Department for
Business, Energy
& Industrial Strategy

# Electric Vehicle Smart Chargepoint Survey 2022

## Findings Report

## Baseline Evaluation of the Electric Vehicles (Smart Charge Points) Regulations 2021

January 2023

**Acknowledgements: This report was written for BEIS by DG Cities.**



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# Executive Summary

In January 2022 BEIS commissioned a survey with 1000 EV drivers to help understand the public attitudes towards, and the current use of, smart charging at home and in the workplace. The study provides baseline evidence to inform the monitoring and evaluation of the progress of the Electric Vehicles (Smart Charge Points) Regulations 2021 against their objectives.

The cross-sectional survey was distributed via the YouGov panel with responses from just over 1000 EV drivers. The YouGov UK panel is an online panel of over 800,000 people of all ages and all socio-economic groups. The panel were pre-screened prior to the survey commencement to establish whether they had a battery electric vehicle or plug-in electric hybrid vehicle. The YouGov panel uses a non-probability-based sample which limits the generalisability of the results.

The findings from this study suggest that there is an underutilisation of smart functionalities. Although the majority of dedicated chargepoints in private off-street locations have some level of smart functionality, they are typically not being used to the best of their ability. For example, 41% of drivers with dedicated chargepoints had functionalities which enable charging to be scheduled. However, out of these drivers, only 27% of BEV drivers and 14% of PHEV drivers use charge scheduling every time they charge. Over half (54%) of PHEV drivers never use the scheduling function, compared to 30% of BEV drivers.

The regulations mandate that all chargepoints installed in private off-street parking and workplaces from June 2022 have smart functionality. Therefore, for EV drivers with access to charging at these locations, smart charging will become widely accessible. However, further investigation into the underutilisation of smart functionalities could be helpful to determine whether any interventions, such as guidance and support, could help chargepoint users make use of the smart charging capability of chargepoints and understand its benefits.

Findings suggest that a key barrier to scheduling charging is the low availability and/or uptake of time of use tariffs. These tariffs offer consumers a lower electricity price during off-peak hours or when renewable electricity generation is high. 34% of drivers with a dedicated chargepoint with the ability to schedule charging reported never using this functionality. Half of these drivers cited that not having a flexible tariff energy was a reason for this. This indicates that EV drivers on standard tariffs lack the financial incentive to schedule their charging. To facilitate scheduling, the regulations require that chargepoints incorporate pre-set default charging hours outside of peak hours. Future investigation into the incentives of smart charging, including an assessment of this requirement and the availability of time of use tariffs, will be useful to inform the evaluation of the regulations.

Although the majority of EV drivers surveyed (69%) had access to a dedicated chargepoint at home, a sizeable minority of drivers opt to use three-pin charging cables. 26% of battery electric car drivers and 49% of plug-in hybrid electric car drivers used a 3-pin cable which plugs into the mains socket as their primary method of charging at home.  EV drivers cited that

the main reasons for not having a dedicated chargepoint at home were that 3-pin cables were fast enough or easy enough to meet their charging needs and dedicated chargepoints were too expensive or too complex to install.

Supporting the transition of consumers away from 3-pin cables and towards dedicated chargepoints will be key to maximising the use of smart charging technologies. Further investigation of EV drivers using 3-pin cables as their primary charging method at home is recommended to identify and help address knowledge or attitudinal barriers to uptake. It will also be important to monitor the development of the market for smart 3-pin cables and whether these can provide the same level of smart functionality to EV drivers in an affordable and accessible way.

BEIS can use the findings from this baseline survey to measure how these attitudes and behaviours of EV drivers change over time and assess to what extent the regulations are achieving the objectives, whilst also understanding the impact of wider factors like time of use tariffs and chargepoint innovation.

# Introduction

Smart charging is a way to charge an electric vehicle (EV) at times when the demand for electricity is lower, for example at night, or when there is lots of renewable energy on the grid. It is beneficial to the consumer because if they charge at off-peak times, they will have access to cheaper energy. As more consumers transition from internal-combustion engine vehicles to EVs, smart charging will increase in importance as it helps to prevent unwanted intervals of extremely high demand for electricity from the grid, therefore avoiding grid instability.

The Electric Vehicles (Smart Charge Points) Regulations 2021 ("the regulations") are a set of device level requirements that aim to maximise the use of smart charging technologies in the private (home or workplace) setting. In January 2022 BEIS commissioned a survey to help understand public attitudes and perceptions towards these technologies, as well as their access to and use of them, ahead of the phased enforcement of the regulations in 2022. The regulations came into effect on 30th June 2022, apart from the security requirements, which came into effect on 30th December 2022.

The priority of this survey is to improve understanding of public attitudes towards and current use of smart charging at home by Battery Electric Vehicle (BEV) and Plug-in Hybrid Electric Vehicle (PHEV) users.

This survey is designed to act as a baseline to support the implementation of the regulations. It is anticipated that over the course of several phases of regulation, the survey will provide insights as to their impact and effectiveness. BEIS will be conducting an interim and final impact evaluation of the regulations by 2025 and 2027 respectively. This survey provides a baseline against which we can measure the impact and changes in the EV driver population.

## Policy and study objectives

The policy objectives of the regulations are:

**Maximising the use of smart charging technologies:**

- Improving the capability of EV chargepoints by ensuring the use of smart technologies - the regulations mandate for all private dedicated chargepoints to have smart functionality and for there to be a strengthened definition of "smart" for industry and consumers. Success factors for this policy objective include: (1) increases in uptake of smart dedicated chargepoints in private off-street parking and workplaces, and associated levelling off in the use of 3-pin cables; and (2) an increase in the smart capabilities of dedicated smart EV chargepoints which are installed from June 2022 onwards.
- Encouraging the use of smart chargepoints to shift charging times away from peak power demand on the electricity system - the regulations' mandate for dedicated chargepoints to incorporate pre-set default charging hours which are outside of peak

hours. Success factors for this policy objective include: (1) a high proportion of EV owners schedule charging away from peak hours; (2) average daily EV charging load has shifted away from traditional peak hours; and (3) a low proportion of EV drivers who frequently charge instantly/override smart settings.

**Helping to balance the Grid:**

- Modulating/shifting charging to contribute to balancing the electricity system - the regulations mandate that all private EV chargepoints have the technical capability to provide Demand Side Response (DSR) services e.g., via an energy aggregator. Success factors for this policy objective include: (1) average daily EV charging has shifted away from traditional peak hours; and (2) increase in the smart capabilities of dedicated smart EV chargepoints installed.
- Avoid sharp secondary peaks – the regulations mandate for the inclusion of a ten-minute randomised delay function in smart chargepoints. Success factors for this policy objective include: (1) EV drivers are using chargepoints in a smart way with flexible tariffs, shifting charging to off-peak hours; (2) EV drivers aren't overriding the randomised delay setting and 10 minutes is sufficient to avoid sharp secondary peaks; and (3) chargepoints have the capability for dynamic demand-side response (DSR) services, and do not act as a barrier to the development of this market.

**Providing consumer and grid protection:**

- Set requirements around the cyber and data security of chargepoints to mitigate the risk that EV charging presents to the security of the grid
- Ensure there is interoperability across smart chargepoints and energy suppliers to avoid unfair disadvantage towards consumers switching between energy suppliers and to avoid excluding consumers from accessing smart charging services and tariffs.

This study is designed to evidence a baseline of consumer attitudes and behaviours in relation to the above policy objectives, focusing mainly 'on maximising the use of smart charging technologies' and 'helping to balance the grid'. Therefore, we defined the following study objectives:

- **Study objective 1:** To determine how electric vehicle (EV) drivers charge at home and at the workplace, including what equipment they use and how regularly they charge.
- **Study objective 2:** To determine how EV drivers currently engage with smart charging including the uptake and use of smart chargepoints.
- **Study objective 3:** To understand consumer awareness of the benefits of smart charging and consumer attitudes towards future engagement.
- **Study objective 4:** To seek evidence and insights for understanding behavioural barriers to smart charging.
- **Study objective 5:** To develop a robust methodology with evidence-based measures that can be repeated to develop a longitudinal data set for BEIS.

# Methodology

## Survey development

We developed a cross-sectional survey that was distributed via the YouGov panel with responses from just over 1000 EV drivers. The YouGov UK panel is an online panel of over 800,000 people of all ages and all socio-economic groups. The panel were pre-screened prior to the survey commencement to establish whether they had an electric vehicle or plug-in electric hybrid vehicle. A non-probability-based survey sample was created using the YouGov panel database. Fieldwork took 5 days between the 9th and 16th of March 2022.

To develop the survey, we undertook the following:

- Rapid Literature Assessment: we devised a set of keywords to use to gather the relevant literature from various research platforms. The review included documents provided by BEIS, previous survey reports from industry leaders and research from academics.
- Expert Interviews: To supplement our rapid literature assessment we conducted 5 interviews with academic and industry professionals. These interviews enabled us to further develop our thinking. This included high level questions about the state of play in the electric vehicle industry and opinions about specific definitions and questions we had developed for the survey.
- Survey design: The final survey was produced via an iterative process through discussions between DG Cities and BEIS.

The structure of the final survey was as follows:

- EV drivers' access to charging technology.
- Attitudes towards smart charging.
- Intention towards and use of smart charging.
- Access to workplace charging, and workplace charging behaviour.
- General demographic information.

### Weighting

YouGov use multiple sources to generate their weightings. These include: the 2011 Census, Labour Force Survey, the National Readership Survey and British Election Study, the results of the 2017 general election and 2016 referendum, and ONS Population Estimates.[1] A weighting variable was calculated by YouGov for age and gender from UK Office for National Statistics

[1] YouGov (2022) Panel Methodology. Accessed online: https://yougov.co.uk/about/panel-methodology/

data to mitigate skew within the YouGov panel for these variables. The sample weighting is included in the analysis where noted.

### Data cleaning and preparation

The following data cleaning and preparation steps were undertaken to prepare the data set for analysis:

- Data processing to ensure all responses are correctly captured.
- Base size analysis, cross-break and survey routing checks, by checking a sample of responses and checking for completeness across several routes through the survey instrument.
- Consolidation and presentation checks for data when presented in tables, including variable name checks and question spacing checks.
- Panellists who regularly “straight-line” responses are removed from the panel.

### Quality assurance

Quality assurance (QA) was undertaken by the Technical Assurance Lead (TAL) at DG Cities and Professor Wells, an independent academic. The TAL and academic partner reviewed the survey design, analysis and output from the project at the current stages:

- Sign-off of the ethics process.
- Sign-off of the research protocol and project plan.
- Sign-off of the rapid literature assessment.
- Review of the survey instrument.
- Review of Output 1: Data Tables; Output 2: Summary Report; and Output 3: PowerPoint Presentation. TAL independently reviewed and made recommendations for the final deliverable.

## Limitations

The key limitations of the current study are:

- Sample design: the current study makes use of a non-probability-based sample accessed through a national panel provider. There are several limitations with this approach, namely lack of representation given the limited information demographic information available about BEV and PHEV drivers. This limits the generalisability of results and prevents analysis from estimating sampling variability and identifying bias. Limitations are mitigated through post-hoc weighting (see below).
- Accessibility: the current study was delivered via a panel provider through a phone and web-based app. Inclusion of those without digital skills or access to digital tools was therefore not possible, potentially limiting the diversity of participants.

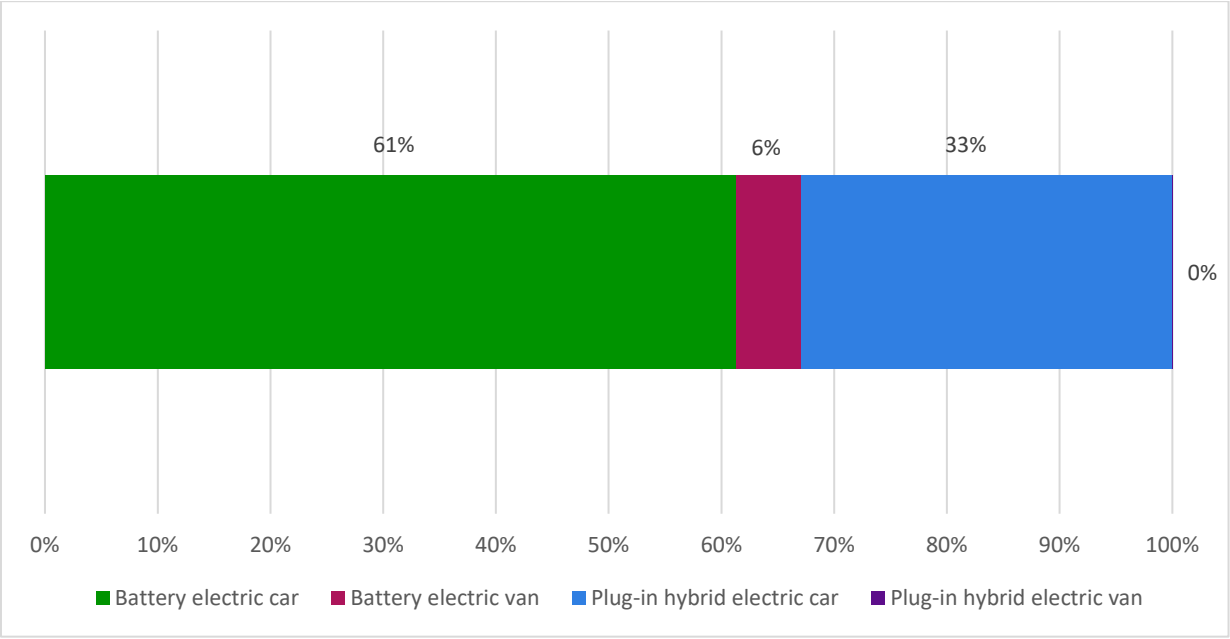
- Changing barriers: the current study surveys early adopters of BEV and PHEVs and presents specific barriers these groups face. The barriers presented are likely to change over time as adoption increases. It is therefore important to consider further waves to comprehensively map barriers over time.
- Weighting variable: the weighting variable calculated and applied is based on UK general population statistics for age and gender. A quota-based sample of BEV and PHEV ownership for the UK is required to improve the sampling of future studies. However, the data required for this is not yet available.

# Findings

## Access to charging technology

Respondents were asked to provide information on the types of vehicles they own and use, and to highlight the BEV or PHEV they used most frequently, which was then to be considered in the remainder of the survey. Vehicle types are described in figure 1.

**Figure 1: Vehicle types**

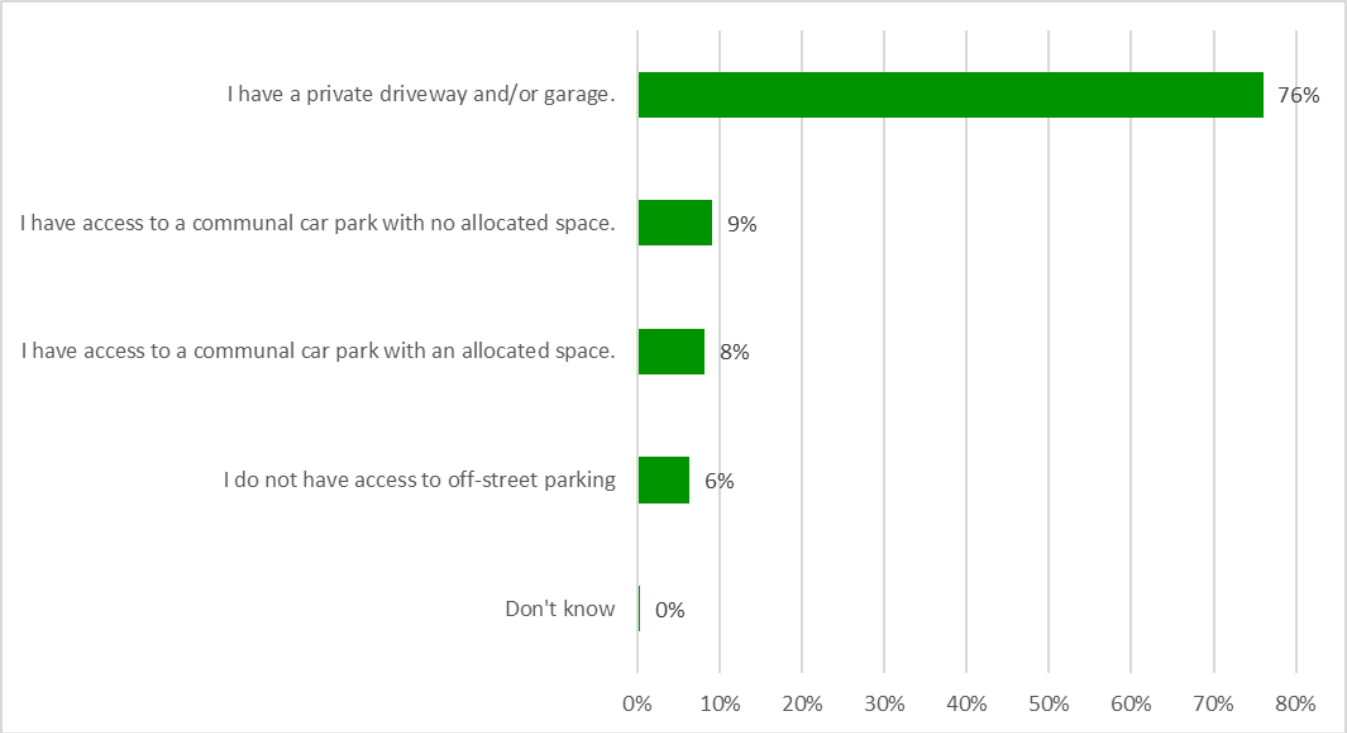



Base: N (weighted) = 1002 (all respondents)

The majority (61%) of survey respondents answered the survey with a BEV car in mind. A third (33%) answered with a PHEV car in mind. Therefore, the responses to the rest of this survey may reflect this split in different ways with regards to charging behaviour.

The forthcoming regulations are designed for private charging, which mainly affects those with off-street parking and the ability to install a dedicated chargepoint at home. We therefore measured the number of respondents with access to off-street parking, as shown in figure 2.

**Figure 2: Access to off-street parking.**

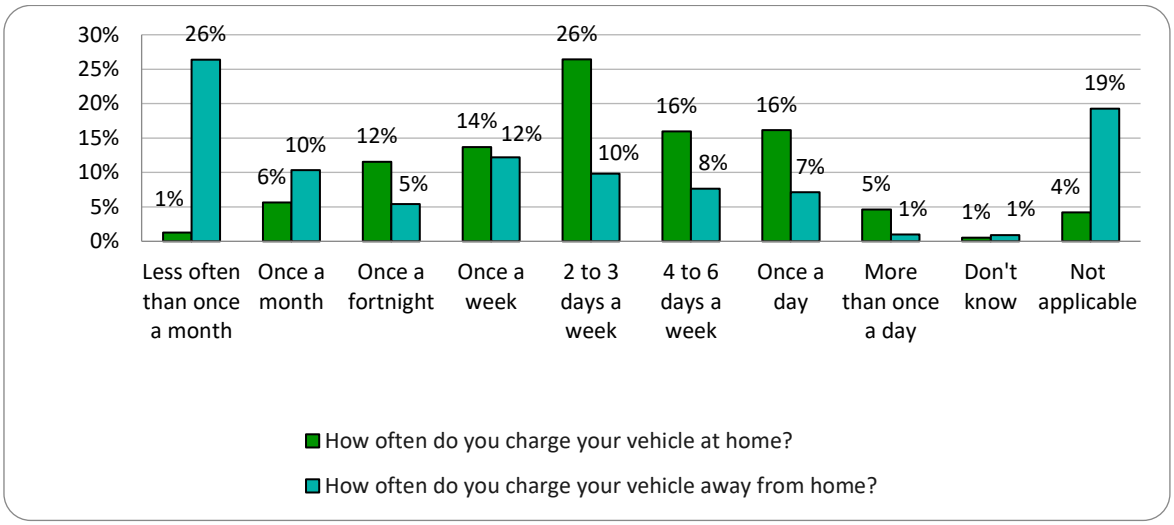



Base: N (weighted) = 1002 (all respondents)

As expected, the majority of respondents have access to a private driveway or garage. Only 6% of respondents who own a BEV or PHEV do not have access to any kind of off-street parking. We also explored the location and frequency of charging for respondents, as shown in figure 3.

We investigated whether this changed depending on the rurality of location defined using the ONS Rural Urban Classification. A large majority of respondents in each group, urban (72%), town and fringe (72%) and rural (93%), had a private driveway or garage.

**Figure 3: Time spent charging at or away from home**

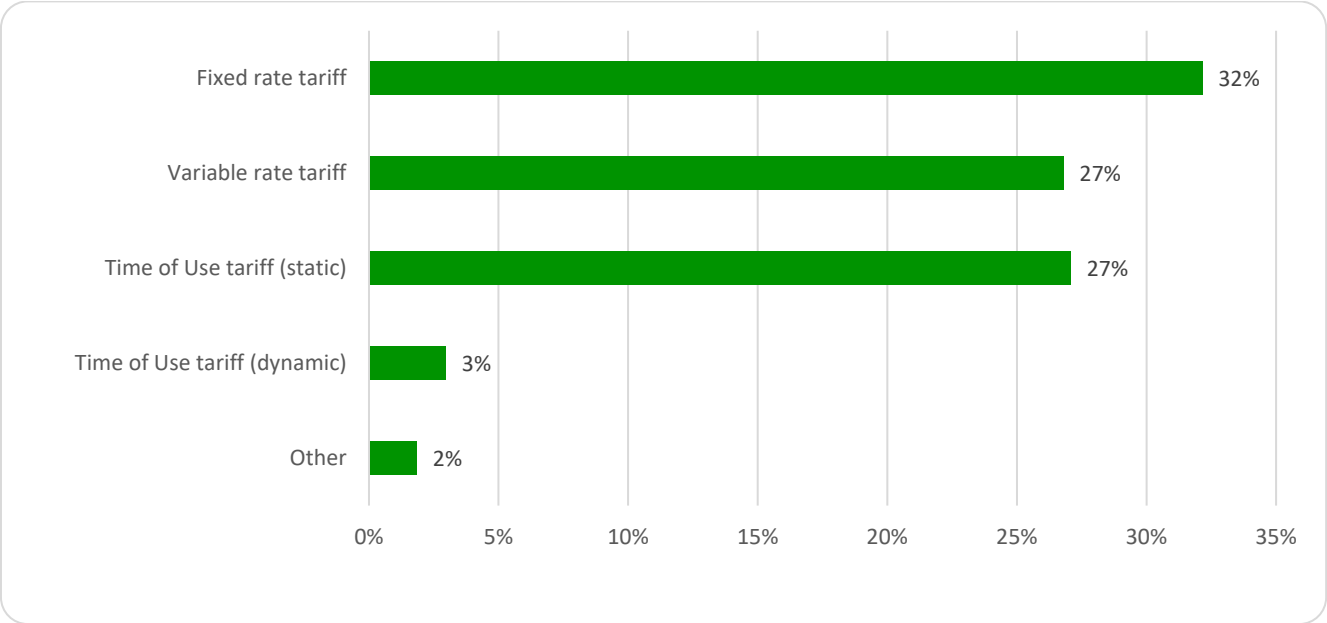



Base: N (weighted) = 1002 (all respondents)

Respondents aged over 55 rarely charge away from home, with over half (64%) of respondents 55 and over stating that they either 'never' charge away from home or do so less than once a month. While, over half (53%) of respondents aged 18-24 charge their EV away from home either once a day or 4-6 days a week. However, the sample size of 18-24 year olds is too small to draw conclusive comparisons.

People who work (either part-time or full-time) are generally more likely to charge their car outside of the home than those who are retired, with 30% of retired BEV/PHEV drivers never charging their vehicle away from the home compared to 42% of working drivers charging away from home at least once a week.

**Figure 4: Type of electricity tariff BEV/PHEV drivers use[2]**




Base: N (weighted) = 1002 (all respondents)

Survey respondents were provided with brief descriptions of the energy tariffs mentioned in figure 4 and asked to select which tariff they had at home. Three-in-ten (30%) were on static time of use tariffs, whilst the majority of respondents were on standard fixed-rate or variable-rate energy tariffs (59%).

Some respondents chose to reply 'other' rather than choosing one of the tariffs listed above, their responses included:

- Three mentioned that they use 'Octopus Go', a static time of use tariff.
- Three use 'Economy 7', a static time of use tariff.
- One uses a Tesla tariff, which is designed with homes where solar and a Tesla battery are installed.
- Two use a 'triple time of use tariff'.

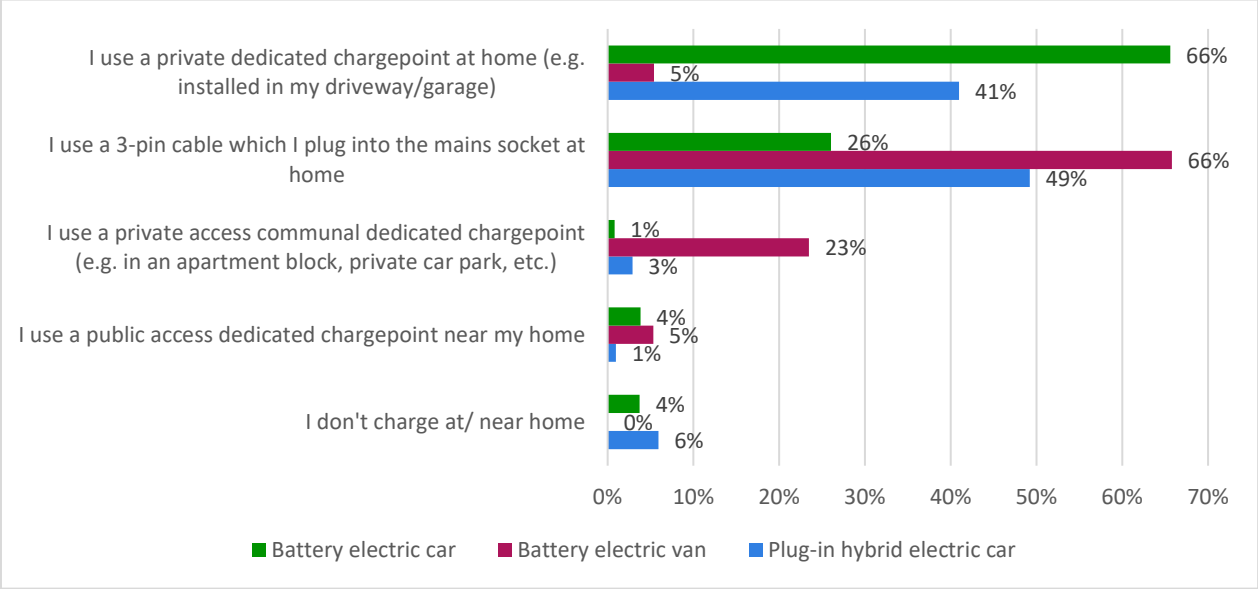
[2] These tariffs were defined as the following: Fixed rate tariff - this type of tariff guarantees the price of your energy for a set period of time (usually 12 to 18 months); Variable rate tariff - with this tariff the price you pay for each unit of energy can go up and down at any time during your contract with a supplier; Time of Use tariff (static) - electricity plans that offer two different rates on electricity (e.g. EDF GoElectric 35); Time of Use tariff (dynamic) – electricity plan that tracks daily wholesale energy prices, providing the next day's pricing the day before with a price schedule that can vary every 30 mins. (e.g. Octopus Agile, etc)

- Three people stated that they use their solar panels to charge up their car.

While this is an extremely small number of respondents, this commentary may be useful for future survey development to incorporate these comments as survey items.

Almost 7-in-10 (69%) of those with access to off-street parking[3] have a dedicated chargepoint at home. There were differences in responses according to vehicle type: almost half (45%) of the respondents who use a plug-in hybrid vehicle do not have a dedicated chargepoint at home. We also explored the type of vehicle charging technology used by BEV and PHEV owners (figure 5).

**Figure 5: Type of vehicle charging technology.**



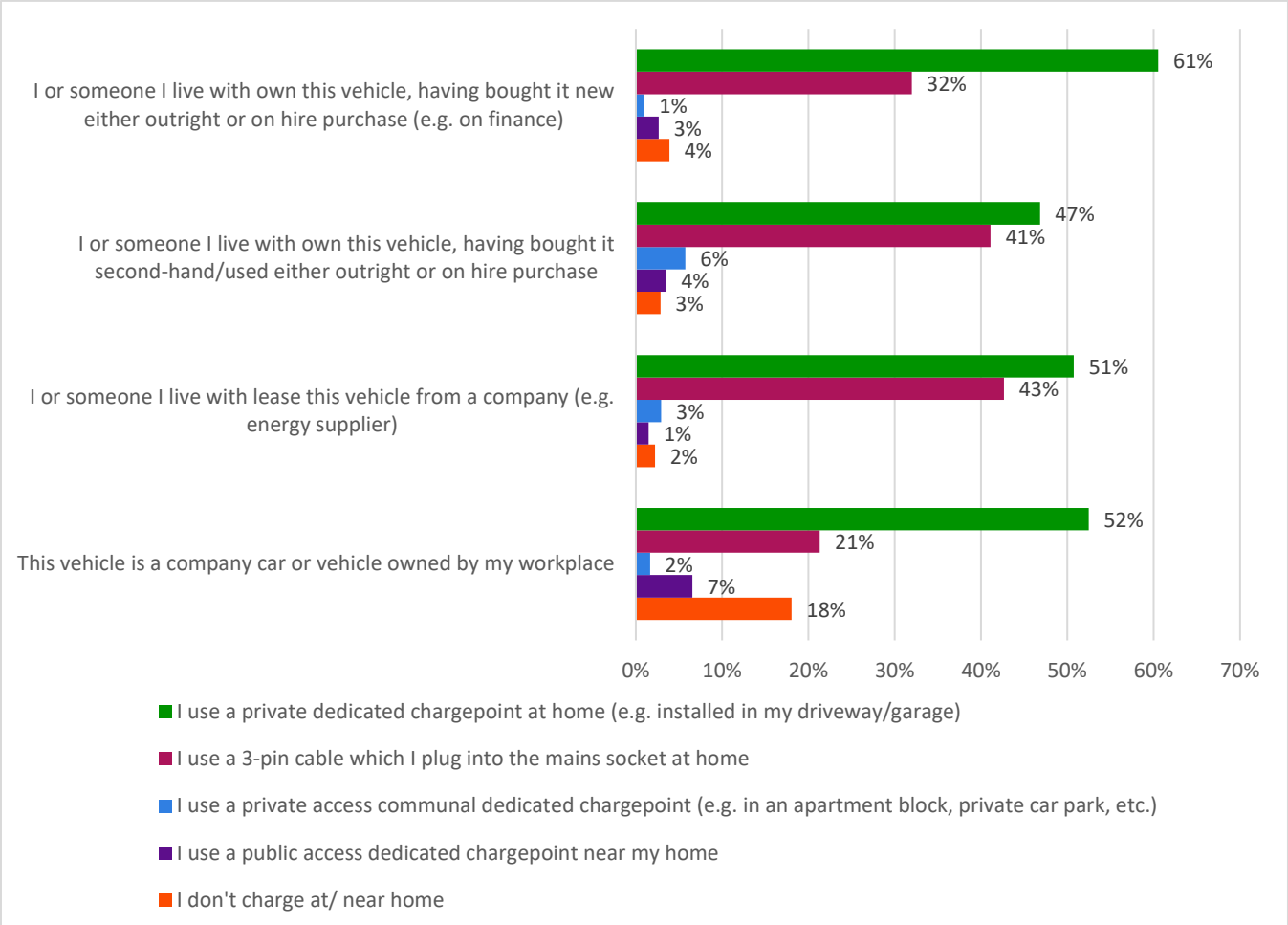

Base: N (weighted): battery electric car = 594; battery electric van = 58; plug-in hybrid electric car = 284; plug-in hybrid electric van = 0.

Over half (54%) of participants primarily use a dedicated chargepoint to charge their EV whilst over a third (36%) primarily rely on a 3-pin cable to charge their EV. There are several reasons why the number of respondents indicating that they use a dedicated chargepoint at home in figure 5 (54%) is lower than those who responded that they have a dedicated chargepoint installed at home (69%), which include: respondents may have a dedicated chargepoint but choose a different method of charging (e.g., 3-pin cable), or they may choose to charge at a communal chargepoint (3% of all BEV/PHEV users).

Further analysis of the data shows that PHEV owners tend to rely on 3-pin cables rather than a private dedicated chargepoint. 49% of PHEV owners use 3-pin cables, and 41% use a dedicated chargepoint. In comparison, 66% of BEV car owners use a dedicated chargepoint and only a third (26%) use a three-pin plug.

[3] Off-street parking is defined as those who ticked either of the following: “I have private driveway and/or garage”; “I have access to a communal car park with no allocated space”; or “I have access to a communal car park with an allocated space” , as shown in figure 2.

**Figure 6: Type of charging technology by vehicle ownership.**

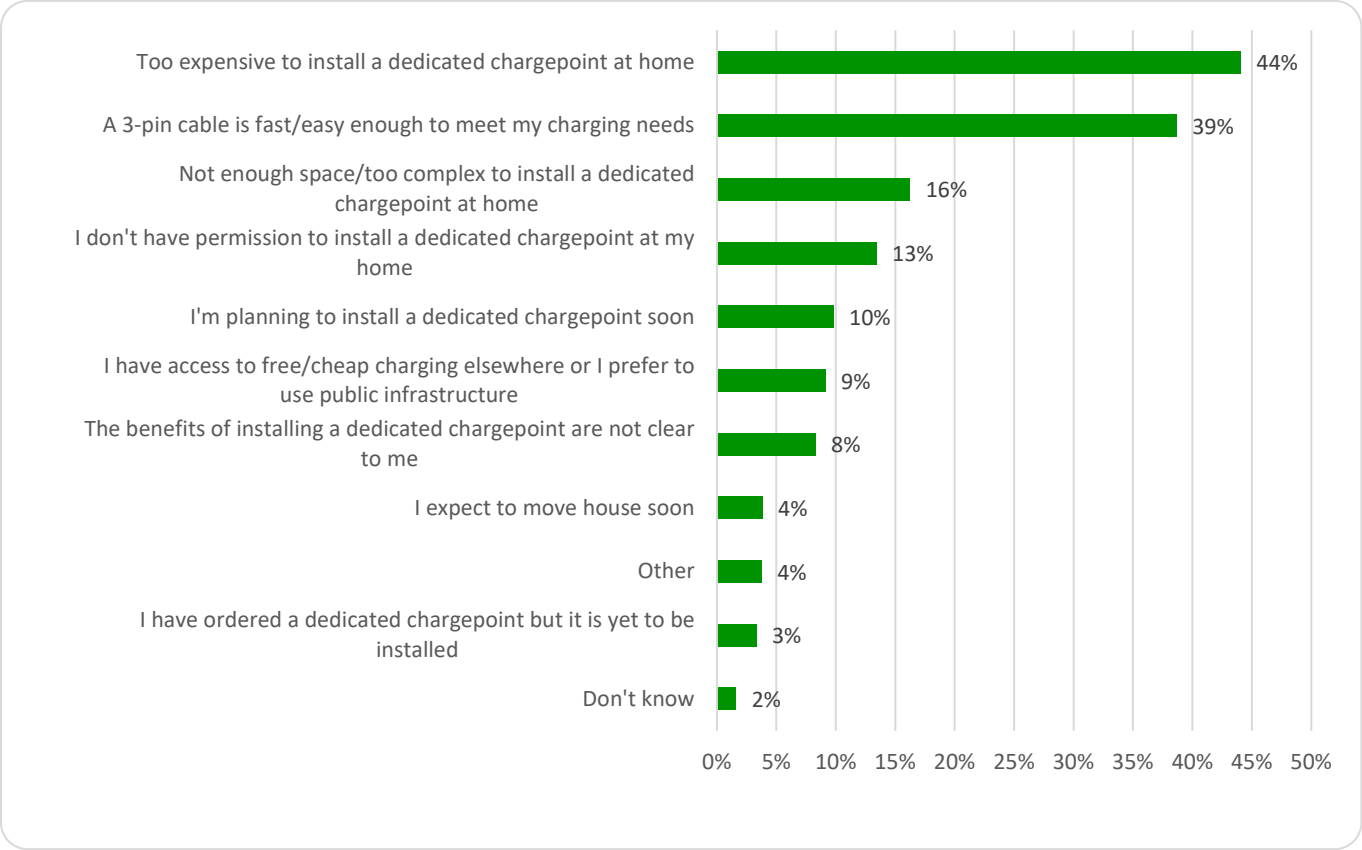



Base: I use a private dedicated chargepoint at home, N(weighted)= 509; I use a 3-pin cable, N(weighted)= 332; I use a private access communal dedicated chargepoint, N(weighted)= 27; I use a public access dedicated chargepoint near my home, N(weighted)= 29, I don't charge at/near home N(weighted)= 39

We further investigated whether the respondents' access to a dedicated chargepoint varied by ownership type. The evidence suggests that across every type of vehicle ownership, those who own their vehicle are most likely to have a private dedicated chargepoint. The majority (62%) of respondents who have new cars have a dedicated chargepoint. The type of chargepoint split is more even for the respondents with second-hand BEVs or PHEVs: 47% of respondents have a dedicated chargepoint and 41% have a 3-pin plug.

The forthcoming regulations are intended to ensure that the dedicated chargepoints consumers have, have some degree of 'smartness'. We explored consumer barriers by asking those who have not installed a dedicated charge-point about the reasons why they have opted not yet to acquire and use a dedicated chargepoint at home (figure 7 below).

**Figure 7: Perceived barriers to using a dedicated chargepoint.**




Base: N (weighted) = 287 (All BEV/PHEV users who don't have a dedicated chargepoint installed at home)

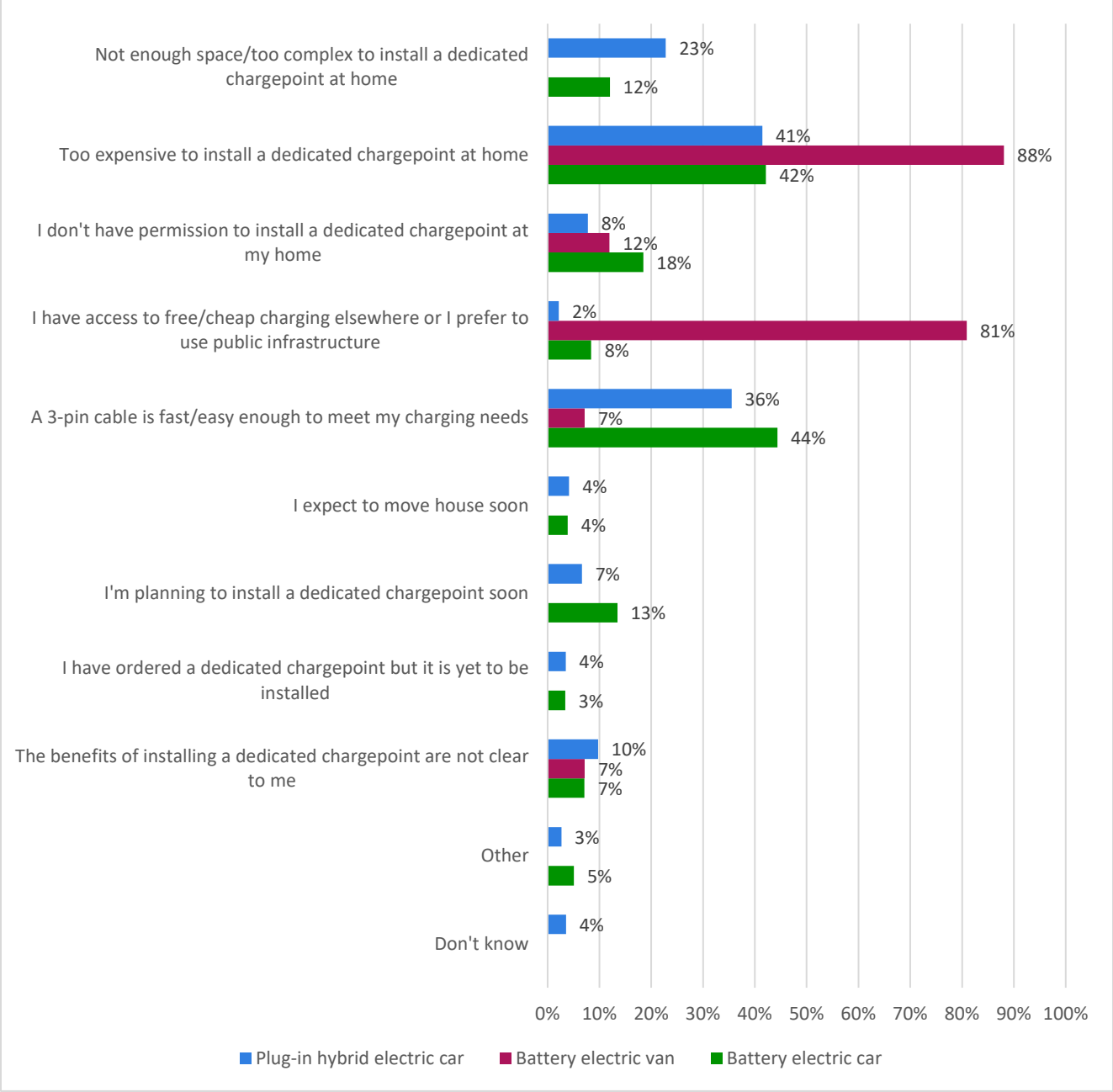
Respondents were able to select multiple responses pertaining to why they did not have a dedicated chargepoint. The most common response (44%) was that respondents felt that dedicated chargepoints were too expensive to purchase and install. Additionally, over a third of respondents indicated that a 3-pin cable is enough to meet their needs.

The structure and location of respondents' properties was also highlighted as a barrier to uptake, with 16% of respondents stating that there was not enough space, or it was too complex to install a dedicated chargepoint at home. Some of the reasons given by participants who responded 'Other' were related to the structure of their properties. Three mentioned that they needed upgrades to their home electricity system, for example:

*"need to get home rewired to increase the size of the main fuse to cope with extra output for an EV charger"* (YouGov survey respondent).

An additional 3 mentioned location issues such as living above the ground floor or being unable to park directly outside their house. In a similar vein, one participant mentioned that their solar panel's peak output is only 6kW, so they use a three-pin plug to not exceed this limit. It is also worth considering that respondents did not mention concerns about the safety or durability of the dedicated chargepoint nor a fear of a technology lock-in which bodes well for dedicated chargepoint development in future.

**Figure 8: Perceived barriers to using a dedicated chargepoint, by vehicle type**.




Base: Plug-in hybrid electric car N (weighted) = 330; Battery electric van N (weighted) = 58; Battery electric car N (weighted) = 614.

The reasons for not having a dedicated chargepoint differ depending on the type of vehicle the respondent has access to. The top 3 reasons for those with battery electric cars for not having a dedicated chargepoint were: ‘A three-pin cable suits my needs’ (44%); ‘too expensive to install a dedicated chargepoint at home’ (42%), and ‘I don’t have permission to install a dedicated chargepoint at my home’ (18%).

Participants with battery electric vans varied less, with 88% stating it was too expensive to install a dedicated chargepoint at home and a further 81% said that they have access to free/cheap charging elsewhere or prefer to use public infrastructure. Although results for this

group should be interpreted with caution due to the small sample size, it would be interesting to consider in future research how perceived barriers might vary for van drivers.

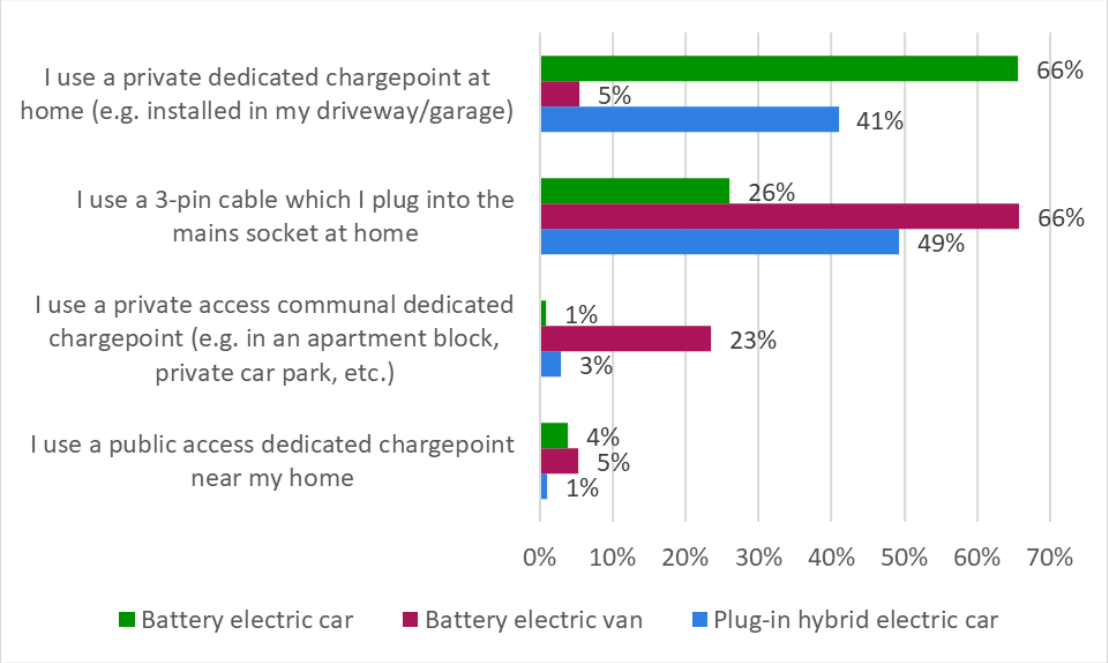
**Demographics and attitudes of three-pin cable users**

We explored demographic differences among those who use three-pin cables. However, the following exploratory analysis should be treated with caution due to the low sample size among specific demographic groups.

Younger respondents tended to be more likely to use a 3-pin cable (86% of those aged 18-24, 48% of those aged 25-34) than older respondents (23% of those aged 55+).

The majority (72%) of BEV and PHEV drivers in London stated that they used a 3-pin cable. As indicated in figure 10, drivers in rented accommodation are more likely to use a 3-pin cable, which could indicate why many drivers in London use this charging method. Additionally, younger respondents in London are more likely to live in rented houses of multiple occupancy so may be less able to access a dedicated chargepoint. In all other areas of the UK, the majority have a dedicated chargepoint. Their appears to be limited difference between urban and rural areas with regards to three-pin cable use.

**Figure 9: Three-pin cable users, by vehicle type**




Base: N(weighted) = Battery electric car N(weighted)= 594; Battery electric van N(weighted)= 58; Plug-in hybrid electric car N(weighted)= 284

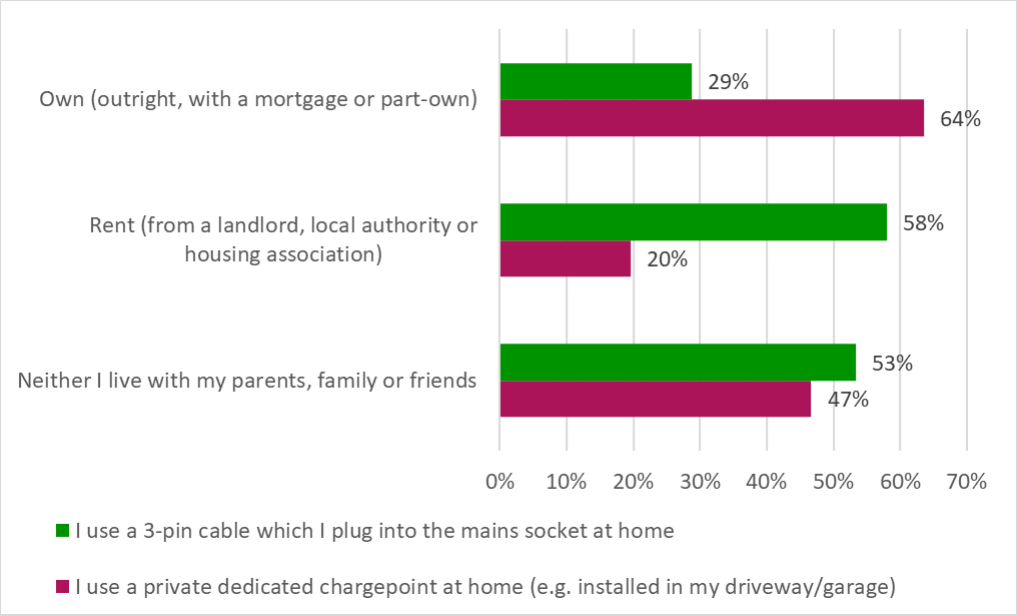
As shown in figure 9, a quarter (26%) of respondents with battery electric cars use 3-pin cables for charging. In contrast, just under half (49%) of respondents with PHEVs use 3-pin cables which could be because they do not rely on quick charging as much as those with BEVs.

People who do not own their homes are more likely to have a 3-pin cable charger rather than a dedicated chargepoint (See figure 10). This could be due to the additional permissions they may need from their landlord or because they are more likely to move properties.

The top 3 reasons why respondents with 3-pin cable chose not to buy a smart chargepoint are as follows:

1. A 3-pin cable is fast/easy enough to meet my charging needs
2. Too expensive to install a dedicated chargepoint at home
3. Not enough space/too complex to install a dedicated chargepoint at home

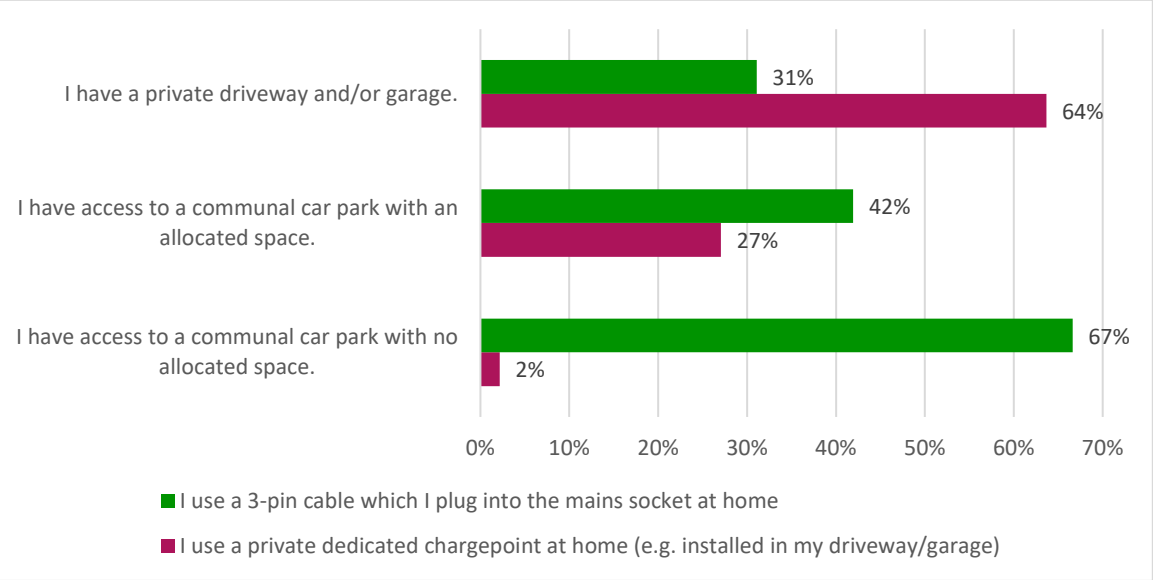
**Figure 10: Three-pin cable users, by housing status**




Base: N(weighted) = 935 (all BEV/PHEV users who have access to off-street parking at their main home).

Those with access to communal car parks were more likely to use three-pin plug chargers (42% with an allocated space; 67% with no allocated space). This raises questions about how people using 3-pin cables charge in practice, for example, the location of the power source for the charger and how cables are used when space is limited. This could be an avenue for future qualitative research to further understand the needs of this demographic. This finding links charging approach to housing status, signalling a need to focus on rental accommodation to increase the rates at which this demographic use dedicated chargepoints. Since April 2022, the Government offers an electric vehicle chargepoint grant for landlords. It gives financial support to landlords and other entities to buy and install electric vehicle (EV) chargepoints at residential or commercial properties in the UK.

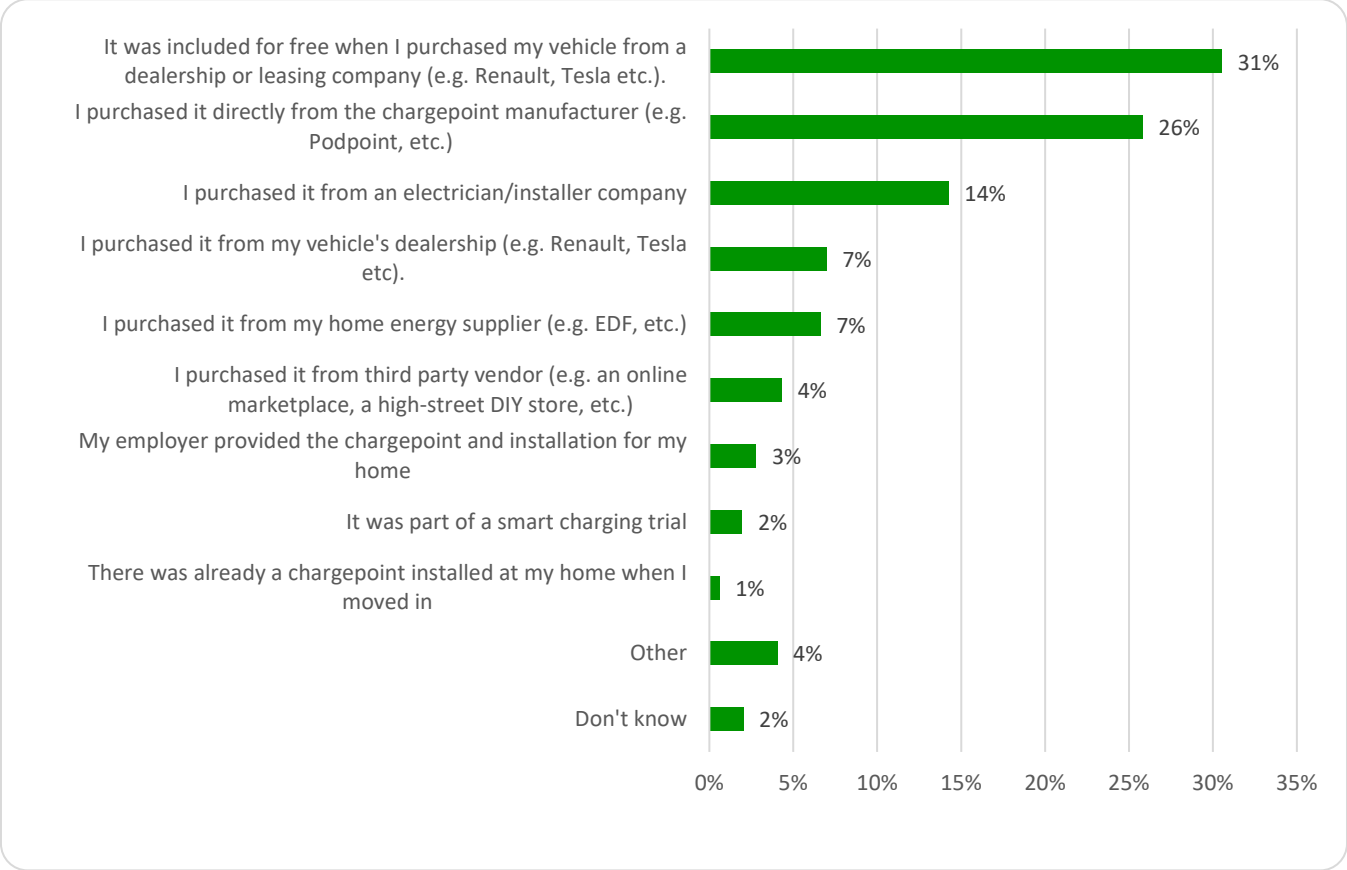
**Figure 11: Three-pin cable users, by parking access**




Base: N(weighted)= 935 (All BEV/PHEV users who have access to off street parking at their main home)

BEV/PHEV drivers appear to acquire their dedicated chargepoints through the most convenient means, with around three in ten (31%) of drivers acquiring one for free as part of their vehicle purchase. A quarter (26%) of respondents purchased their dedicated chargepoint directly from the manufacturer while only 7% purchased it from their home energy provider (figure 12).

**Figure 12: Source of purchase/acquisition of dedicated chargepoints**

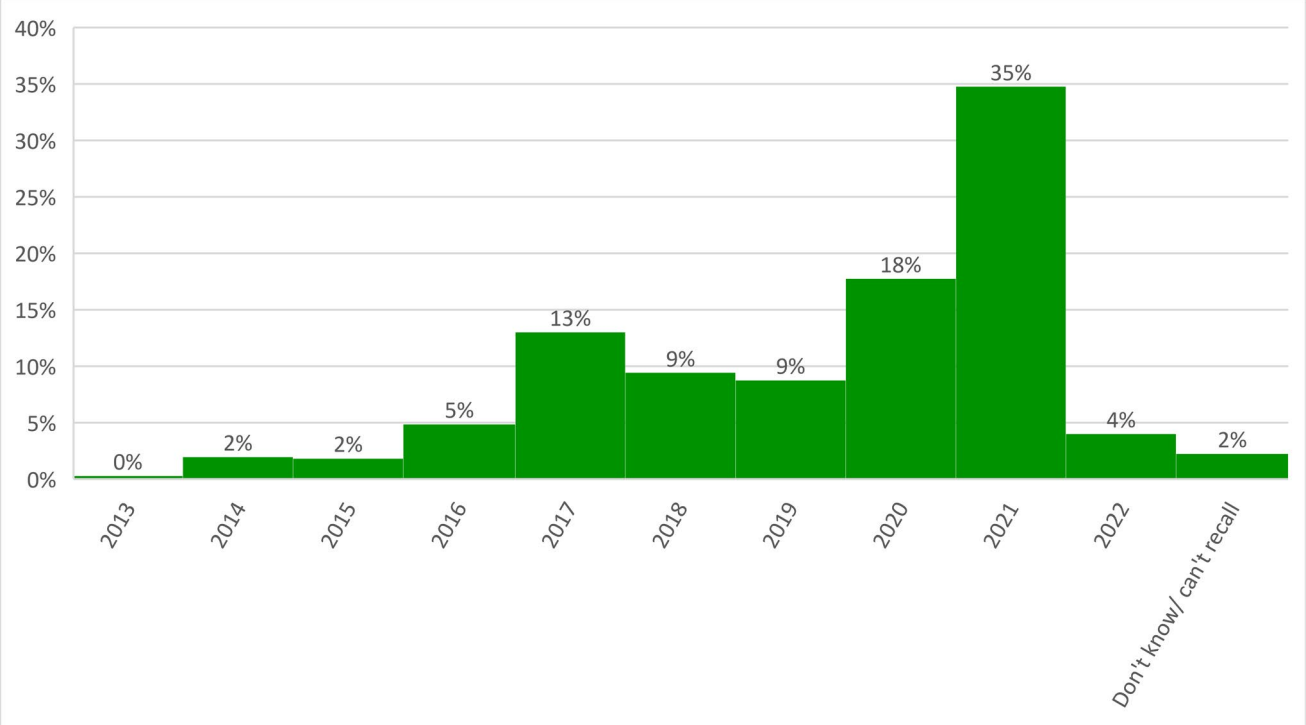



Base: N (weighted)= 648 (All BEV/PHEV users who have a dedicated chargepoint at home)

Four percent of respondents selected ‘Other’, and the explanations for these included:

- Purchasing through their leasing broker.
- Participants installed the dedicated chargepoint themselves.
- Installed it using the Government grant scheme.
- Received the dedicated chargepoint for free when they bought a previous EV car.

**Figure 13: Dedicated chargepoint year of purchase**




Base: N (weighted)= 609 (All BEV/PHEV users who purchased/had a dedicated chargepoint)

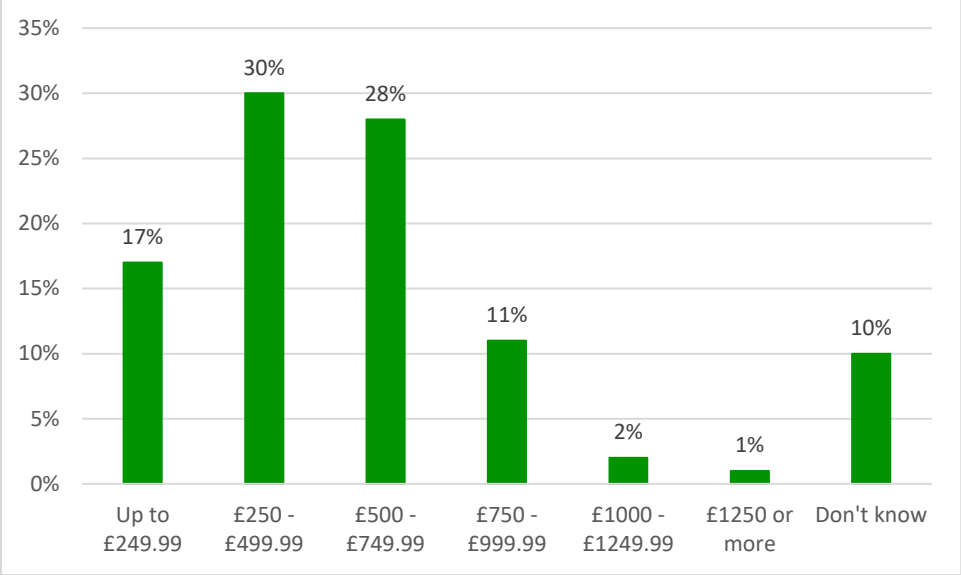
Over a third of respondents purchased their dedicated chargepoint in 2021, in line with current BEV and PHEV sales trends. Analysis of the data highlights that since 2013, 72% of dedicated chargepoint purchases occurred in the year in which the respondents started driving their BEV or PHEV, highlighting that the majority of dedicated chargepoints purchases are likely to be combined with or are as a result of a BEV or PHEV purchase.

It is important to also consider that in 2021, there was a rise in public engagement on climate change and a boost in sales towards the end of 2021 as the re-focus of the Electric Vehicle Homecharge Scheme was announced.[4] Furthermore, this upwards trend occurred despite of EV production delays related to the COVID-19 pandemic.[5]

[4] The number of chargepoints installed in the UK under the scheme increased from 53,000 to 89,000 in 2021. Source: DfT, January 2022.

[5] The COVID-19 pandemic disruption of international supply chains, including the production rate of microchips required for EVs and EV chargers. Source: Inews, Nov 2021.

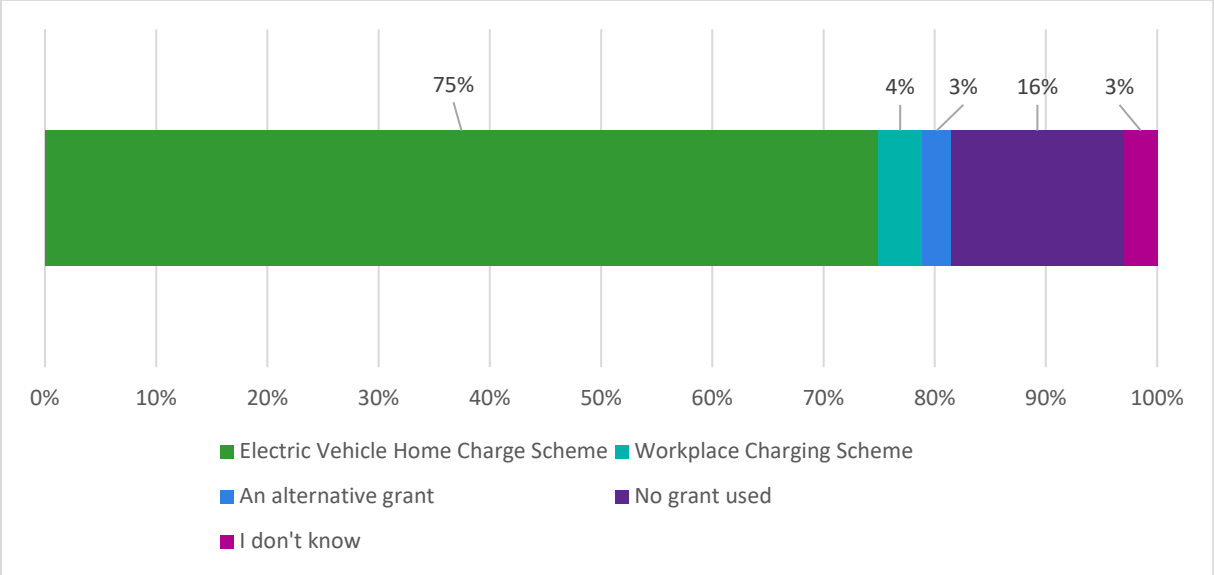
**Figure 14: Dedicated chargepoint purchase and installation costs**




Base: N (weighted)= 376 (All BEV/PHEV users who purchased a dedicated chargepoint, excluding those who got it for free with their vehicle purchase)

Figure 14 highlights the purchase and installation costs of dedicated chargepoints. This question excluded those who's dedicated chargepoint was included for free when they purchased or leased their vehicle. Respondents who had made use of the grant scheme were asked to provide the cost they paid *after* the grant had been applied. Over half of respondents paid between £250 and £750 for their charge-point purchase and installation. Over half of respondents paid between £250 and £750 for their charge-point purchase and installation.

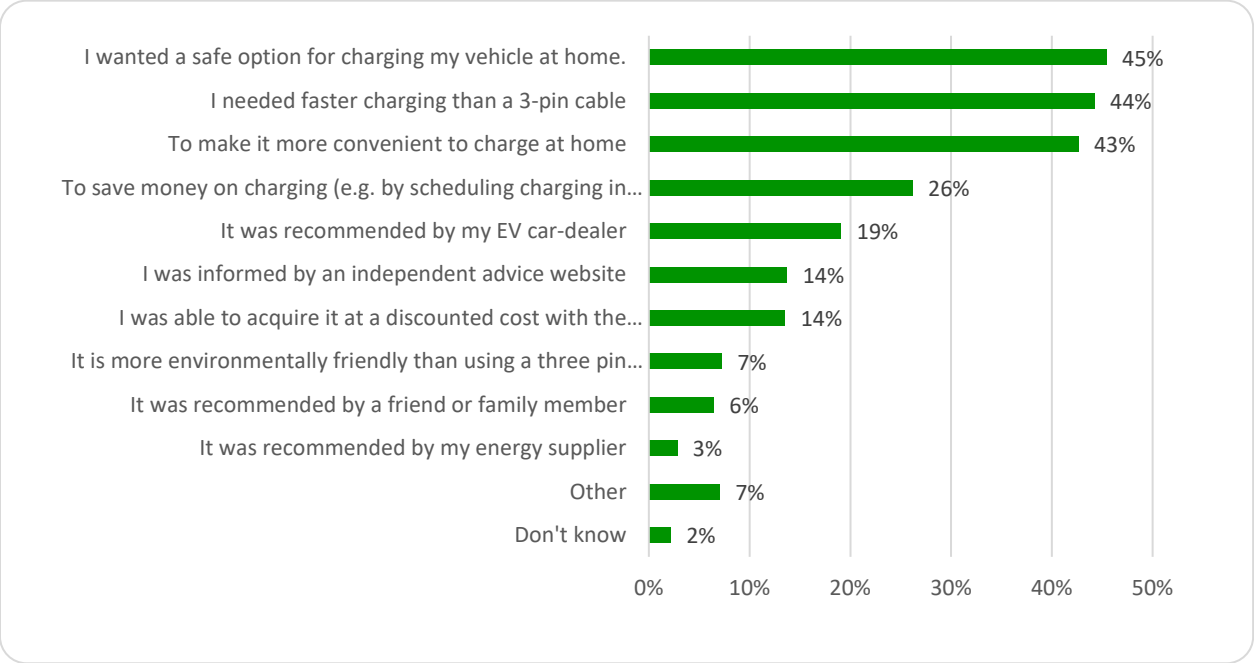
**Figure 15: Did respondents use a government grant to help pay for the purchase and installation of their dedicated chargepoint?**



Base: N(weighted)= 376 (All BEV/PHEV users who purchased a dedicated chargepoint). 2% of respondents selected more than one grant.

The majority of respondents (76%) made use of the Government grant scheme when purchasing their chargepoint. Other respondents who selected 'a different grant' used either the Scottish Government scheme (5 participants) or the Energy Saving Trust Scheme (6 participants). We also explored the reasons for consumers to purchase a dedicated chargepoint (figure 16).

**Figure 16: Reasons for purchasing a dedicated chargepoint**

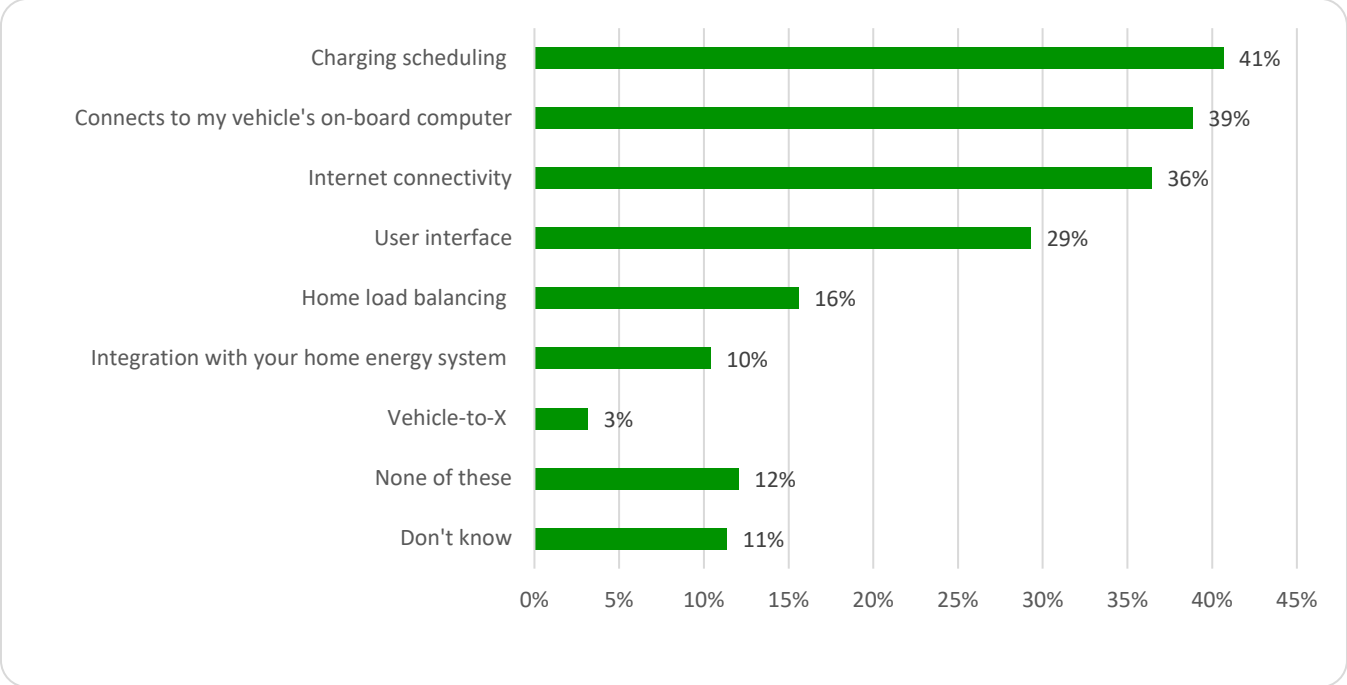



Base: N(weighted)= 376 (All BEV/PHEV users who purchased a dedicated chargepoint)

Almost half (45%) of the participants chose to get a dedicated charge-point for a safe home charging option, while 26% said that saving money was a motivator for purchasing.

We investigated age-differences for the 'to save money on charging' response and found that almost a third of 18-24 year olds (30%) and over 55's (32%) felt that this was a factor, while only 10% of those aged 44-54 year olds saw this as an issue. This suggests there could be a different awareness or interest in the financial benefits of charge-scheduling across different age groups. Respondents who selected "Other", gave the following reasons: "To take advantage of the grant" and "To time with solar panels".

**Figure 17: Dedicated chargepoint functionalities: prevalence**



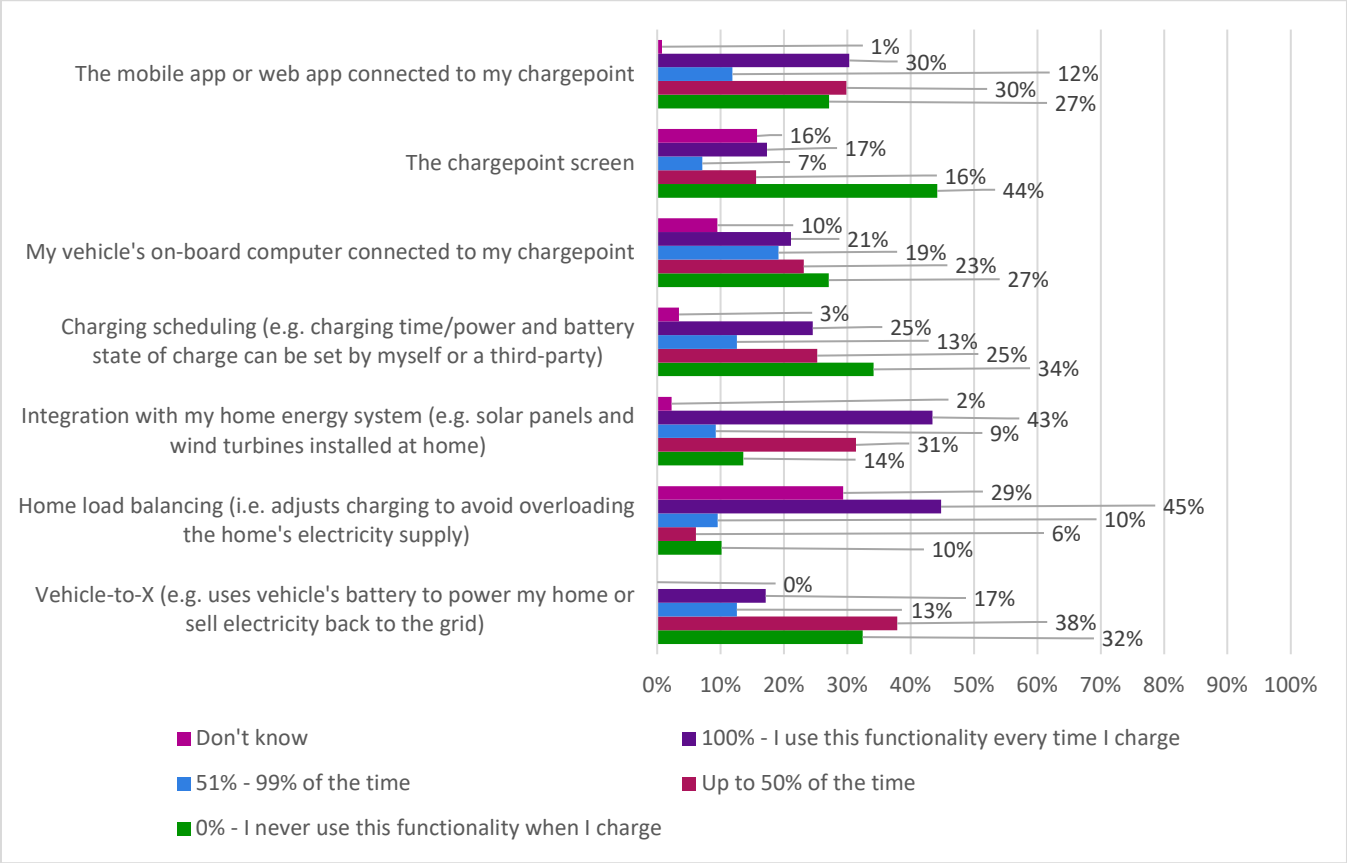

Base: N (weighted)= 574 (All BEV/PHEV users who have a dedicated chargepoint)

For this question, respondents had the option to select all the functionalities available on their dedicated chargepoint. The top three functions are charge-scheduling, connecting to the vehicles on-board computer and internet connectivity. This indicates that many of the chargepoints EV drivers own have at least some degree of 'smartness'.[6] Almost half of respondents (41%) are able to use charge scheduling on their chargepoint. However, when compared to the reasons for purchase (figure 17), this suggests that EV drivers are buying chargepoints with smart functionalities for reasons other than 'smartness' such as safety and convenience. Thus, to be able to schedule charging with a smart chargepoint to save money or use green electricity does not appear to be a main driver for purchase.

[6] The Energy Saving Trust provide a definition of 'smartness' on their website. https://energysavingtrust.org.uk/advice/smart-charging-electric-vehicles/

In addition to understanding the prevalence of different dedicated chargepoint functionalities, we also explored the frequency of use of these functionalities (figure 18).

**Figure 18: Dedicated chargepoint functionalities - frequency of use**




Base: Mobile app connected to my charge-point Base: N(weighted)=267; Charge-point screen Base: N(weighted)=267; Vehicle computer connected to charge-point Base: N(weighted)= 313; Charging scheduling Base: N(weighted)= 234; Integration with home energy system Base: N(weighted)= 60; Home load balancing Base: N(weighted)= 90; Vehicle to X Base: N(weighted)= 18.

As indicated by the low number of respondents in certain groups shown in figure 19, the frequency of use data for some of these functions may not accurately reflect real usage rates. Only a small percentage of those with the load balancing and integration with home energy system functionality use it. Further research could consider why the frequency of use is higher for these two functionalities compared to others.

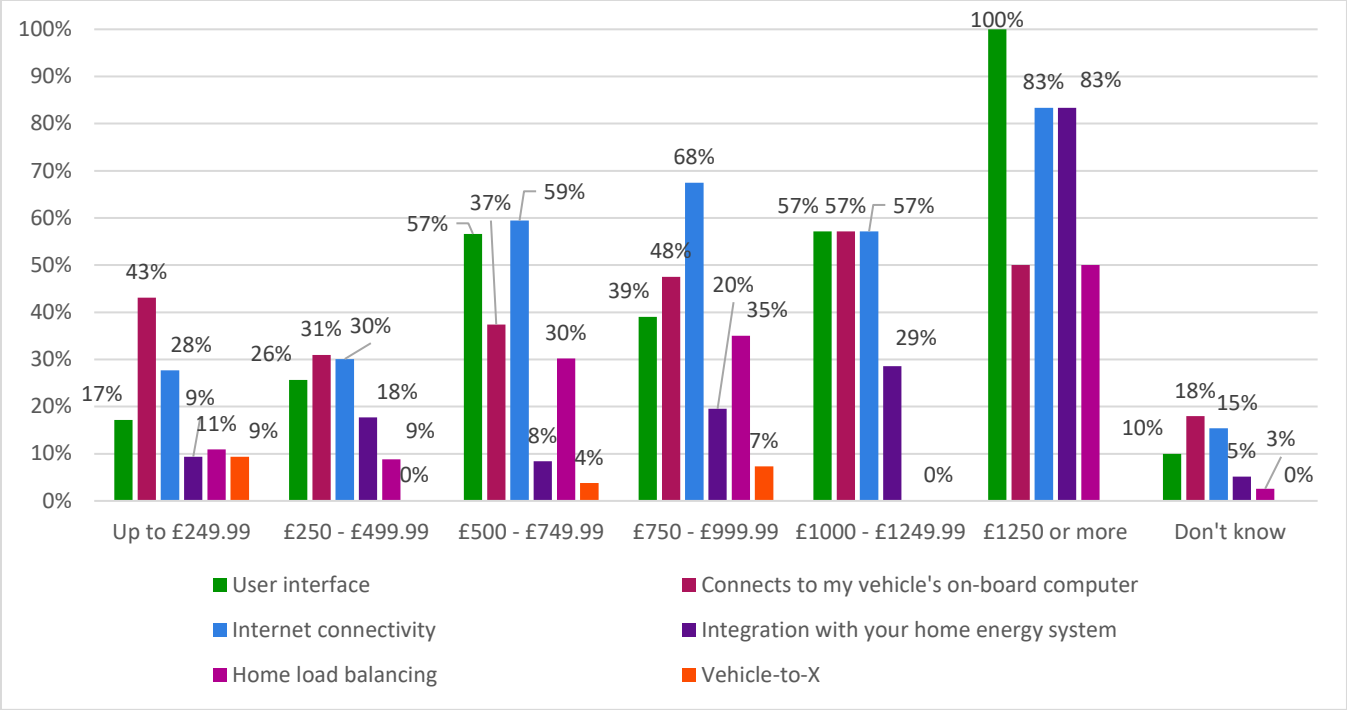
A third of respondents, who previously said their chargepoint had a user interface, use a mobile app to charge every time they charge the car. In comparison, just under half of participants (44%) who have the chargepoint screen functionality never use it to charge. This suggests that the preferred method of managing vehicle charging may be via a third-party mobile app rather than on the chargepoint device.

The charge-scheduling results are skewed by age, with no respondents aged 18-24 using this functionality every time they charge, compared to 41% of respondents aged 55+. However, due to the small sample sizes of the 18-24 group it is not possible to test statistical significance for the population. This could be because young people are more likely to have varied schedules, perhaps working irregular hours, while older people are more likely to be retired

(57% of the over 55s are retired) with a steady daily routine, meaning scheduling charging is more useful to them. Use of charge-scheduling also differs by vehicle type: 27% of BEV drivers use charge scheduling every time they charge, compared to 14% of PHEV drivers, and over half (54%) of PHEV drivers never use the schedule function, compared to 30% of BEV drivers.

The graph above shows that many EV drivers either never or only occasionally use the smart functionalities that their chargepoints have. Further research could use a qualitative approach to take a deep dive into the reasons behind why they use the functionalities and what would encourage them to use the smart charging functions in the future, for example persuasive communications about the financial and environmental benefits of scheduled charging could be useful.

**Figure 19: Dedicated chargepoint functionalities compared to price of chargepoint**



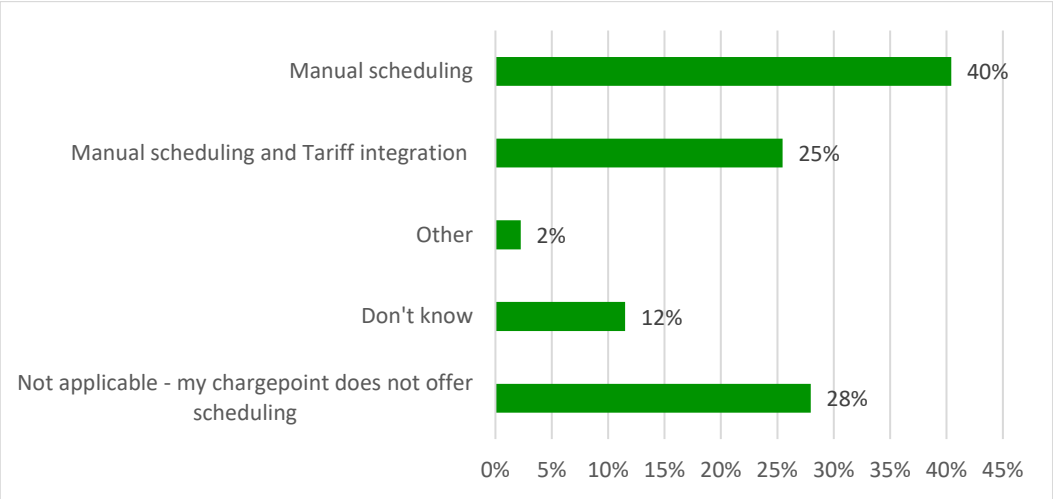

Base: User interface N(weighted)= 129; Connects to my vehicles on-board computer N(weighted)= 136; Internet connectivity N(weighted)= 157; Integration with home energy system N(weighted)= 52; Home load balancing N(weighted)= 67; Vehicle-to-X N(weighted)= 13; Don't know N(weighted)= 49; None of these N(weighted)= 43

The graph above shows the percentage of dedicated chargepoints in each price bracket with specific smart functionalities. Internet connectivity prevalence appears to increase with the price of the dedicated chargepoint, with 83% of dedicated chargepoints having this functionality if they cost £1250 or more. As expected, in general the chargepoints that were more expensive had more functionalities than the cheaper ones. One fifth (20%) of the dedicated chargepoints up to £249.99 have none of the listed functionalities. A surprising finding is that 9% of respondents with dedicated chargepoints that cost up to £249.99 reported having vehicle to grid capabilities, which is considered an advanced smart functionality, while none of the respondents with dedicated chargepoints costing £1250 or more reported having this function.

# Attitudes towards smart charging

We also investigated attitudes towards smart charging in addition to exploring access to smart charging technologies. In this section we will explore types of charging scheduling undertaken, and frequency and reasons for "boost" charging: overriding pre-set schedules.

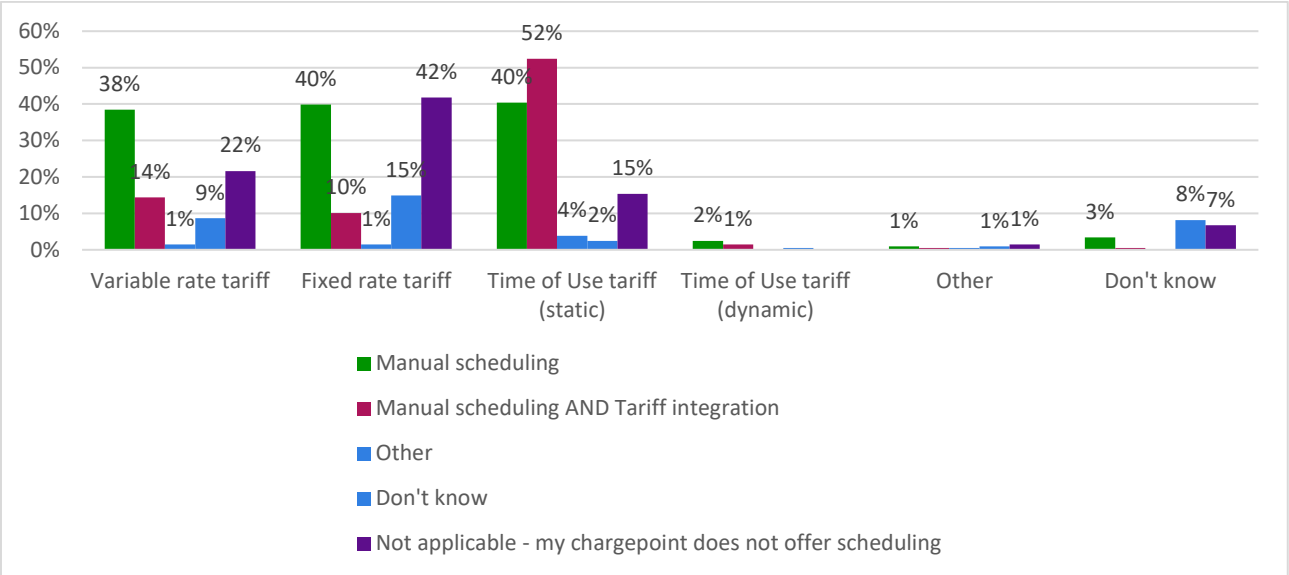
**Figure 20: Type of scheduling used**




Base: N (weighted) = 648 (All BEV/PHEV users who have a dedicated chargepoint installed at home)

Almost three in ten (28%) of respondents stated that they do not have the ability to schedule charging on their device. However, it is important to note, these respondents may be able to schedule charging via their car. For those who can schedule charging, a quarter (25%) have the option to integrate it with their tariff, whilst the majority (40%) have access to manual scheduling only.

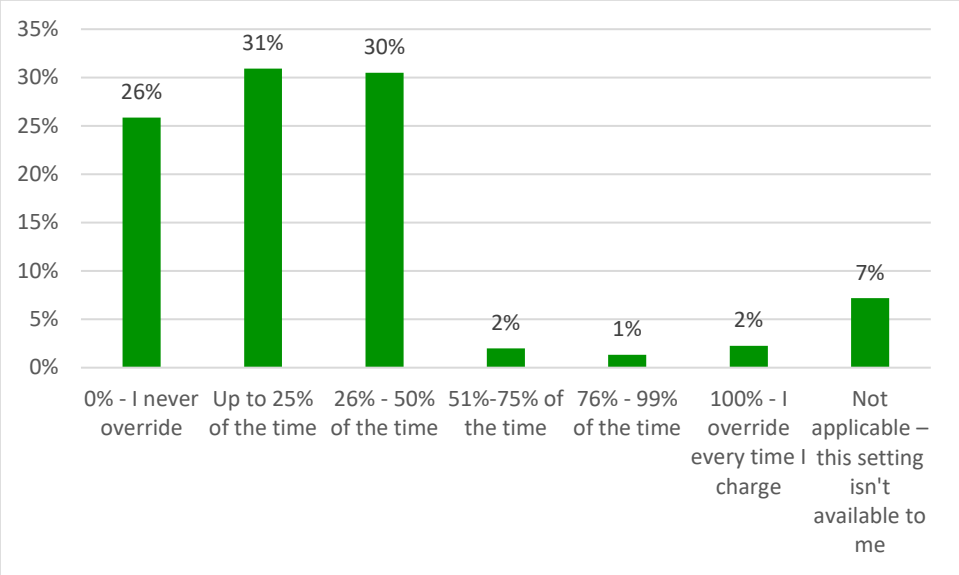
**Figure 21: Type of scheduling used, by tariff integration**




Base: Manual scheduling N(weighted)= 261; Manual scheduling and tariff integration N(weighted)= 165; Other N(weighted)= 15; Don't know N(weighted)= 74

We investigated what type of scheduling those who have tariff integration use. Over half (52%) of respondents who use tariff integration with their charging point had a static Time of Use tariff. There is virtually a three-way split between the types of tariffs the people who use manual scheduling between variable (38%), fixed rate (40%) and time of use tariff (static) (40%).

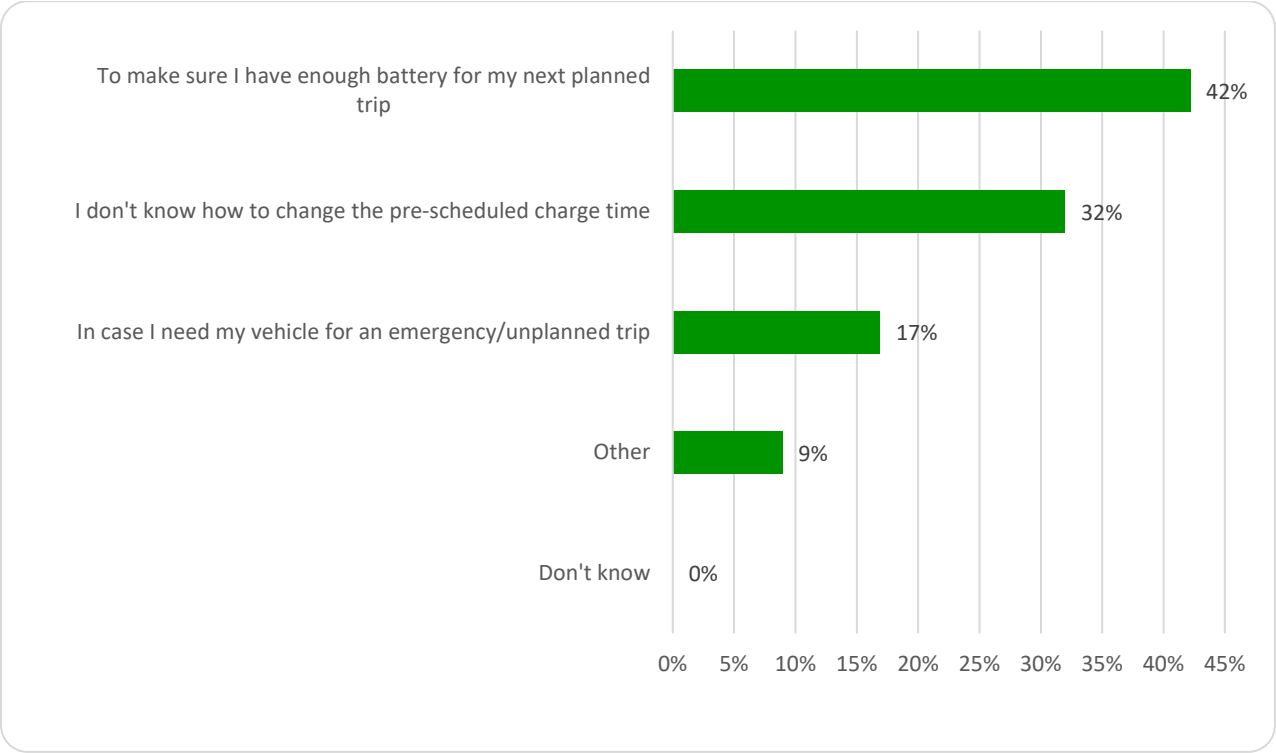
**Figure 22: Frequency of overriding charging schedule**




Base: N (weighted) = 146 (All BEV/PHEV users who schedule their charging).

The results show that a quarter (26%) of participants never override their charging schedule. However, over half override their schedule up to 50% of the time. A few respondents override every time they charge suggesting that they may not have the scheduled charging set up to suit their needs.

**Figure 23: Reasons for boost charging**




Base: N(weighted)= 92 (all BEV/PHEV users that boost charge).

Just over two-in-five (42%) boost charge to ensure they have enough battery for their next trip. For future research it would be interesting to investigate whether this number falls depending on the length of time the owner has had their vehicle and got used to its various features. Additionally, the age of the car may affect this figure as the range of BEV/PHEV vehicles has increased, meaning there may be less need to boost charge. Similarly, it is worth considering that some drivers will use boost charging habitually so ensuring they are aware of the benefits of scheduled charging could be useful to reduce this effect.

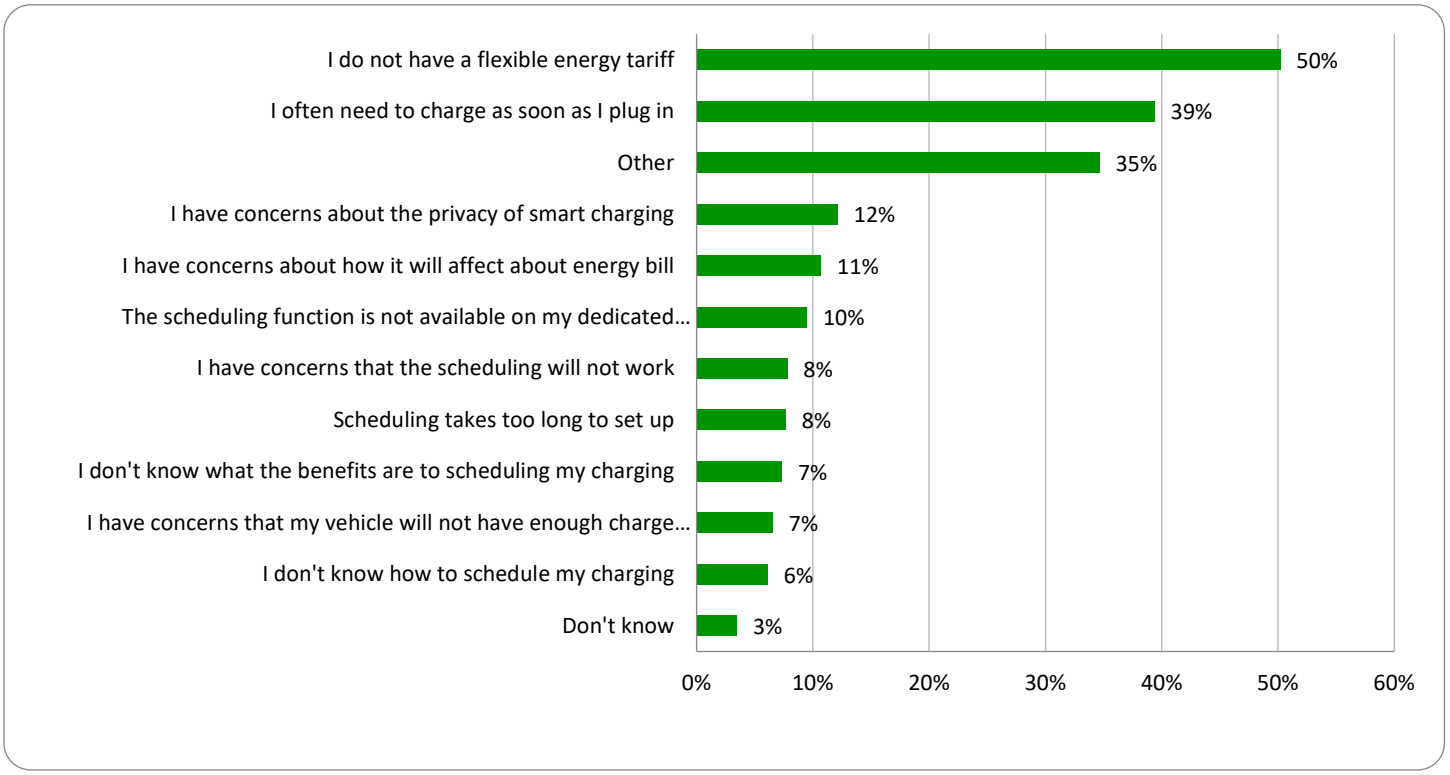
A third of respondents (32%) do not know how to change the pre-scheduled charging times which could suggest that as well as not knowing the benefits of scheduled charging, some BEV/PHEV drivers lack the appropriate knowledge. Therefore, providing guidance, information and support to smart chargepoint owners could increase its use.

Nine percent of respondents answered ‘Other’ in relation to why they choose to ‘boost charge’. five of them said they do this:

> “*to use the electricity generated by our solar panels”* (YouGov survey respondent).

We investigated how the rates of boost charging compare to the length of time that the respondents have had their smart chargepoint for. There is a clear trend here to show that respondents who acquired their smart chargepoint in the last two years (2021 or 2022) are more likely to use boost charging, more often. This could suggest that these drivers have less experience with their charger and so may not have developed a pattern of scheduled charging or have yet to develop a set schedule possibly due the changes in driving patterns caused by the COVID-19 pandemic.

**Figure 24: Reasons for not scheduling charging events**



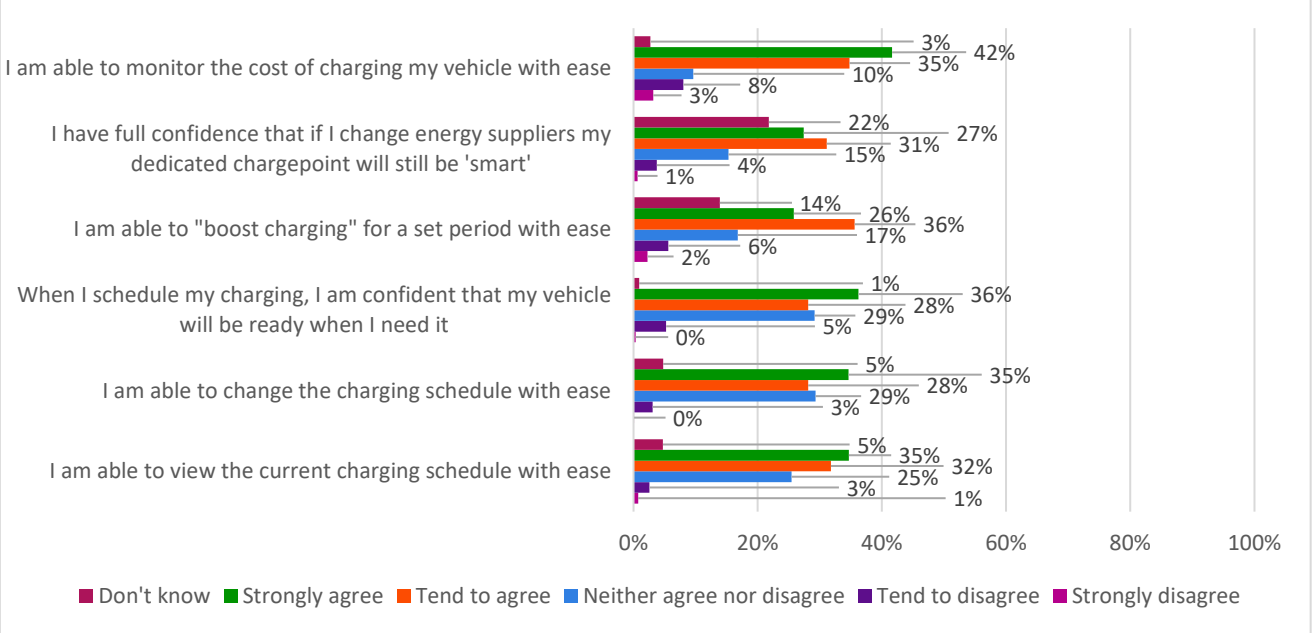

Base: N(weighted)= 80 (all BEV/PHEV users who do not schedule their charging)

Although the sample size is limited, not having a flexible home energy tariff was cited as the main reason for not scheduling charging for half of those who do not currently schedule charging (50%). This indicates that, increased flexibility within tariffs by energy providers may encourage consumers to take up scheduled charging.

Thirty-five per cent of respondents selected ‘Other’, their reasons included:

- Four respondents use the scheduled charging function within the vehicle rather than on the chargepoint.
- Two respondents depend on their solar panels to charge their vehicle; hence they do not have a regular charging schedule.
- One respondent’s charger and vehicle manufacturer apps are incompatible, again suggesting that there is a need for more interoperability from an industry perspective to improve consumer uptake.

**Figure 25: Attitudes towards smart charging**




Base: N(weighted): 146 (all BEV/PHEV users that schedule their charging).

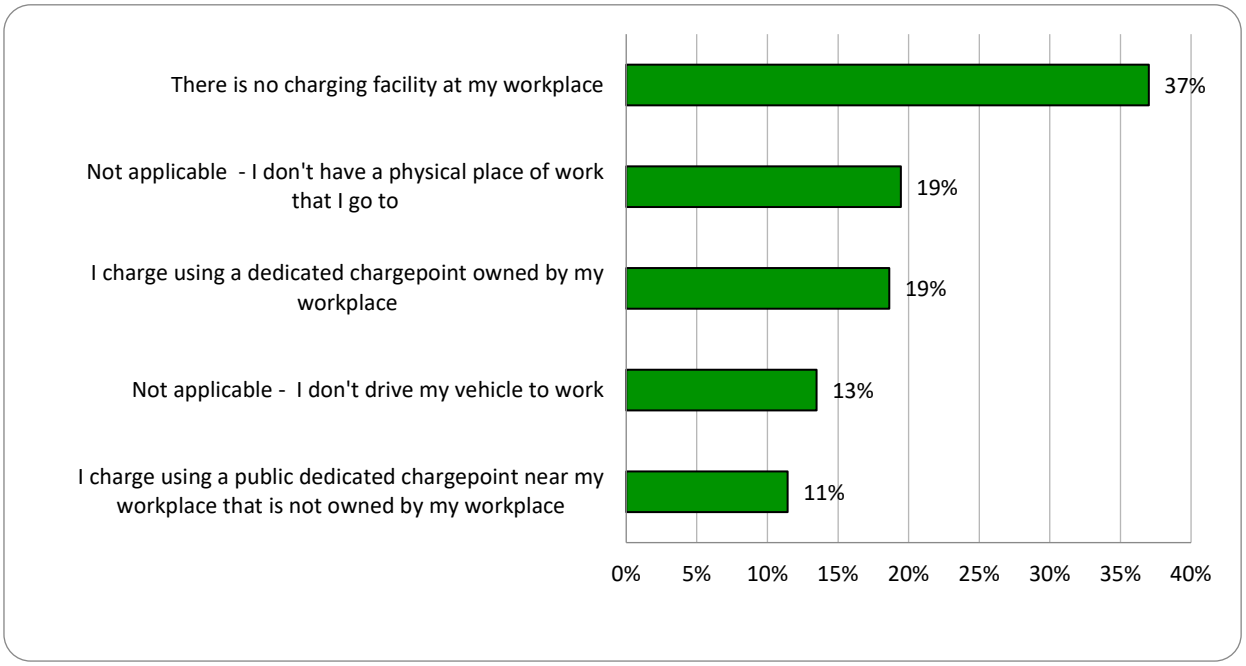
The attitudinal questions above were asked to participants who stated that they did use their scheduled charging feature. The responses appear to be relatively positive. The majority agree that they can: view their current charging schedule with ease (67%); change the charging schedule with ease (63%) and monitor the cost of their charging with ease (77%). Due to the small sample size for this question, it is not possible to test the statistical significance of the attitudes for the population.

We investigated whether trust in charge scheduling varied based on the length of time the respondent had the smart chargepoint for. The data indicated that there was no relationship between the length of time drivers had owned their chargepoint for and their confidence in charge scheduling.

# Workplace charging behaviour

We explored if and how consumers use charging infrastructure at the workplace.

**Figure 26: Access to workplace charging**

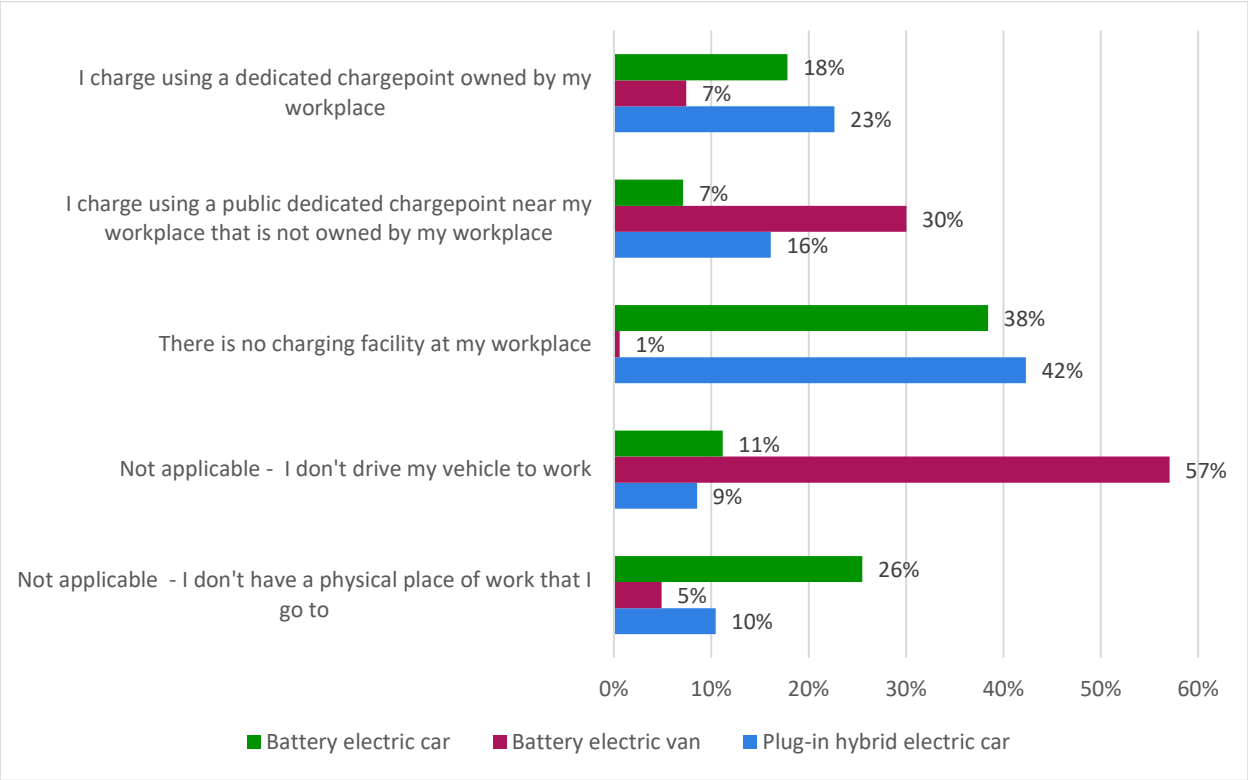



Base: N (weighted) = 604 (all BEV/PHEV users in work)

A third (30%) of participants use workplace charging. Over 60% say that their workplace either does not have the facilities, that they do not go to a physical workplace or choose not to drive to work. One expert we interviewed during the survey development process suggested that many BEV/PHEV drivers will not rely on workplace charging:

*"workplace (charging) is going to be very niche. I don't think people will take advantage of it"* (Expert 3, DG Cities interviews).

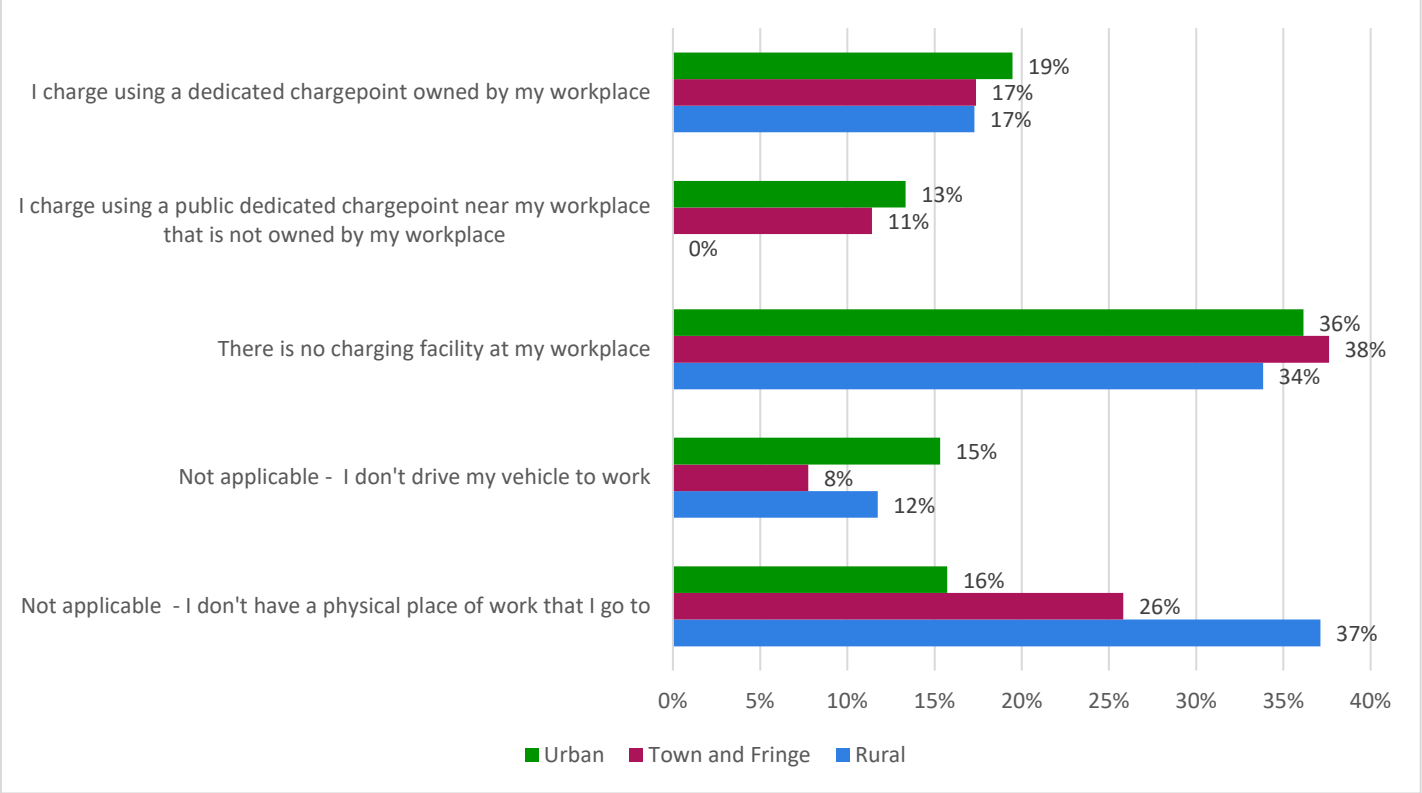
**Figure 27: Access to workplace charging broken down by vehicle type**




Base: Battery electric car N(weighted)= 337; Battery electric van N(weighted)= 41; Plug-in hybrid electric car N(weighted)= 186; Plug-in hybrid electric van N(weighted)= 0.

We explored whether access to workplace charging differed by BEV/PHEV type. A quarter of participants with battery electric cars charge at work, either with a dedicated chargepoint owned by their workplace (18%) or at a public chargepoint near work (7%). For battery electric van owners, this is slightly higher with 37% charging at work, 7% at a dedicated work-owned chargepoint and a third (30%) use a public changepoint. Further research is needed to establish if this is associated with the types of occupations battery electric van drivers have as to whether they rely on public infrastructure, rather than workplace charging.

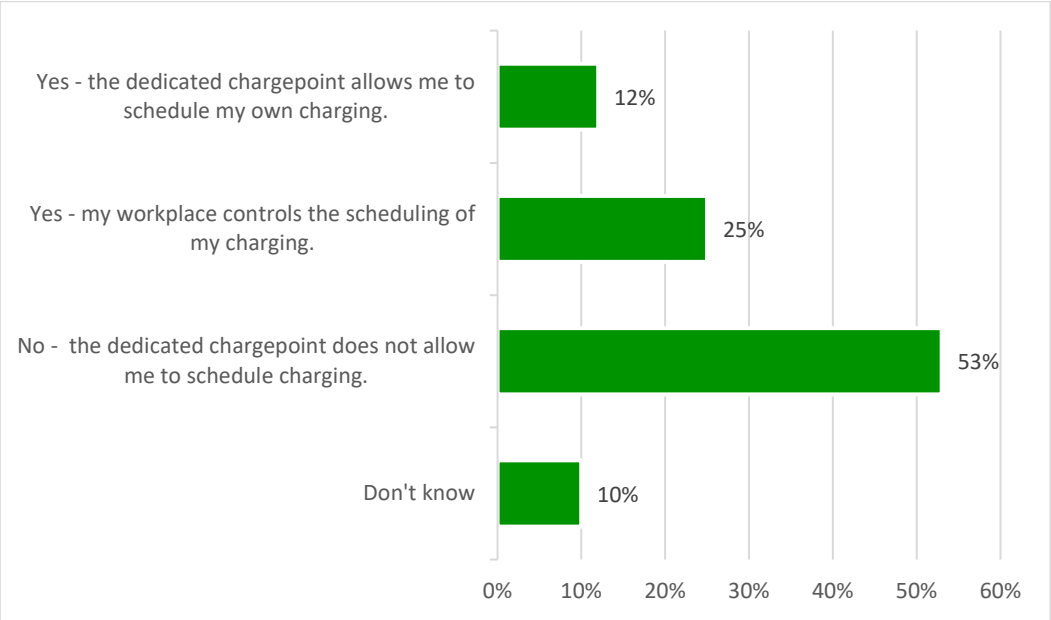
**Figure 28: Workplace charging access broken down by location type**




Base: Urban N(weighted)= 431; Town and Fringe N(weighted)= 78; Rural N(weighted)= 79

There appears to be little variation between groups in relation to access to workplace charging. Approximately two-fifths of respondents, regardless of demographic do not have access to workplace charging. In rural, urban and town/fringe areas there was no real difference in use of a dedicated chargepoint with just under a fifth of respondents in each reporting this. However, it is important to note that 37% of respondents in rural areas do not have a physical place of work. Additionally, there is a considerable difference in access to public chargepoints at work. None of the respondents in rural areas used a public chargepoint near work, compared to 13% of respondents in urban areas.

**Figure 29: Access to scheduled charging at the workplace**



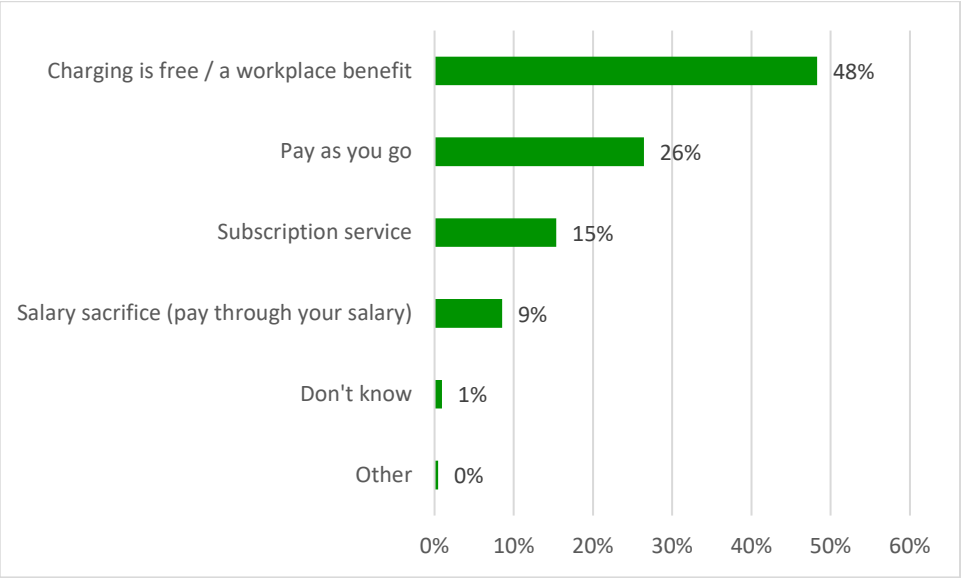

Base: N (weighted) = 182 (All BEV/PHEV workers who charge at their workplace)

Of those who do use workplace charging, over half of respondents stated that their workplace chargepoint does not allow them to schedule charging. When asked about scheduled charging at work, industry experts had mixed views. One expert suggested that because energy prices are high during typical daytime hours the day, then drivers cannot benefit from scheduling charging to off-peak times with lower tariffs. Whereas another expert suggested scheduled charging at work would be fine because users would not expect to need a full charge so they could use the scheduled charging for a short amount of time:

*"They're (*Drivers) *going to an office parking from 9-5, they're probably less worried about getting a full charge at work, unless they have the aim of going on a long trip afterwards."* (Expert 5, DG Cities interviews).

However, this is dependent on the electricity tariff the workplace uses.

**Figure 30: Paying for workplace charging**

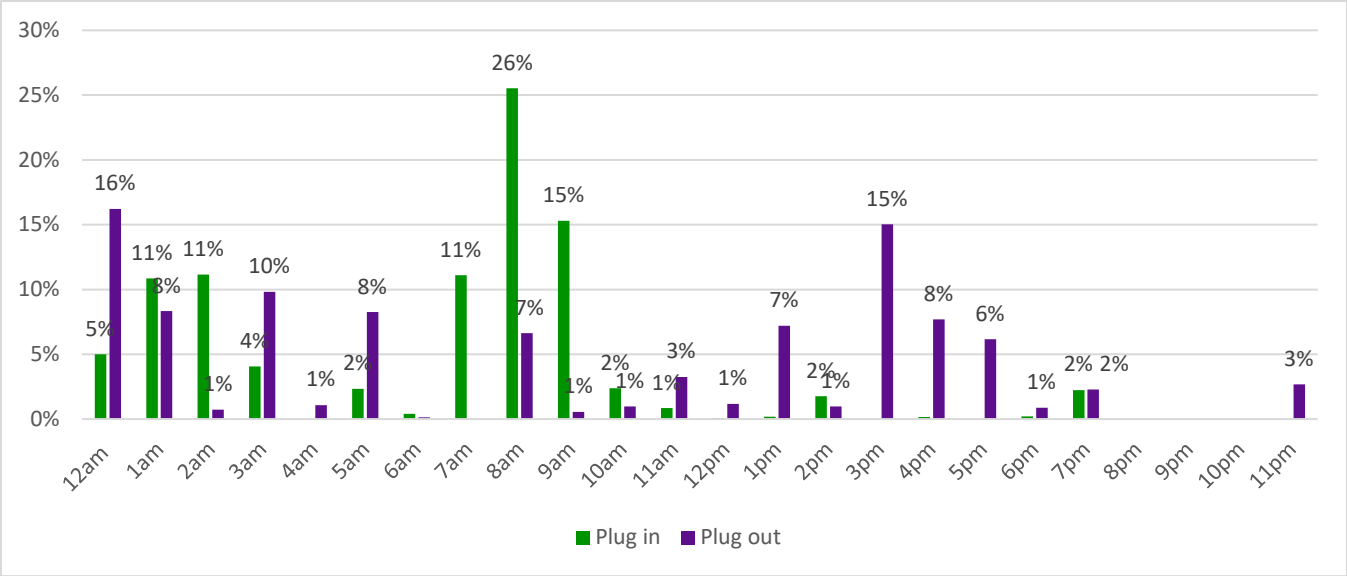



Base: N (weighted) = 182 (All BEV/PHEV users who charge at their workplace.)

As expected, roughly half (48%) of participants who do use charging at work receive it as a workplace benefit. Our experts highlighted that this currently comes at a cost to the employer and questioned how behaviour might change when BEV/PHEVs become more prevalent.

*"How long will it last that businesses let people have charging for free. Most people will move between what's more comfortable for them vs economical and it depends on the wealth of the person."* (Expert 1, DG Cities Interviews)

**Figure 31: Workplace charging plug-in and plug-out times**




Base: N (weighted) = 182 (All BEV/PHEV workers who charge at their workplace)

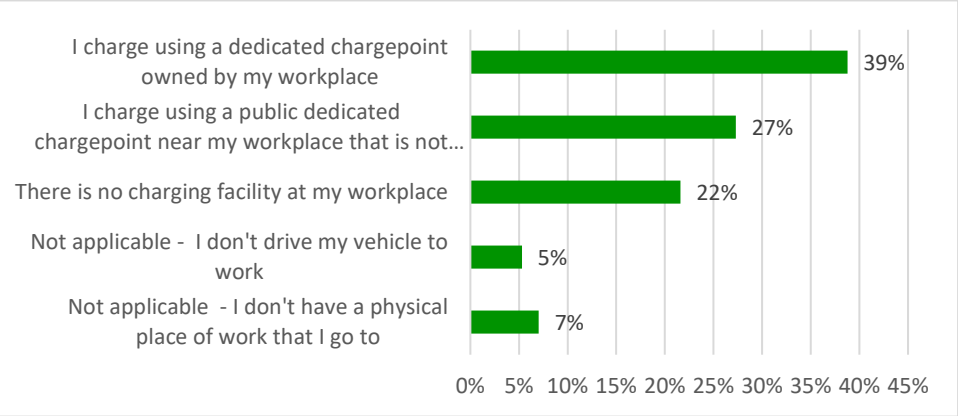
The graph above shows that almost a third (30%) of respondents who charged at work plug in their cars between 8am and 9.30am. Plug-out times have a broader range with a quarter (25%) of respondents leaving work between 3pm and 6pm.

There is a high number of respondents plugging in and out their vehicles during the early morning hours. When looking at these responses by age, it tends to be younger, working age drivers who are charging their EVs at work between midnight and 2.30am, for example, half (49%) of drivers aged 25-34 plug in during these times. The need to charge at this time could suggest that these drivers are working irregular hours or nightshifts.

**Demographics and attitudes of respondents with company vehicles**

We further investigated the workplace charging attitudes and behaviours of the respondents who received their vehicle from work. Almost one-in-five (18%) PHEV users drive a vehicle owned by their workplace. Only 4% of battery electric car drivers and 2% of battery electric van drivers use vehicles owned by their workplace. A quarter (23%) of respondents who received their vehicle from work were also provided with a chargepoint and installation from their employer.

**Figure 32: Access to workplace charging for those with company vehicles**



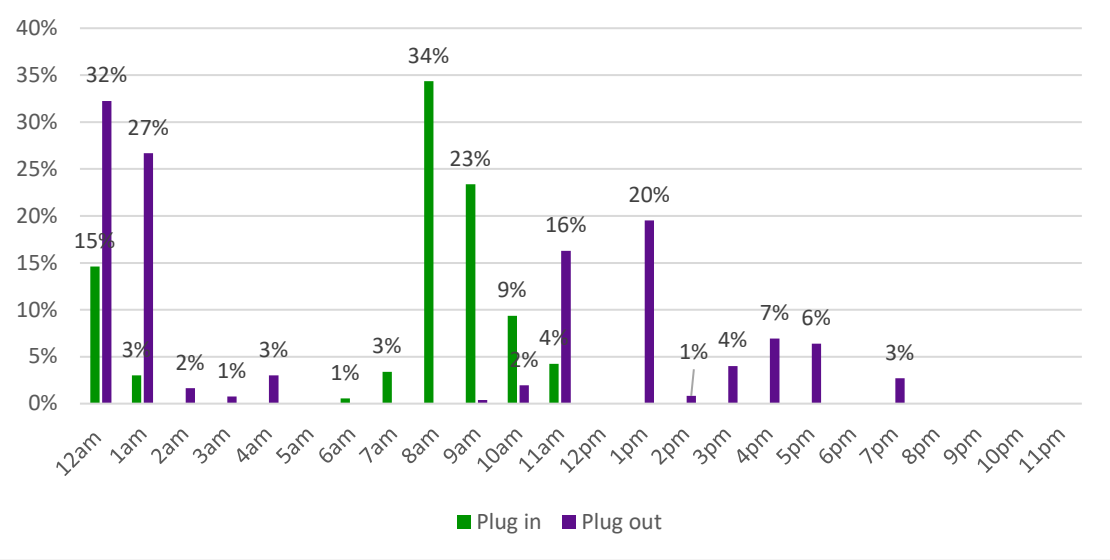

Base: N(weighted): 55 (all PHEV/EV drivers with company vehicles).

Two-fifths (39%) of respondents who drive a company vehicle do use a dedicated chargepoint at work, 27% charged using public infrastructure and a further 22% did not have a charging facility at their workplace, which is surprising given that they were given an electric car by their company. For future research into this group which do not have the infrastructure at work and their charging behaviours would be highly beneficial.

Of the 36 individuals whose workplace does offer workplace charging, there is approximately a 50:50 split between those who have a dedicated chargepoint can schedule charging and those that can't. 26% of respondents said that their workplace chargepoints allow them to schedule their own charging and 21% stated that their workplace controls the charging. Half of the respondents (50%) said their workplace chargepoints did not allow them to schedule charging.

The majority (56%) of respondents who had a company car and had access to a chargepoint at work received workplace charging for free or as a workplace benefit. 36% of participants used a pay as you go service while only 4% had a subscription service to pay for workplace charging.

**Figure 33: Plug in and out times of those with company cars**




Base: N(weighted)=34 (All EV/PHEV workers who charge at their workplace who charge at work)

We expected that the respondents with company cars may account for the variation in plug in and plug out times but the general distribution is broadly similar to those with personal vehicles. However, the majority (58%) of respondents with company cars plugged in between 8am and 10am, suggesting that most of those with company cars are not in shift work.

# Analysis and discussion

In the following section we will explore the implications of this study:

## Ownership of dedicated chargepoints differ across vehicle types

Battery-electric car drivers are more likely to have a dedicated chargepoint than PHEV car drivers:

- Two-thirds (66%) of battery-electric car drivers have a dedicated chargepoint at home. However, the majority (66%) of respondents with battery-electric vans have a 3-pin cable as their main charger.
- In contrast there is a more even split between charger types of those with PHEVs: 49% of PHEV owners have a dedicated chargepoint and 41% rely on a 3-pin cable.

## Main barriers to dedicated chargepoint uptake are cost and perceived lack of benefits to charging speed

The OZEV grant scheme was used by the majority (76%) of respondents who purchased a chargepoint. We also found that 44% of drivers who did not have a dedicated chargepoint stated the reason was because they were too expensive to install. Further survey waves are required to understand changing costs of dedicated chargepoints over time and how this affects consumer uptake. This survey data points to a general reluctance to install a dedicated chargepoint due to a perceived lack of usefulness as well as cost. For example, over a third (39%) felt that 3-pin cables met their current needs.

## Smart functionality is not the top priority for EV/PHEV drivers and is not fully used

Drivers are purchasing smart chargepoints but are not making full use of their smart functionalities. The main reasons for purchases at present are safety (45%), speed (44%) and convenience (43%). Only a quarter (26%) stated that ‘to save money on charging’ by using scheduling for example was a reason for purchasing their chargepoint. Despite this, drivers know their dedicated chargepoints have smart features including charge scheduling (41%) and vehicle-controlled charging via a chargepoint (39%)

While most dedicated chargepoints have smart functionalities, drivers may not be utilising their capabilities:

- Almost 9 in 10 (88%) of respondents have a dedicated chargepoint with at least one smart functionality.
- Around 60% override their scheduled charging time up to 50% of the time.

- A third of respondents who use 'boost charging ' do it because they do not know how to change the pre-scheduled time, compared to 6% of those who do not schedule their charging because they do not know how to set a schedule.

This signals that consumers may require more information or support to use the smart functionalities to the best of their ability.

### Barriers to smart charging

Energy tariff inflexibility was cited by half (50%) of those who do not schedule their charging as the main barrier preventing them from smart charging. Whilst it should be taken with caution, the data highlights that a small number of respondents do not use scheduled charging because they are making use of the energy created by the solar panels in their home.

## Workplace charging is not yet prevalent, nor is smart charging at work.

Workplace charging is less common: around 3 in 10 (30%) of those currently in work charge their vehicle at or near their place of work, and two-thirds (37%) reported having no charging facility at their workplace. Scheduled charging is also not common at the workplace: among those who do charge at work, only 12% can schedule their own charging. Over half (53%) are not able to schedule their charging at work.

# Implications for the Electric Vehicles (Smart Charge Points) Regulations 2021

The findings from this study provide useful baseline evidence from which progress against the objectives of the regulations can be monitored:

### Improving uptake of smart chargepoints

As described by objective *1a - Maximising the use of smart charging technologies: Improving the capability of EV chargepoints by encouraging the uptake of smart technologies* and objective *2a – Supporting grid stability: modulating/shifting charging to contribute to balancing the electricity grid,* this data highlights that 54% of those with off-street parking presently use a dedicated smart chargepoint to charge their BEV or PHEV. The data shows that 12% of those with a dedicated chargepoint stated that their chargepoint had no smart functionality, whilst just over a third (36%) of respondents with off-street parking currently use a 3-pin cable.

These data points act as a useful baseline from which the impact of the regulation can be monitored over time. A quarter (26%) of battery electric car drivers, and 49% of plug-in hybrid electric car drivers with off-street parking use a three-pin cable. Of those, 54% of battery

electric car drivers and 46% of plug-in hybrid electric car drivers believe their current 3-pin cable meets their current charging needs. Supporting the transition of consumers away from 3-pin cables and towards dedicated chargepoints at home will be key to the success of the regulations. A perceived lack of benefit of acquiring a dedicated chargepoint over a 3-pin cable was a main reason for not installing a dedicated home chargepoint.

### Driving use of smart functionalities

With regards to Objective 1b - *Maximising the use of smart charging technologies: Encouraging the use of smart chargepoints* and objective *2a – Supporting grid stability: modulating/shifting charging to contribute to balancing the electricity grid,* this data highlights that there is good penetration of smart functionalities in the market: for those with off-street parking and a dedicated chargepoint the most commonly cited smart functionality was charge scheduling (41%) whilst connectivity to a vehicle's on-board computer was second most cited (39%). Just over a third (34%) never schedule charging whilst a quarter (25%) schedule charging every time they charge.

### Improving the use of scheduled charging at home

With regards to *Objective 2b – Supporting grid stability: avoid sharp secondary peaks*; this data highlights that the majority (61%) of those who do override their schedule do so less than half the time they schedule a charging event. Few who schedule their charging override every time they charge (2%), whilst 5% override at least half the time the schedule their vehicle to charge at home. A sizeable minority (26%) never override their vehicles scheduled charge time. Further research is required to unpick the underlying behavioural, attitudinal or knowledge barriers at play. We are unable to ascertain through this data set if and how average EV daily charge load is changing, and whether it is moving from peak hours.

# Conclusions

This study provides baseline insights regarding consumer access to, and use of, dedicated chargepoints and their smart functionalities. For example, the data in this study highlights that a sizeable minority of consumers with off-street parking continue to use a three-pin cable, and that several barriers must be overcome to move more consumers towards dedicated chargepoints at home.  As well as practical issues related to space at the home, there are also attitudinal and knowledge barriers – including a lack of knowledge of the technology, and a lack of awareness as to the value of smart charging over three-pin cables.

A positive outcome from this study is that the trend of increasing sales of dedicated chargepoints means that there are now more chargepoints installed in homes which have smart functionalities that enable consumers to schedule their charging. With default off-peak charging in chargepoints made mandatory through the regulations, the proportion of

chargepoint users charging in these off-peak hours would be expected to increase as more people buy chargepoints after the regulations come in to force.

# Opportunities for further research

We believe that the result of this study highlights that there are several potential avenues for future research:

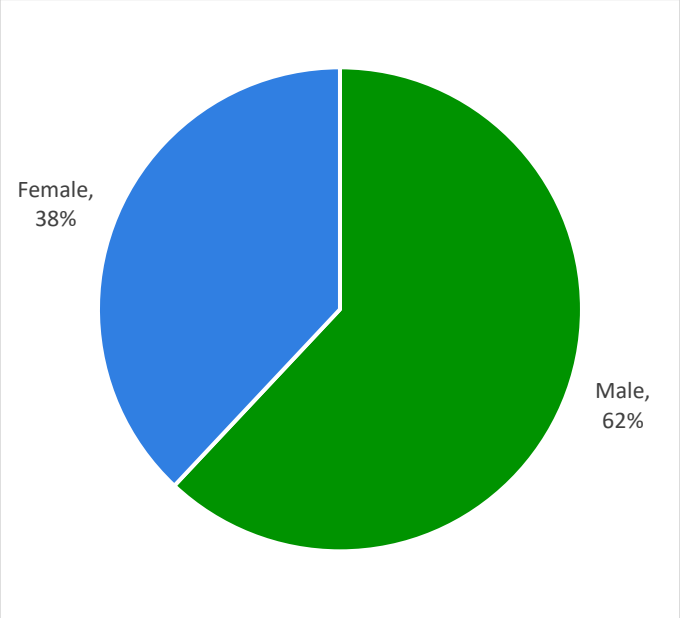
- Longitudinal and/or matched-sample design: the current survey acts as an important baseline for the implementation of the regulations, but there is considerable value to be gained in building a longitudinal data set to track key charging trends and consumer behaviour over time. Future survey waves at 2-to-3-year intervals would provide vital intelligence on the developing EV smart charging market and would support the development of policy interventions. A matched-sample design would further enable individual behaviours to be tracked over time, particularly useful for exploring the stages of EV chargepoint adoption.
- Qualitative exploration of smart charging behaviours: the current study design provides a useful perspective on smart charging attitudes but does not allow for deeper interrogation of consumer behaviours related to smart charging. This would significantly benefit understanding of the impact and quality of the regulations. Deliberative programmes, including action-research and workshop-based studies would support both deeper understanding of smart charging behaviours, and critical public assessment of current and forthcoming policy interventions, particularly those who are looking to purchase EVs, to understand specific barriers and potential interventions.
- Qualitative exploration of those with three-pin plugs: the current study design highlights a particular demographic of individuals who perceive little benefit of a dedicated chargepoint over a three-pin plug. However, what is not clear from the current survey is the knowledge or attitudinal barriers that may require intervention to increase chargepoint uptake in this group. Qualitative interviews or ethnographic assessments of their homes and routines would provide a deeper understanding of this group as a whole and provide an evidence base from which to develop future interventions.

# Appendix: Demographics tables and figures

### Table 1: Ethnicity by age and gender

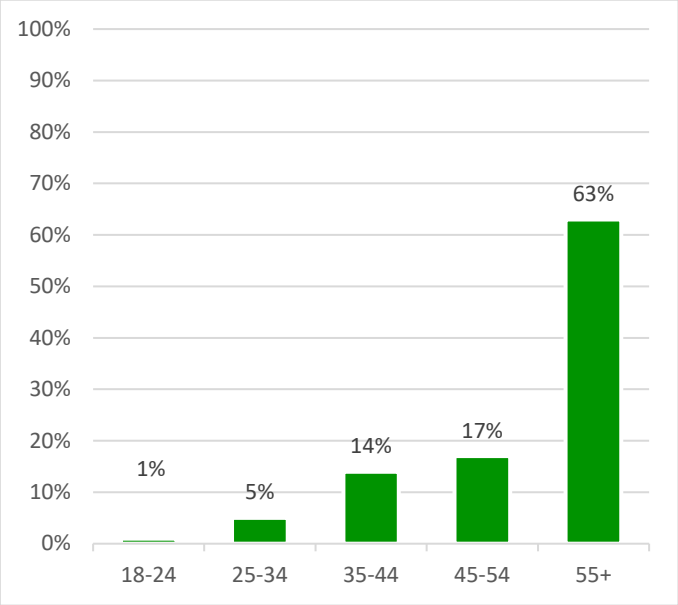
| | | Gender | | Age | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | 18-24 | 25-34 | 35-44 | 45-54 | 55+ |
| **Base** | **982** | **605** | **377** | ***14*** | ***48*** | **137** | **168** | **615** |
| **English / Welsh / Scottish / Northern Irish / British** | 90% | 91% | 88% | *43%* | *71%* | 78% | 92% | 95% |
| **Irish** | 1% | 1% | 1% | - | - | 1% | 1% | 1% |
| **Gypsy or Irish Traveller** | 0% | 0% | - | - | - | 1% | - | 0% |
| **Any other White background** | 3% | 2% | 4% | *14%* | *10%* | 5% | 3% | 2% |
| **White and Black Caribbean** | 0% | 0% | - | - | - | 1% | - | - |
| **White and Black African** | 0% | 1% | 0% | - | *2%* | 1% | - | 0% |
| **White and Asian** | 1% | 1% | 1% | - | *6%* | 1% | - | 0% |
| **Any other Mixed / Multiple ethnic background** | 1% | 0% | 1% | *7%* | *2%* | 2% | - | 0% |
| **Indian** | 1% | 1% | 2% | - | *8%* | 5% | 1% | 0% |
| **Pakistani** | 0% | 0% | - | - | - | 1% | - | - |
| **Bangladeshi** | 0% | 0% | 0% | *7%* | - | 1% | - | - |
| **Chinese** | 1% | 1% | 1% | *7%* | - | 1% | 1% | 0% |
| **Any other Asian background** | 0% | - | 1% | - | - | - | 1% | 0% |
| **African** | 0% | 0% | - | *7%* | - | - | 1% | - |
| **Caribbean** | 0% | 0% | 0% | - | - | - | 1% | 0% |
| **Any other Black / African / Caribbean background** | - | - | - | - | - | - | - | - |
| **Arab** | - | - | - | - | - | - | - | - |
| **Any other ethnic group** | 0% | 0% | 0% | - | - | - | - | 0% |
| **Prefer not to say** | 1% | 1% | 1% | *14%* | - | 1% | 1% | 0% |

**Figure 34: Sex**



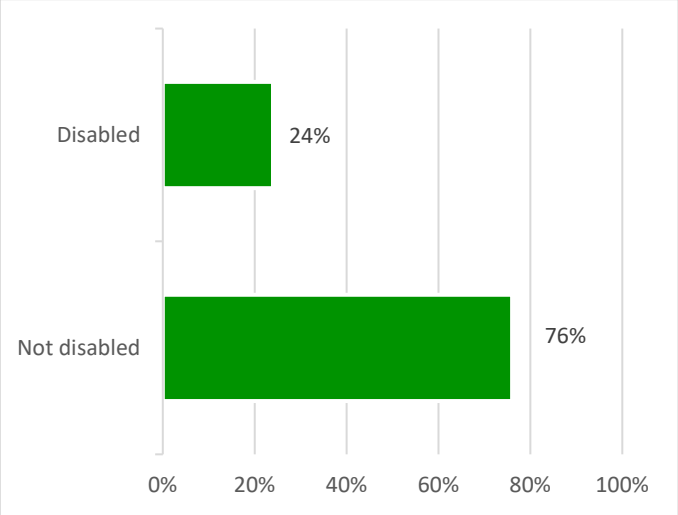

Base: N (unweighted) = 1002

**Figure 35: Age**




Base: N (unweighted) = 1002

## Figure 36: Disability status

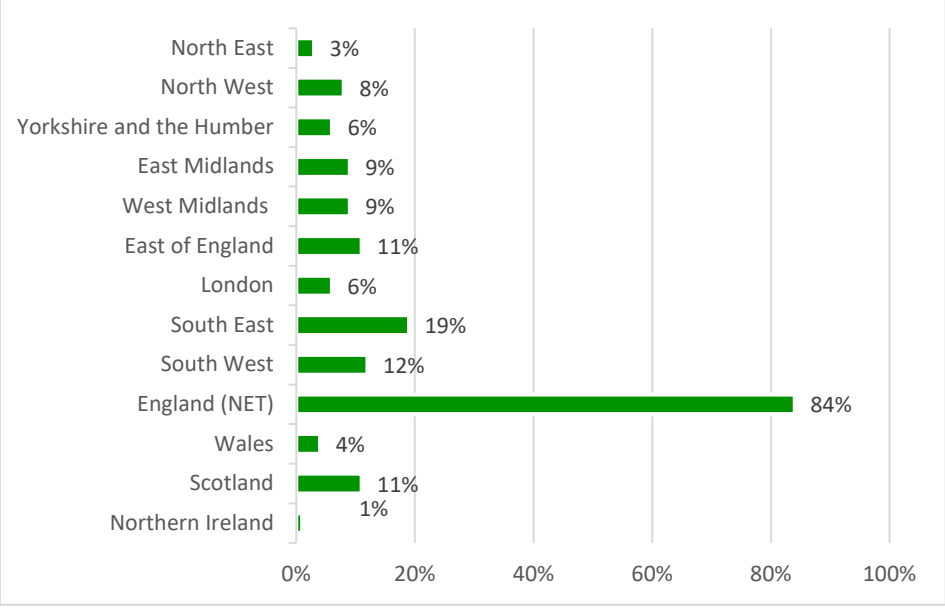



Base: N (unweighted) = 1002

## Table 2: Disability status, by age and gender

| | | Gender | | Age | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | 18-24 | 25-34 | 35-44 | 45-54 | 55+ |
| **Base** | **999** | **616** | **383** | ***14*** | ***49*** | **138** | **167** | **631** |
| **Yes, limited a lot** | 7% | 7% | 8% | *14%* | *14%* | 6% | 6% | 7% |
| **Yes, limited a little** | 17% | 17% | 17% | *36%* | *10%* | 11% | 13% | 19% |
| **No** | 76% | 76% | 75% | *50%* | *76%* | 83% | 81% | 73% |

## Figure 37: UK Government region




Base: N (unweighted) = 1002

## Table 3: Home ownership status by age and gender

| | | Gender | | Age | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | 18-24 | 25-34 | 35-44 | 45-54 | 55+ |
| **Base** | 1002 | 618 | 384 | *14* | *49* | 138 | 168 | 633 |
| **Own – outright** | 56% | 60% | 49% | *14%* | *8%* | 12% | 25% | 78% |
| **Own – with a mortgage** | 35% | 32% | 39% | *21%* | *53%* | 70% | 64% | 18% |
| **Own (part-own) – through shared ownership scheme (i.e. pay part mortgage, part rent)** | 1% | 1% | 1% | *7%* | *4%* | 2% | 2% | - |
| **Rent – from a private landlord** | 5% | 3% | 7% | *14%* | *16%* | 11% | 5% | 2% |
| **Rent – from my local authority** | 1% | 1% | 1% | *14%* | *2%* | 1% | - | 1% |
| **Rent – from a housing association** | 1% | 1% | 2% | *7%* | *4%* | 1% | 2% | 1% |
| **Neither – I live with my parents, family or friends but pay some rent to them** | 1% | 1% | 1% | *7%* | *6%* | 1% | 1% | - |
| **Neither – I live rent-free with my parents, family or friends** | 1% | 1% | 1% | *14%* | *2%* | 2% | 1% | - |
| **Other** | 1% | 1% | 1% | - | *4%* | - | 1% | 1% |

## Table 4: Individual annual gross income, by age and gender

| | | Gender | | Age | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | 18-24 | 25-34 | 35-44 | 45-54 | 55+ |
| **Base** | **1002** | **618** | **384** | ***14*** | ***49*** | **138** | **168** | **633** |
| **under £5,000 per year** | 3% | 0% | 7% | *7%* | *2%* | 4% | 7% | 1% |
| **£5,000 to £9,999 per year** | 3% | 2% | 5% | - | *2%* | 2% | 4% | 4% |
| **£10,000 to £14,999 per year** | 5% | 3% | 9% | - | *8%* | 3% | 3% | 6% |
| **£15,000 to £19,999 per year** | 6% | 6% | 8% | *14%* | *4%* | 3% | 3% | 8% |
| **£20,000 to £24,999 per year** | 6% | 6% | 5% | *7%* | *10%* | 3% | 4% | 7% |
| **£25,000 to £29,999 per year** | 7% | 8% | 7% | *14%* | *2%* | 8% | 5% | 8% |
| **£30,000 to £34,999 per year** | 7% | 8% | 6% | *7%* | *12%* | 12% | 5% | 6% |
| **£35,000 to £39,999 per year** | 6% | 7% | 4% | *7%* | *2%* | 7% | 5% | 7% |
| **£40,000 to £44,999 per year** | 5% | 7% | 3% | *7%* | *12%* | 6% | 4% | 5% |
| **£45,000 to £49,999 per year** | 5% | 5% | 4% | - | *8%* | 6% | 5% | 4% |
| **£50,000 to £59,999 per year** | 8% | 9% | 5% | - | *16%* | 14% | 7% | 6% |
| **£60,000 to £69,999 per year** | 6% | 7% | 5% | - | *2%* | 6% | 11% | 6% |
| **£70,000 to £99,999 per year** | 7% | 8% | 5% | - | *2%* | 9% | 11% | 6% |
| **£100,000 and over** | 6% | 7% | 4% | *7%* | *6%* | 9% | 12% | 3% |
| **Don't know** | 1% | 1% | 1% | *7%* | *2%* | - | 1% | 1% |
| **Prefer not to answer** | 17% | 15% | 21% | *21%* | *8%* | 10% | 15% | 20% |

## Table 5: Urban status, by age and gender

| | | Gender | | Age | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Male | Female | 18-24 | 25-34 | 35-44 | 45-54 | 55+ |
| **Base** | **993** | **609** | **384** | ***14*** | ***48*** | **138** | **166** | **627** |
| **Urban** | 67% | 66% | 67% | *86%* | *71%* | 74% | 73% | 62% |
| **Town and Fringe** | 11% | 11% | 11% | *14%* | *17%* | 12% | 10% | 11% |
| **Rural** | 22% | 22% | 22% | - | *13%* | 14% | 17% | 26% |
| **Uncoded** | - | - | - | - | - | - | - | - |

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