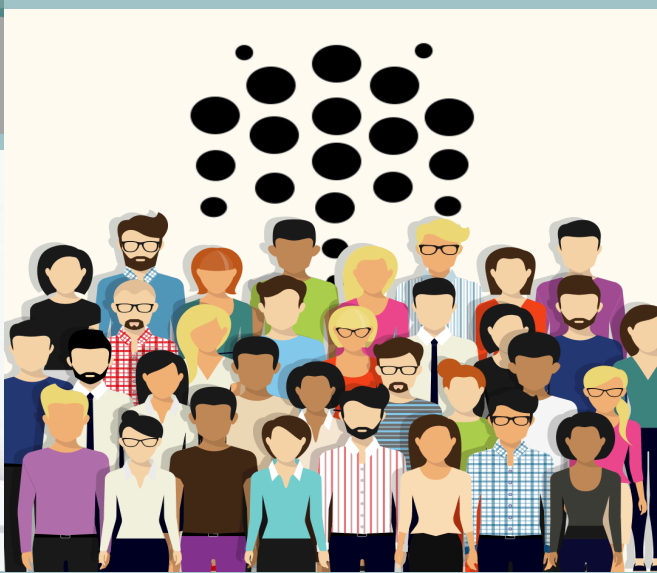


EV Driver Study

January 2024



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Foreword

EV Market

As we delve into the 2024 EV Charging Survey Report, it's crucial to understand the dynamic landscape of the Electric Vehicle (EV) market in the UK and Europe.

The UK, moving closer to its 2035 ban on the sale of new petrol and diesel cars, has seen a significant shift in the EV market. Despite a record 315,000 new electric cars sold in 2023, an 18% increase from the previous year, the market share of EVs slightly declined for the first time since 2018. This deceleration in adoption rates, particularly among private retail buyers, highlights the challenges ahead.

High upfront costs, concerns about charging infrastructure, and doubts about technology remain significant barriers. The average new electric car is still 36% more expensive than its petrol or diesel counterpart. Additionally, the introduction of the Zero Emission Vehicle (ZEV) mandate in January 2024, requiring 22% of a manufacturer's new car sales to be electric, has influenced the market dynamics.

The supply of new electric cars has outpaced demand from retail buyers, leading to a drop in used electric car prices due to excess supply. This scenario has softened retail demand for new electric cars, as buyers benefit from lower upfront costs and a growing choice in the second-hand market.

The emergence of new entrants, particularly from China, is reshaping the market. These new brands are introducing more affordable electric car options, challenging established manufacturers and potentially leading to price competitiveness. However, brand awareness and consumer acceptance of these new entrants remain to be seen.

In the used EV market, demand surged in 2023 as retail prices fell, making electric cars more accessible. However, this has led to significant depreciation levels for new electric car owners, a trend that could influence future market dynamics.

As we look towards 2024 and beyond, the EV market in the UK and Europe is at a critical juncture. The balance between stimulating demand, managing supply, and navigating the challenges of new market entrants will be key to the continued growth and sustainability of the EV sector.

This report aims to provide a comprehensive overview of these trends and more, offering a clear picture of the current state and future prospects of the EV charging infrastructure in the UK and Europe.

EV charging in 2024

Publicly Accessible Charging Infrastructure:

In 2024, the UK's publicly accessible charging infrastructure has seen notable growth, driven by government initiatives and private investments. The number of charging points has increased significantly, offering greater coverage across urban and rural areas. However, challenges remain in ensuring equitable distribution and maintaining reliability. The integration of advanced technologies like real-time availability tracking and contactless payments has enhanced user experience. Despite these advancements, there's an ongoing need to address disparities in charging access, particularly in less populated regions.

Destination Charging:

Destination charging in the UK has become increasingly prevalent in 2024, particularly at locations like shopping centres, hotels, and workplaces. These chargers, typically slower than rapid chargers, offer convenience for EV drivers to charge their vehicles while engaged in daily activities. Businesses have recognized the value of providing EV charging as an amenity, both to attract customers and to support employee commuting. However, the growth in destination charging varies significantly across regions, with more affluent areas seeing a faster deployment.

Journey Charging:

Journey charging infrastructure in 2024, crucial for long-distance EV travel, has improved substantially. The focus has been on expanding the network of rapid and ultra-rapid chargers along motorways and major roadways. These high-speed chargers are essential for reducing charging time and alleviating range anxiety for longer trips. While there has been significant progress, the demand for more chargers and the need for uniformity in payment and access methods across different providers remain areas for further development.

Charging Hubs:

Charging hubs in 2024 have emerged as a key component of the UK's EV infrastructure, particularly in urban areas where private home charging is less feasible. These hubs, often located in city centres and near major transport links, offer multiple fast and ultra-fast charging points. They are designed to cater to a high volume of vehicles, reducing wait times and congestion. The development of these hubs is seen as critical to supporting the growing number of EVs in densely populated areas, though ongoing investment and strategic planning are required to meet future demands.

Shared EV charging as a business

There are many players looking to sell businesses an EV charger.

Utility companies, CPO's and white-label operators like Monta and Virta. They offer installation and hardware with no up-front costs and then share the revenue until they recoup their costs and start making a profit. The benefit to the business is attracting new customers that stay longer to consume their business services and goods.

But other than listing the chargers on ZapMap and ChargeFinder and apps like that it really does not bring a new audience or community to that business. With white-label solutions it actually enables the business to create their charger brand which means the marketing of their new facilities is a new task and cost to attract users of the charger and foot traffic to their business.

By installing a charger through Manta Ray EV and then sharing it to the community the addressable audience immediately becomes larger and will attract more customers to their charger and their business. It also gives you more control on setting prices, attracting full utilisation of your charger(s) where the real income comes from the spend on services and goods in your business.

Summary of EV Driver survey

Our user study which is a combination of survey, in-person interviews shows EV Drivers' experience of public chargers, their demographics and their views on sharing their chargers or use a private charger including the factors and features that make this more attractive.

The gender gap has closed with an increase from 10% to 24% in the last year. In a positive sign in 2023 where the household income of respondents was significant at more than 40% indicating mass adoption that has reversed in 2024 where lower income is now 22%.

More people have home chargers going from 63% to 82%. The majority of respondents 56% would consider sharing their charge points. However a significant majority would use a shared charger 79%.

Setting available times and live status along with ability to refuse bookings is considered the most important feature 29% followed by verified drivers 11% and EV Hosts being able to set their own fees.

Public Charging

Less people charge away from home in 2024(20%) than 2023 (10%). Apart from Service Stations for Journey charging Shopping(19%) still remains the top spot for where to spend time while charging, followed by Pub, Hotel, Restaurant or Cafe (16%). Tourist spot or near work is next at 11%.

More people believe Public Charging as a whole has gotten better with only 11% considering it poor compared to 2023 when it was 25%.

A very small drop of people have considered switching back from 14% in 2023 to 11% in 2024. It is hard to find out the cost of the charger 43% based on responses. Around 24% do not feel safe at public charge points.

More than 73% say that public charge points are often out of order and customer support is lacking 76%. Furthermore 55% respondents say that Public Charge Points are not well lit or covered. And 39% say that public chargers are not accessible for disabled EV drivers.

EV Driver Survey Results¹

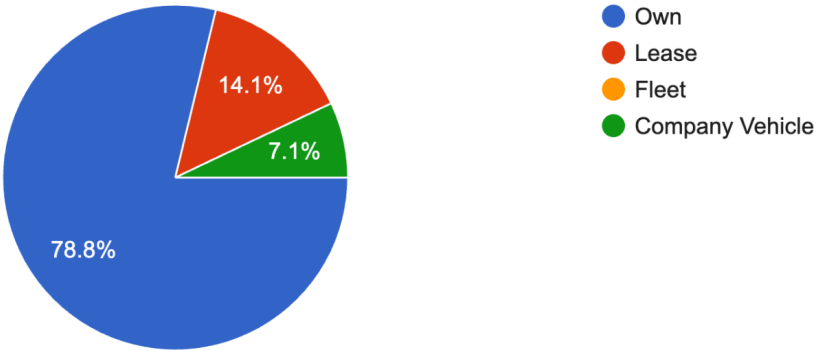
Who is the EV Driver?

Summary

The majority own or lease their EV, however there is a growing percentage of company EVs. It still remains that the majority are aged above 45, but a younger EV Driver is emerging along with a more diverse income level. The diversity in income is an early sign that the EV Driver is becoming an increasingly broader demographic.

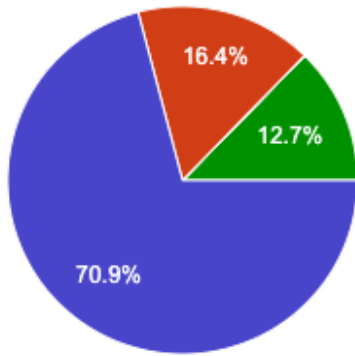
How did you acquire your plug-in EV?

2024



2023

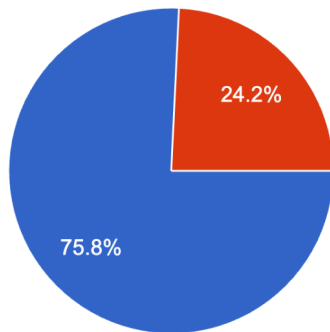
¹ Survey Results from Manta Ray EV 2023 and 2024



- Own
- Lease
- Fleet
- Company Vehicle

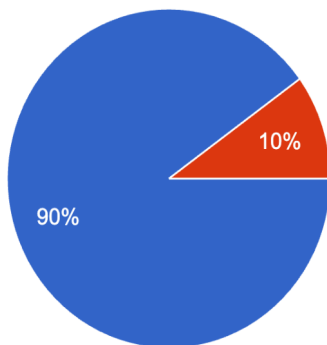
Gender

2024



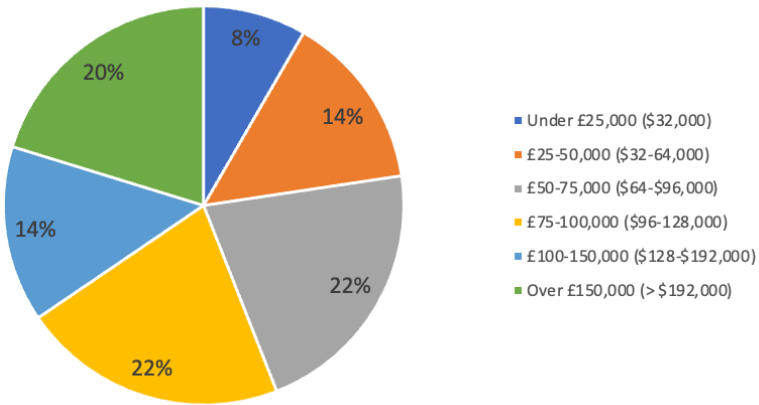
- Male
- Female
- Transgender Male
- Transgender Female
- Gender variant / non-conforming
- Other not listed

2023

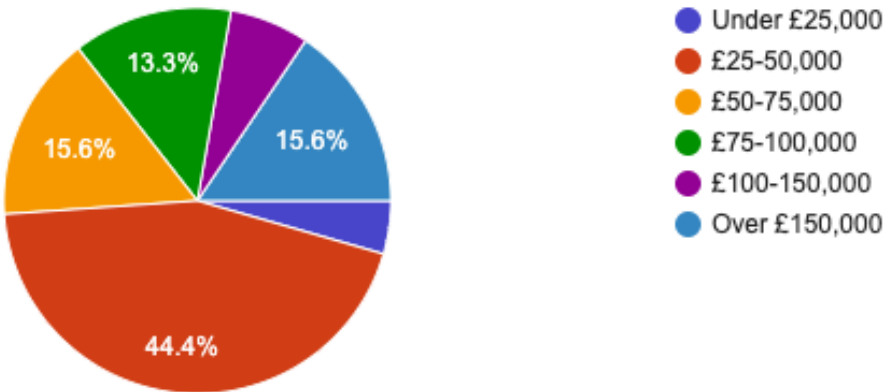


- Male
- Female
- Transgender Male
- Transgender Female
- Gender variant / non-conforming
- Other not listed

Income
2024



2023



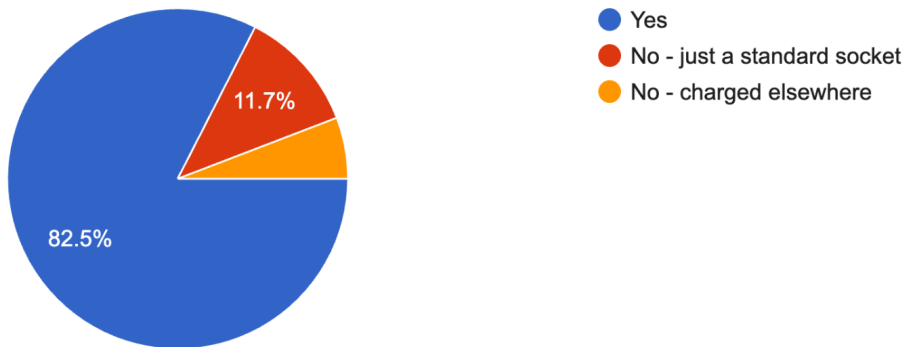
About their Charging Points

Summary

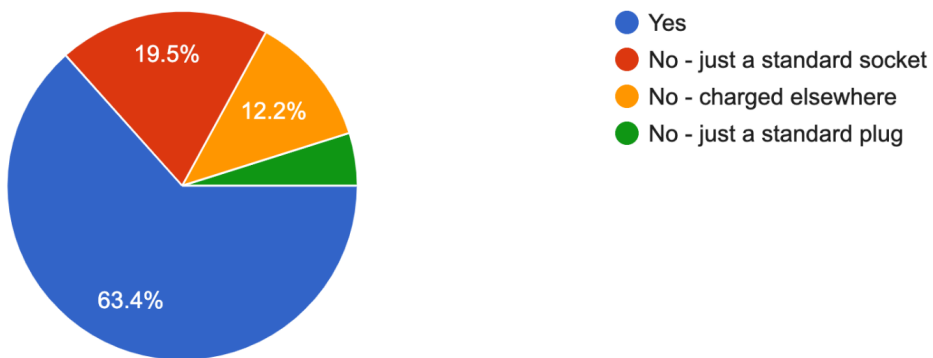
The number of EV Drivers who have their own home charger has increased from 63% to 79%, with almost even split outside and inside the garage compared to three quarters installed outside in 2023

Do you have a dedicated charging point installed at your home ?

2024

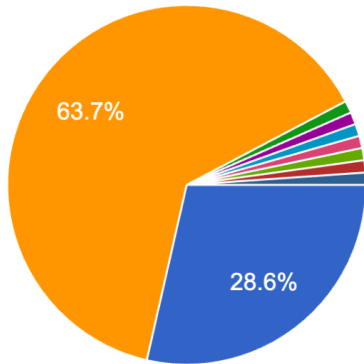


2023



Where is your Charge Point installed - inside your property or externally?

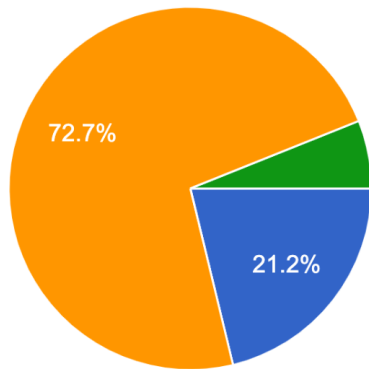
2024



- In garage
- Inside the house
- Outside wall
- On outside of detached garage wall
- Wall of house (outside) but 50 ft from...
- On a post at the bottom of our drive
- parkade of condo (guest spot)

▲ 1/2 ▼

2023



- In garage
- Inside the house
- Outside wall
- On post at end of drive

Sharing of private charge points

Summary

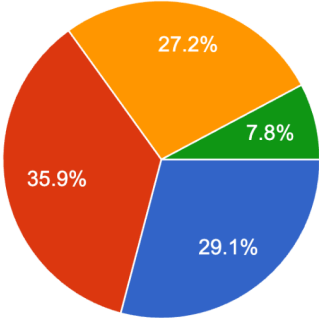
A majority of EV drivers who have a charger to share (54.2%) would consider sharing it with other drivers. This is roughly similar to the 2023 survey but more would not share it 32% vs 41% in 2024. Safety, privacy and lack of convenience were quoted for reasons to not share their charger.

Manta Ray EV verifies every user on the platform and so there is nobody that comes on to your premises that is not identifiable. With insurance and maintenance this gives EV Hosts many reassurances to share their charger safely and peace of mind.

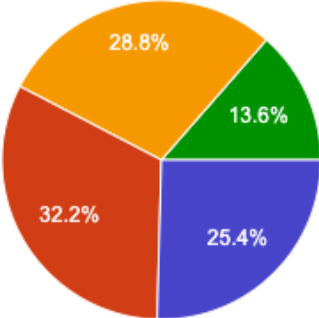
There is a considerable increase in the number of people in 2024 who would use a shared charger from 44% to 60%.

Would you consider sharing your charging point with other drivers to earn extra income?

2024



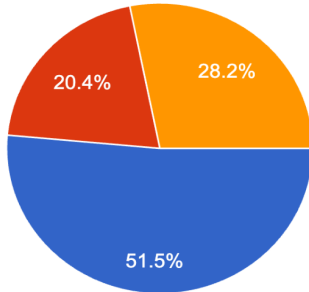
2023



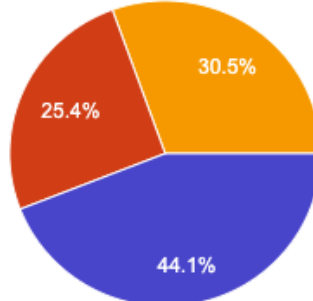
- Yes
- No
- Maybe
- Not applicable (no charging point installed)

Would you consider booking and using another owner's home charging point through an Airbnb-style app?

2024

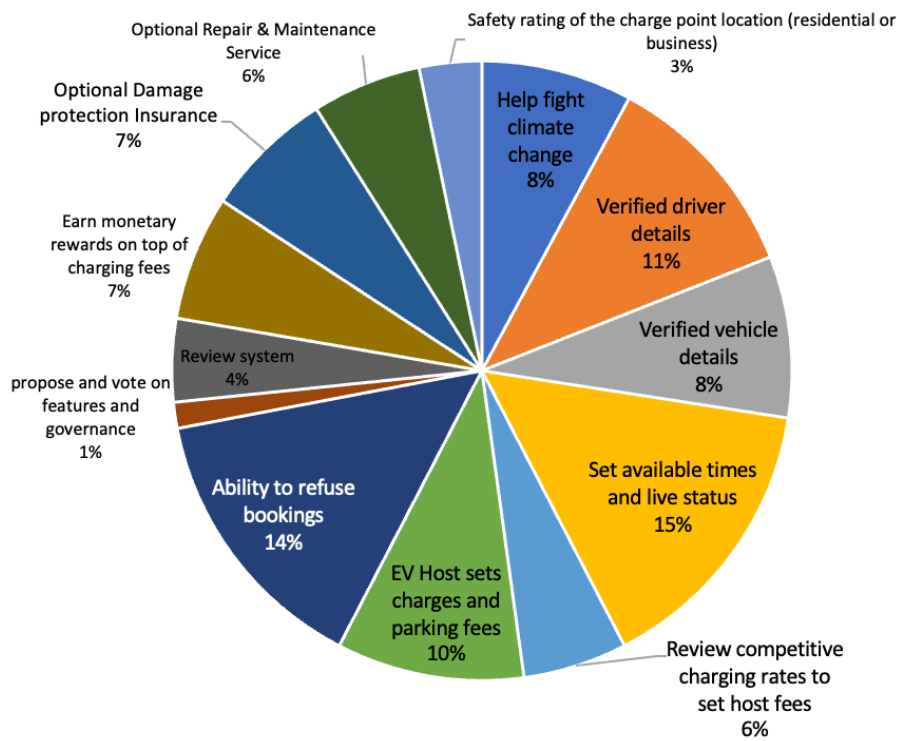


2023

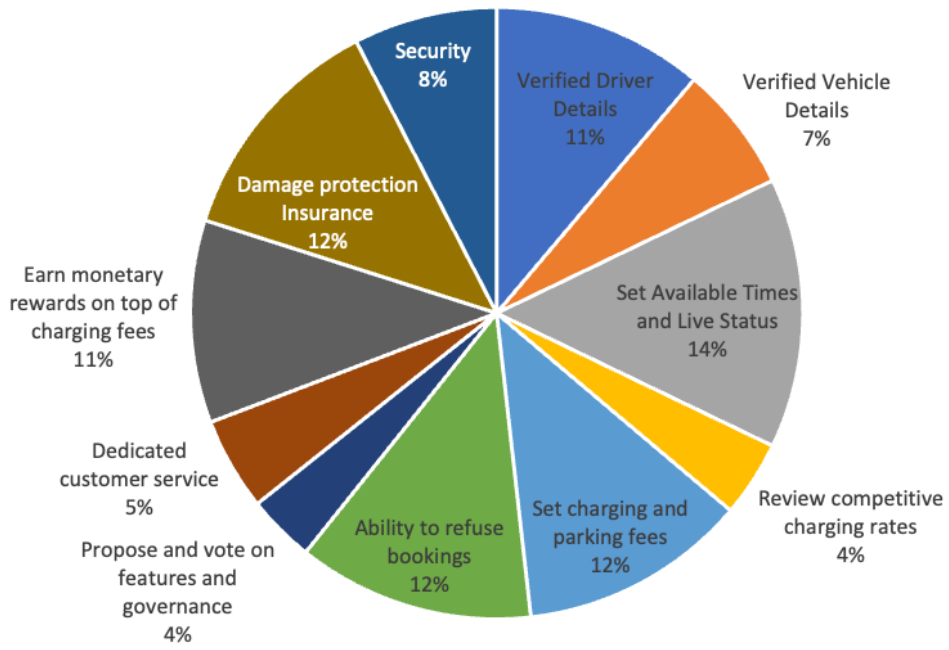


Features that are important for sharing your charge points?

2024

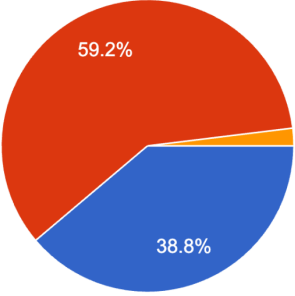


2023

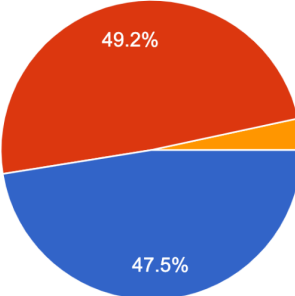


What would you expect to pay to charge at a reliable, verified and convenient charging point at someone's home?

2024



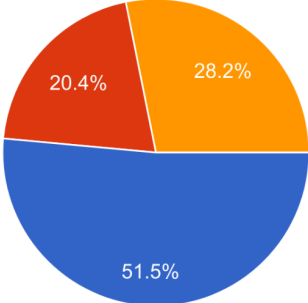
2023



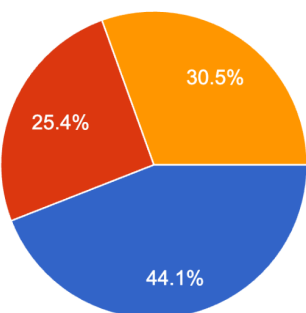
- Same as public charge points
- Less than at public charge points
- More than at public charge points

Would you consider booking and using another owner's home or business charging point through an Airbnb-style app?

2024



2023

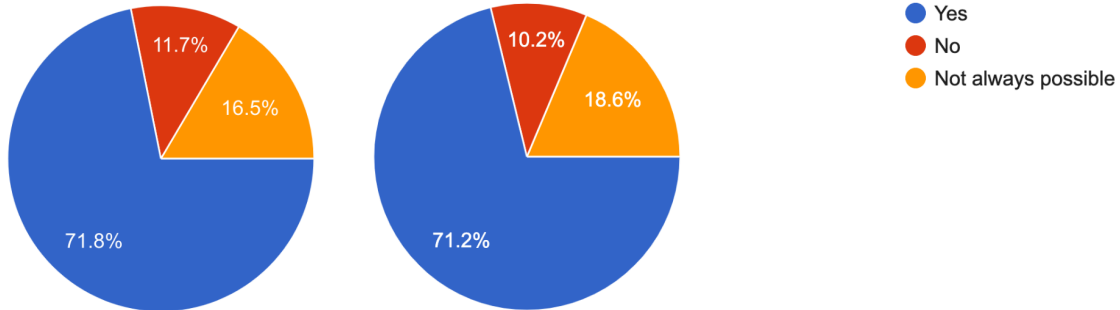


- Yes
- No
- Maybe

Do you check the rates that you pay for charging at home and/or at public charge points?

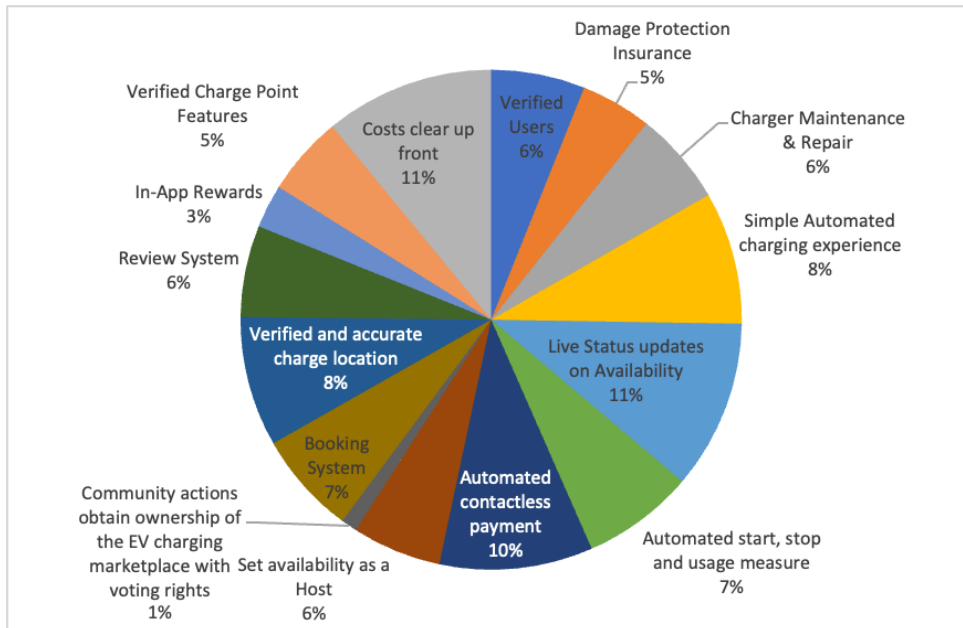
2024

2023

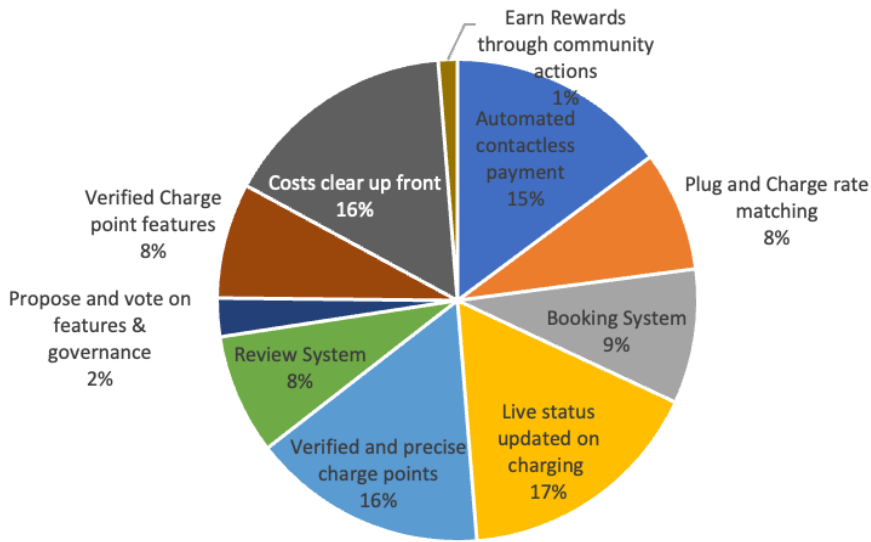


What features would you like to see in a charging app? Tick all that apply.

2024



2023

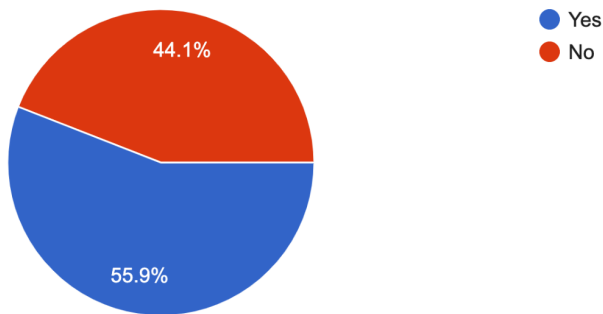


Would you like a say in the development of new features for an electric vehicle charging app and marketplace, as part of a community of users?

2024

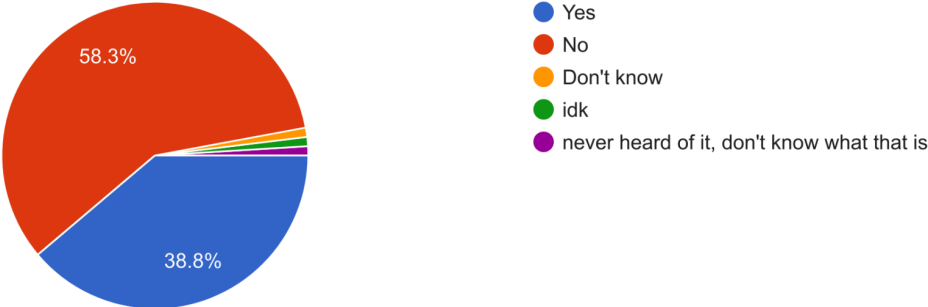


2023



Would you like to propose and vote on how a sharing EV charging app like Manta Ray EV is governed, as part of a community of users ?

2024



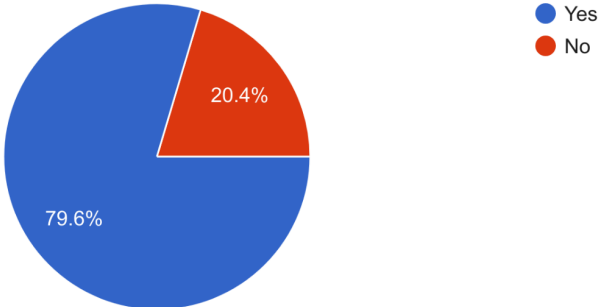
Public EV charging experience

Summary

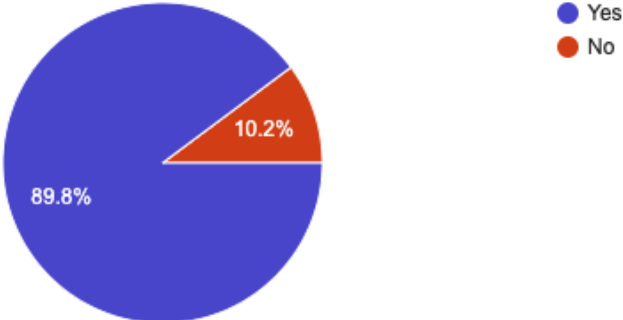
The vast majority (90%) charge away from home. Based on the Survey there are 2 dominant locations that they charge away from home - while shopping (32%) and at service stations on long journeys (64%). Other popular locations include work, leisure, coffee shop and public transportation.

Do you charge your vehicle somewhere else other than at home?

2024

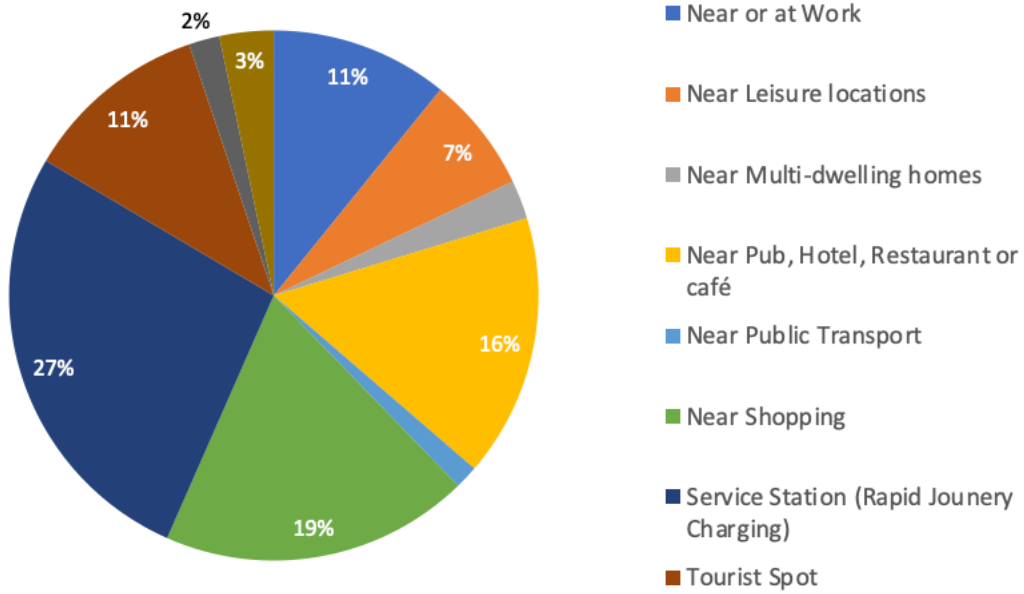


2023

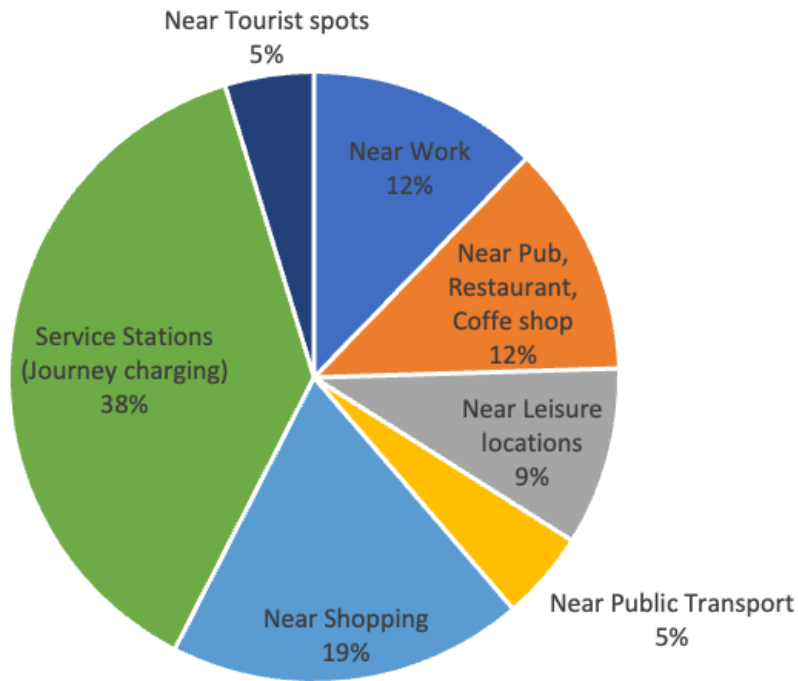


Where do you choose to spend time while charging your EV?

2024

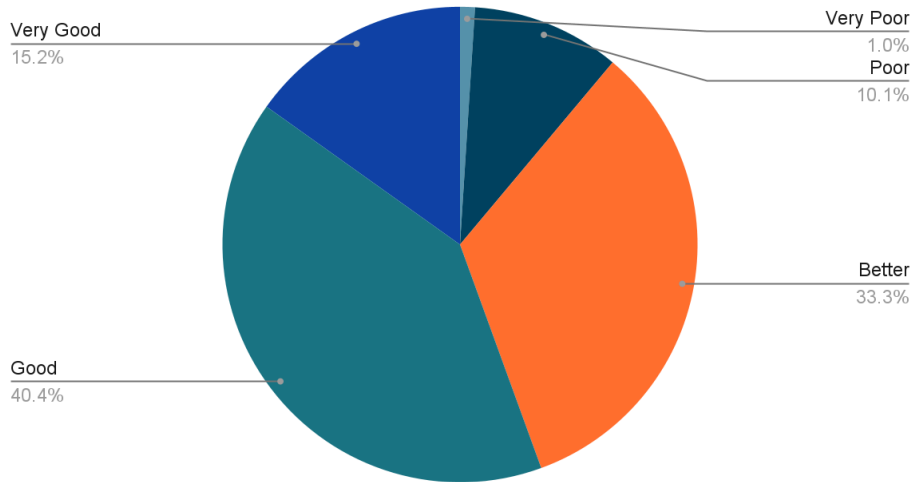


2023



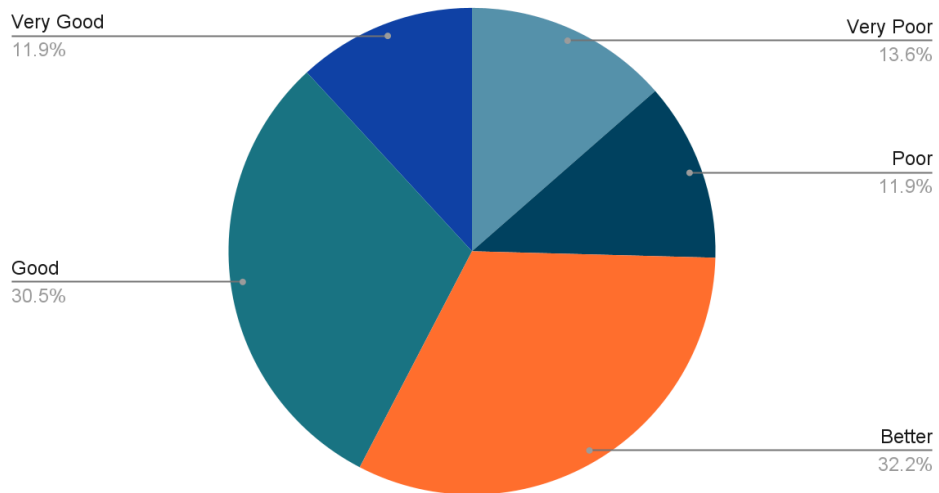
your

Points scored



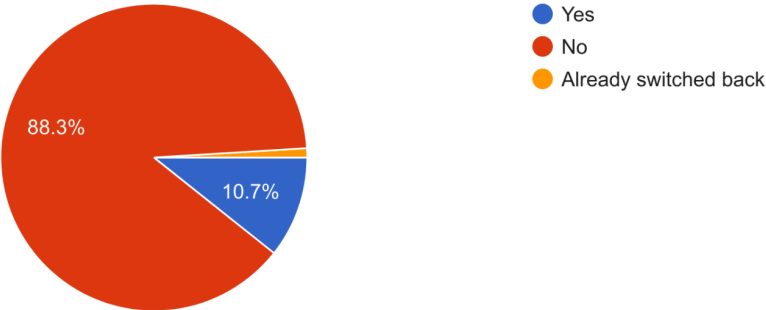
2023

Points scored

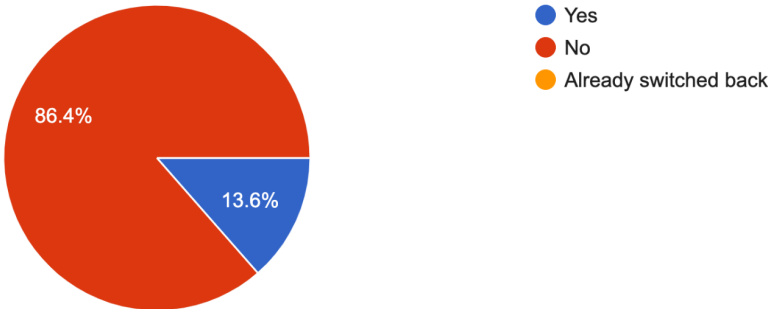


Have your experiences with charging made you consider switching back to a petrol or diesel-only vehicle?

2024



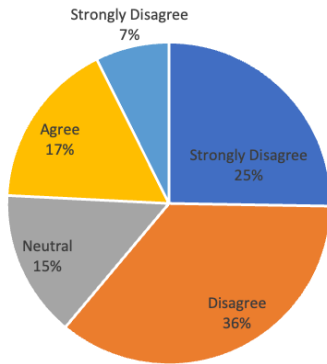
2023



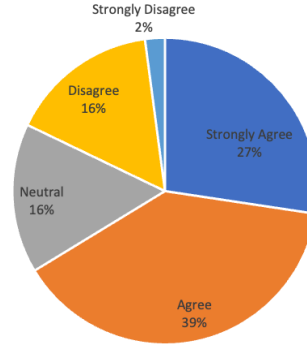
How strongly do you agree or disagree with the following statements?

2024

Only charge at home

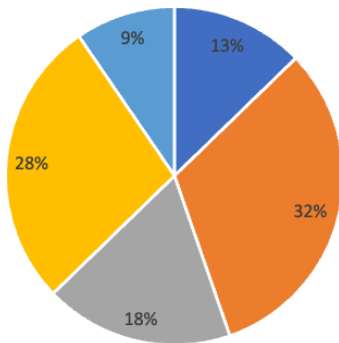


Problems with Public charging



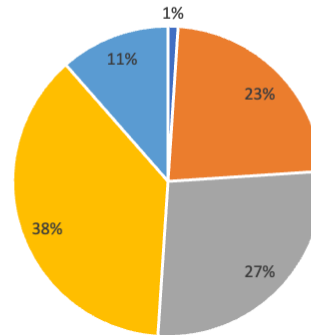
Want to book charger in advance

■ Strongly Disagree ■ Disagree ■ Neutral ■ Agree ■ Strongly Ag

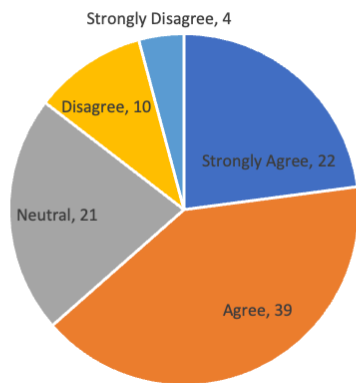


I would queue to charge

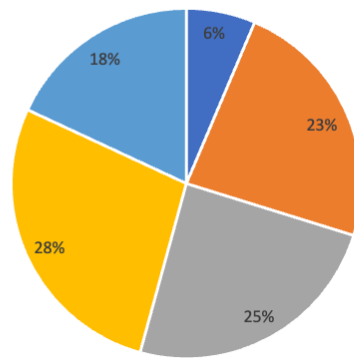
■ Strongly Agree ■ Agree ■ Neutral ■ Disagree ■ Strongly Disagree



Look for another CP than queue



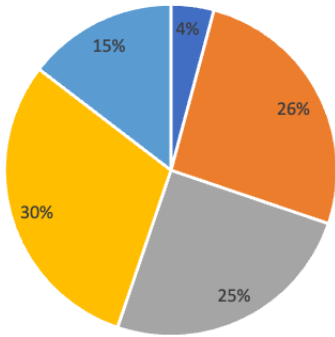
It takes too long to charge at public CP



■ Strongly Agree
 ■ Agree
 ■ Neutral
 ■ Disagree
 ■ Strongly Disagree

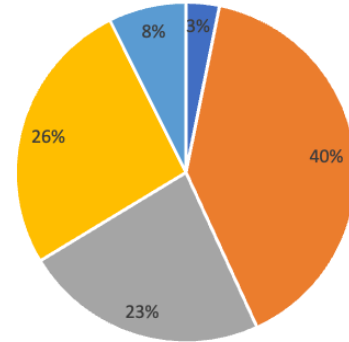
Cost of charging is clear

Strongly Agree Agree Neutral Disagree Strongly Disagree



Hard to find out cost of charger

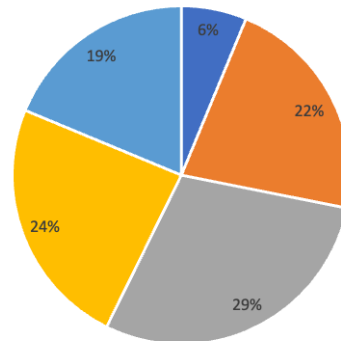
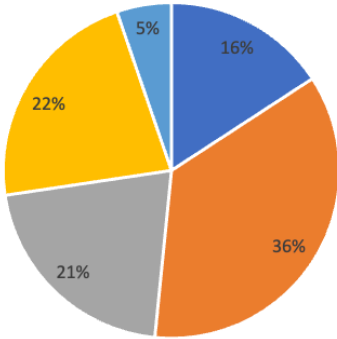
Strongly Agree Agree Neutral Disagree Strongly Disagree



Too many charging accounts

Easy to track CPO accounts

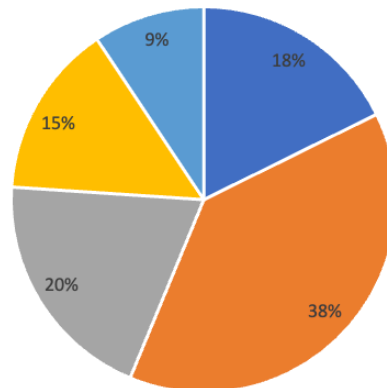
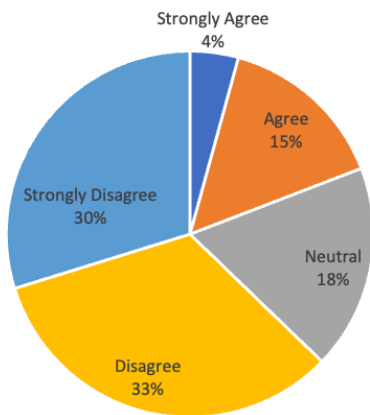
Strongly Agree Agree Neutral Disagree Strongly Disagree



Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

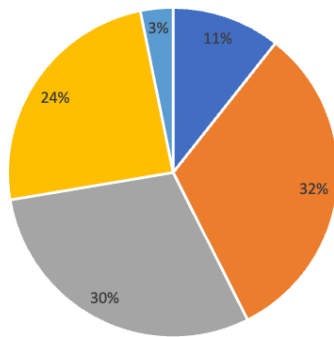
Public CP are safe

Always feel safe at Public CP



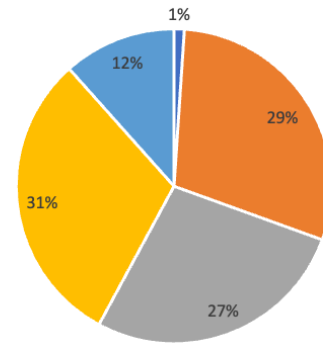
Strongly Agree
Agree
Neutral
Disagree
Strongly Disagree

Public CP are often out of order



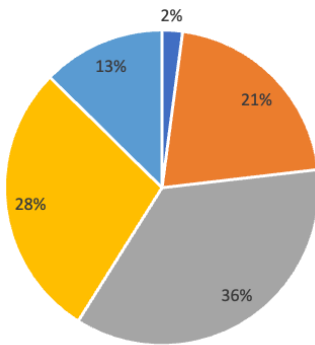
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Always have success at public CP



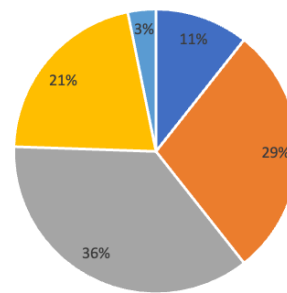
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Tech Support is easy to access at Public CPs



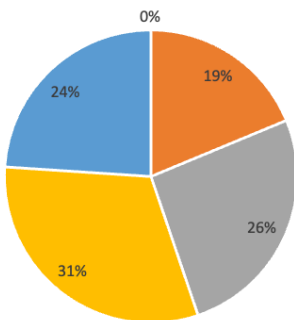
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Lack of Customer support at Public CP



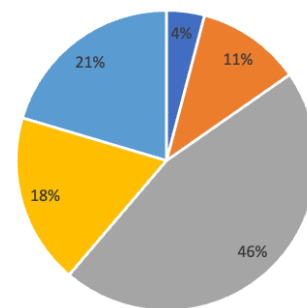
- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Public CP are well lit and covered



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

Public CPs are accessible for Disabled



- Strongly Agree
- Agree
- Neutral
- Disagree
- Strongly Disagree