the adoption of an EV and tested options to support EV charging in the future. Data from the focus groups was analysed using a grounded theory approach, which enabled hypotheses and theories to emerge and coalesce into themes organically. Where appropriate, direct quotes from the focus groups have been included to ensure the views and experiences of participants are relayed in their own words.

While the cost-of-living crisis was on the minds of most participants, they also raised several other issues that they considered to be of equal importance. Consequently, we identified that no single barrier was itself significant enough to deter people from adopting EVs, instead, there are a series of interrelated and reinforcing barriers that collectively prove too complex, difficult and challenging for many drivers to navigate.

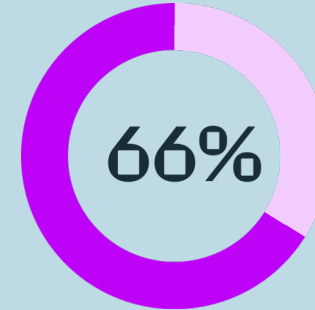
Following the grounded theory analysis, we applied a systems thinking framework to further understand and interrogate the data. Systems thinking looks at connected wholes rather than separate parts. This is important for the EV transition given that many stakeholders are involved in successfully delivering the EV transition, including transport, energy, automotive, and infrastructure sectors (involving both public and private sector bodies), as well as consumers. Taking an integrated approach is the best way to deliver the transition to EVs, and encouraging a holistic and collective approach is imperative. Our research insights emphasise the need for holistic action by policy makers, with solutions that tackle the interrelated barriers beyond those relating to infrastructure and transport alone.



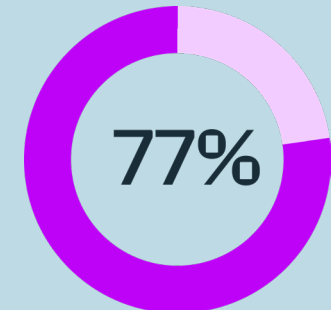
73% of petrol/diesel vehicle users responding to our survey said that they have no plans to replace their current vehicle with a hybrid, PHEV or EV within the next 3 years.



59% of survey respondents strongly agree or agree that switching to an electric vehicle would be difficult for their household because of unaffordable purchase costs.



66% of survey respondents strongly agree or agree that switching to an electric vehicle would be difficult for their household because of a lack of convenient *public* charging options, while 64% agree that a lack of convenient *private* charging options is making the switch to an EV more difficult.



77% of respondents who currently park on the street, in shared driveways, or in allocated car park spaces say that a lack of convenient private charging options is making the switch to EV difficult (compared to 57% of those who currently have access to private driveways or garages).

Findings

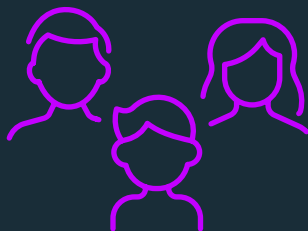


On examining some of the identified barriers to the EV transition in more detail, our research identified that cost, relative to a petrol or diesel vehicle, both for purchasing/leasing and charging a hybrid, PHEV or EV, was a significant consideration for those considering switching, particularly in the context of the cost-of-living crisis and higher energy prices.

The upfront cost of hybrids, PHEVs and EVs was still considered too high for most people's budgets, with several current hybrid or PHEV users waiting for prices to drop before they would consider switching to an EV. For some, the cost-of-living crisis has also delayed a switch as they refocus priorities on other expenses, such as rising mortgage payments. Among older individuals in our focus groups, there were also concerns that they may struggle to access finance that would enable them to purchase an EV.

A lack of information on costs (specifically the cost of charging) was also a key deterrent when considering the transition to an EV. This included ambiguity around the price of installing a charge point at home, obtaining ambiguous (or no) information about likely charging costs from car manufacturers and car dealerships, and a lack of transparency regarding the cost to charge at public charging points, such as at retail destinations and at petrol stations. Overall, poor, incomplete, or inaccurate information undermined consumer confidence and trust in EVs and resulted in many participants seeking to continue using more familiar and predictable technologies.

There also still appears to be a large information gap on incentives and subsidies to encourage EV adoption, with uncertainty regarding tax benefits and a lack of understanding regarding potential funding or grants available to install chargepoints.



"Six out of eight dealers I went to look at a car could not tell me how much it would cost to charge a car. They were selling £35,000 cars with no idea how much it would cost to recharge it to say 80% of its battery. They couldn't even give me a rough figure, so these people are selling these vehicles with no knowledge of what's the cost to run?"

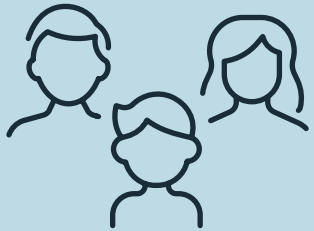
"I have held back on buying a new electric car due to the additional cost of living rises such as rises in heating costs, interest rates increasing my mortgage costs and general increases in everything."

"The whole electric [car] issue at the moment, so much of it is kind of shrouded in a bit of mystery. The whole subject is so vague for something that we all tend to use if you're a car driver, we all use them every day. And it's just such a vague subject, but it's a very, very big investment and I think that's what's holding a lot of people back."



"We won't consider an electric until we can have the freedom without anxiety to go where we want"

"Road tax is always something that's kept in the dark when it comes to electric vehicles. The government have not really said very much about what's going to happen with road tax. ... And it just feels that they're gonna wait and wait until we're all committed to electric and then we'll have some new announcement about road tax which we won't be able to get out of."



"I'm not too aware of what's happening with the funding subsidies at the moment. I think it's finished. I'm not absolutely certain."

"The second hand car market, which will be the one that a lot of people will have to buy into because of the prices, your car won't have the manufacturer's claimed range because the battery will have depreciated or degenerated, whichever word you want to use."

"I think the infrastructure is probably the big concern, I know that my daughter has on occasion borrowed someone's electric vehicle and ended up being stuck needing a charge."

The availability and accessibility of EV charging infrastructure were also high priorities for those who had previously switched to a PHEV or EV or were considering it.

For many, except perhaps those who only use their vehicle locally, the typical range of an EV and the availability of public charging points were still viewed as far too limited to provide enough confidence to make the switch from a self-charging or PHEV to an EV. Hybrids and PHEVs were considered to afford a level of freedom that EVs currently just do not do.

Residents of rural areas expressed concern about the scarcity of public chargepoints. They also stated that they face localised issues such as power outages and inadequate digital connectivity, which may jeopardise the stability of at-home charging and their ability to use a smart meter and hence benefit from discounted electricity pricing.

The opportunity to have private charging facilities at home was an important and desirable enabler for many respondents, including those living in urban and rural areas, to

move to a PHEV or EV. There was limited enthusiasm for employing shared residential charging solutions (such as kerbside charging points or neighbourhood charging hubs) or even a shared ownership model (such as EV car clubs).

There were many other factors impacting consumer confidence in the EV transition. For example, despite improvements to battery performance as a result of technological developments⁴, among some respondents, there was a lack of confidence in battery performance over the life cycle of an EV. There was a perception that batteries degrade rapidly with use and that a second-hand vehicle would not be able to achieve the range of its brand-new equivalent. Other market-related barriers were also found, such as consumer preference/loyalty to specific automotive brands that do not currently have affordable or mid-priced EV models on offer, and also the a lack of consumer choice when it comes to options for EV servicing, maintenance, and repairs.

Conclusions and recommendations



Our research has shown that a wide range of barriers are inhibiting the widespread adoption of EVs. Among the barriers identified, there was no single overriding factor that was more important to consumers. The starting point of this research was to investigate the impact of the cost-of-living crisis on the perception of EVs. While cost, alongside information, was frequently identified as a barrier to EV adoption across participant narratives, these themes are linked to others, such as charging infrastructure, availability of suitable models, and consumer confidence, as part of a wider system.

This research has revealed how consumers perceive the existence of a multitude of micro-barriers, many of them interdependent, often stacking up on top of each other to form an insurmountable 'wall' undermining confidence to start using a PHEV, or to move from a PHEV to an EV, even if the motivation is there. Many consumers will remain unable to successfully scale the 'wall' until the barriers that are relevant to their specific circumstances are unlocked.

Barriers to EV adoption					
Consumer Confidence	Future of tax incentives and funding/subsidies uncertain	Lack of confidence in battery lifespan	Misleading or non-existent information on range and charging costs provided by car manufacturers and dealers	Limited options for EV repairs, servicing and maintenance	Consumer loyalty to specific brands which do not yet have affordable BEV models
Infrastructure	Lack of public charging points leading to lengthy waiting times	Shared residential charging points/hubs and EV car clubs perceived to limit personal freedom	Internet cold spots prevent smart meter installation and benefits from being on an EV tariff	Safety and security concerns (person and vehicle) associated with shared residential charging points/hubs	Rural power cuts affect rural charge point reliability
Cost	High upfront cost of BEV - still out of price range for many	Cost of living crisis resulting in delayed transition and different spending priorities	Lack of transparency of home chargepoint installation costs	Lack of information on public EV charging costs	High public charging costs compared to private at-home charging



No single issue or barrier stood out to participants when describing the challenges they faced when considering moving to an EV; instead, participants articulated a broader set of interconnected factors, collectively reinforcing their reluctance or perceived difficulty in moving to an EV.

To successfully address the barriers highlighted by this research, it is essential for all stakeholders involved to work together more closely to overcome the challenges preventing widespread EV adoption. Potential actions include the following:

Theme	Action	Stakeholder involved
Automotive sector capabilities	Delivery of a training campaign for car dealerships/salespeople to enable them to provide better advice and information on PHEV and EV charging options and costs to consumers interested in switching to electric	Office for Zero Emission Vehicles (OZEV), Local Transport Authorities (LTAs), automotive industry trade bodies, training providers, main automotive brands
	Deliver training campaigns for the vehicle repair and maintenance sector to upskill providers (particularly SMEs) in servicing PHEVs and EVs	OZEV, LTAs, automotive industry trade bodies, training providers, main automotive brands
Behaviour change	Design and trial behavioural science-led interventions to increase the adoption of EVs	OZEV, LTAs
Confidence building	A refresh of EV related communications and information campaigns aimed at consumers to enable informed decision making around vehicle capabilities, charging, and financial incentives	OZEV, automotive industry trade bodies
	Provide certainty regarding existing financial and tax incentives while exploring new opportunities to encourage EV adoption. For example, car scrappage incentives	HM Treasury
	Support the rollout of EV charging infrastructure in less commercially viable locations, enabling the development of a coherent and dependable national network	OZEV, Sub-national Transport Bodies, LTAs, ChargeUK, DNOs
Delivery	Support and guidance for the deployment of private at-home charging infrastructure	OZEV, LTAs, ChargeUK (representative body for EV chargepoint providers), electricity distribution network operators (DNOs), and energy suppliers
	Development of regional EV forums, bringing together public and private sector stakeholders to co-ordinate actions and promote EV adoption	Sub-national Transport Bodies, LTAs, automotive industry trade bodies, main automotive brands, ChargeUK, DNOs, Ofgem, National Grid.



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