

DELTA-EE



EUROPEAN CUSTOMER RESEARCH: THE EV CUSTOMER AND SMART CHARGING POWERSWARM PRESENTATION

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Presentation overview

- 1 Overview of Delta-EE
- 2 Customer research overview
- 3 EV driver insight
- 3 Smart charging insight

Delta-EE helps companies navigate the energy transition

We do this by enabling organisations to develop the best strategies, business models and customer propositions for the energy transition

'New Energy' Business Models

Identify and understand the alternative and new business models for the energy transition



EVs & Electricity

Understand the opportunities and challenges from sector coupling between electricity and transport



Flexibility & Energy Storage

Take advantage of the opportunities emerging from an active demand side



Heat

How channel disruption, sector coupling and new technologies are changing the heat sector



Distributed Power

Global market insight & expertise into the growing role of decentralised generation



Digital Energy

Opportunities in the connected home market and how digitalisation is changing the energy customer relationship

Delta-EE provides:

- Subscription Research Services
- Consultancy

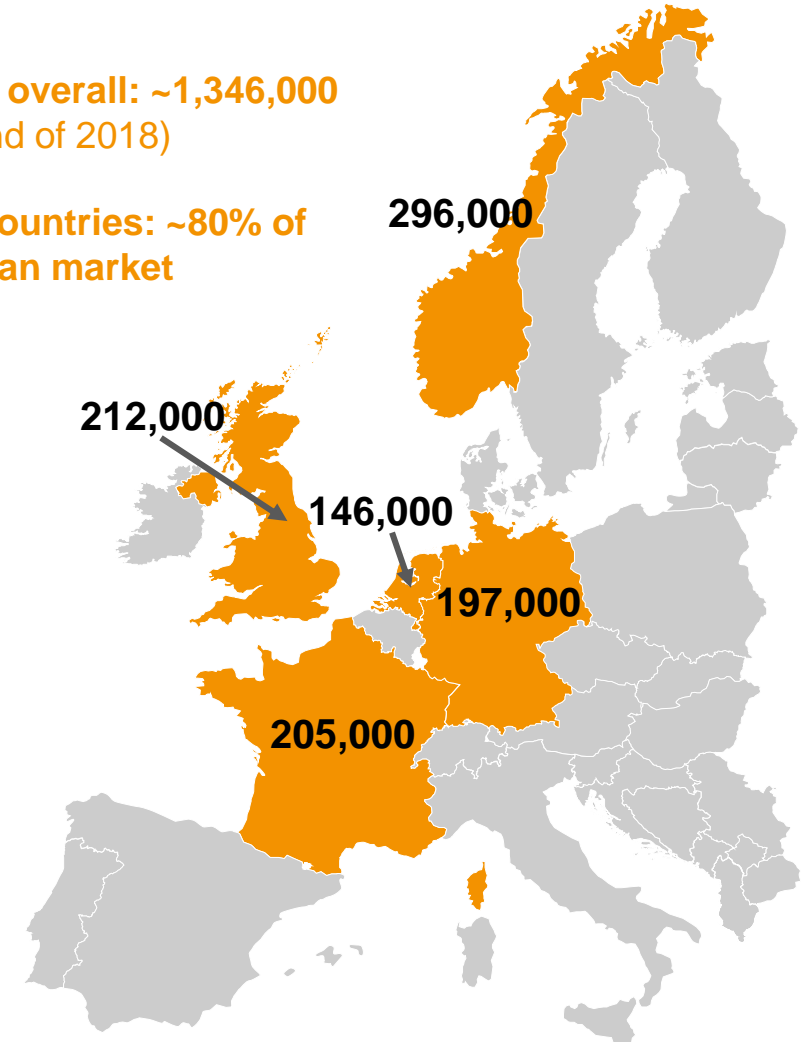


Why we carried out European EV Customer Research?

- (1) Plenty of information and data on public EV charging infrastructure – but not so for home EV charging
- (2) Customer research has been carried out within individual countries – but our research is asking the same questions across **five** European markets

Europe overall: ~1,346,000 EVs (end of 2018)

Top 5 countries: ~80% of European market

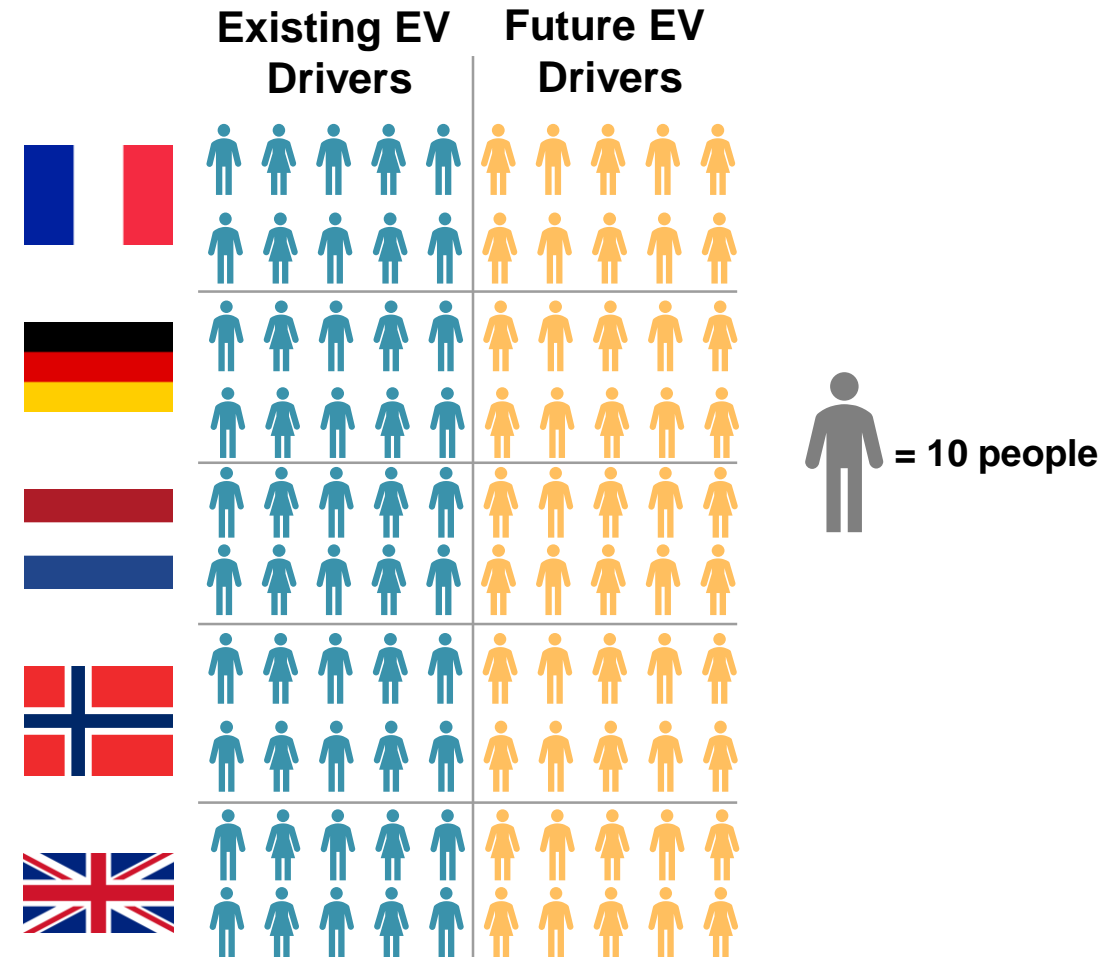


What did we do?

Using Delta-EE's European Customer Panel for EV research

A survey of 1,000 participants

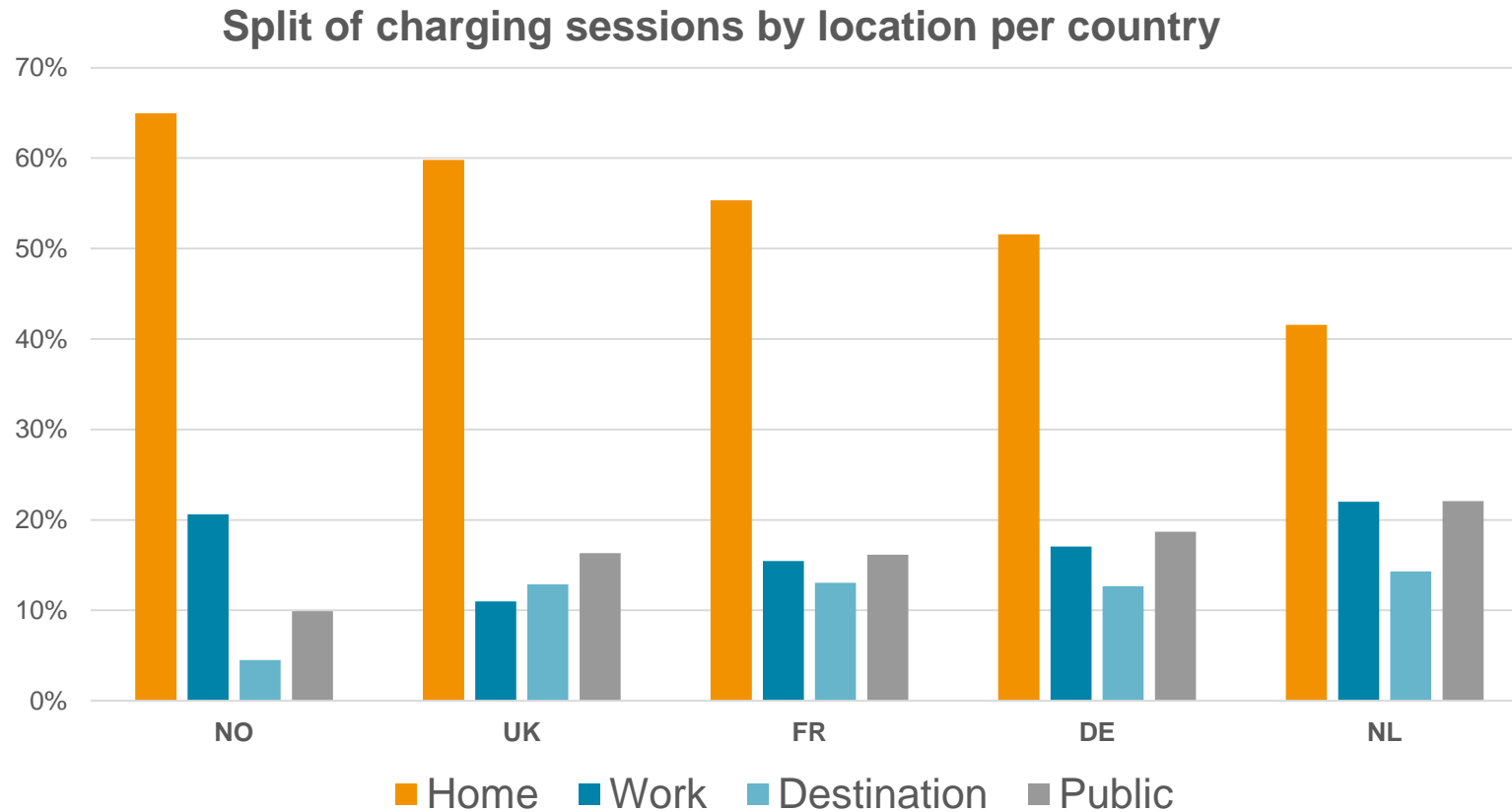
- 50% EV owners
- 50% prospective EV owners
- 5 languages



EV driver insight

Home charging is dominant in all markets

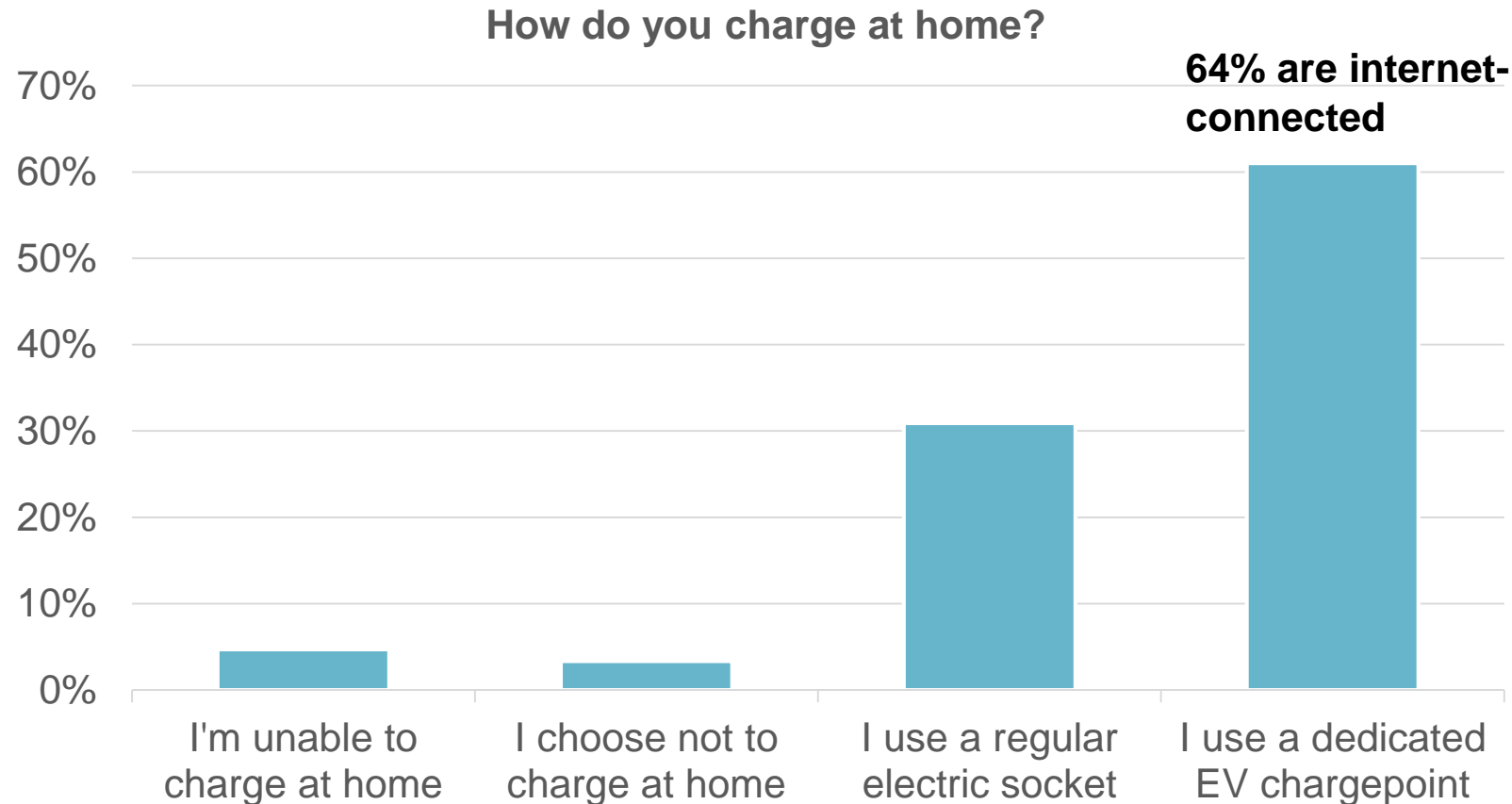
Public charging infrastructure and access to off-street parking influence where people charge



- In the future, more the Netherlands and less Norway
- Norway – (1) low density of public chargepoints (2) high percentage of off-street parking
- The Netherlands – (1) most dense public charging network in Europe (2) low percentage of off-street parking

Most EV owners use a dedicated chargepoint at home

Most of these chargepoints are internet-connected – opportunities for HEM and flexibility markets

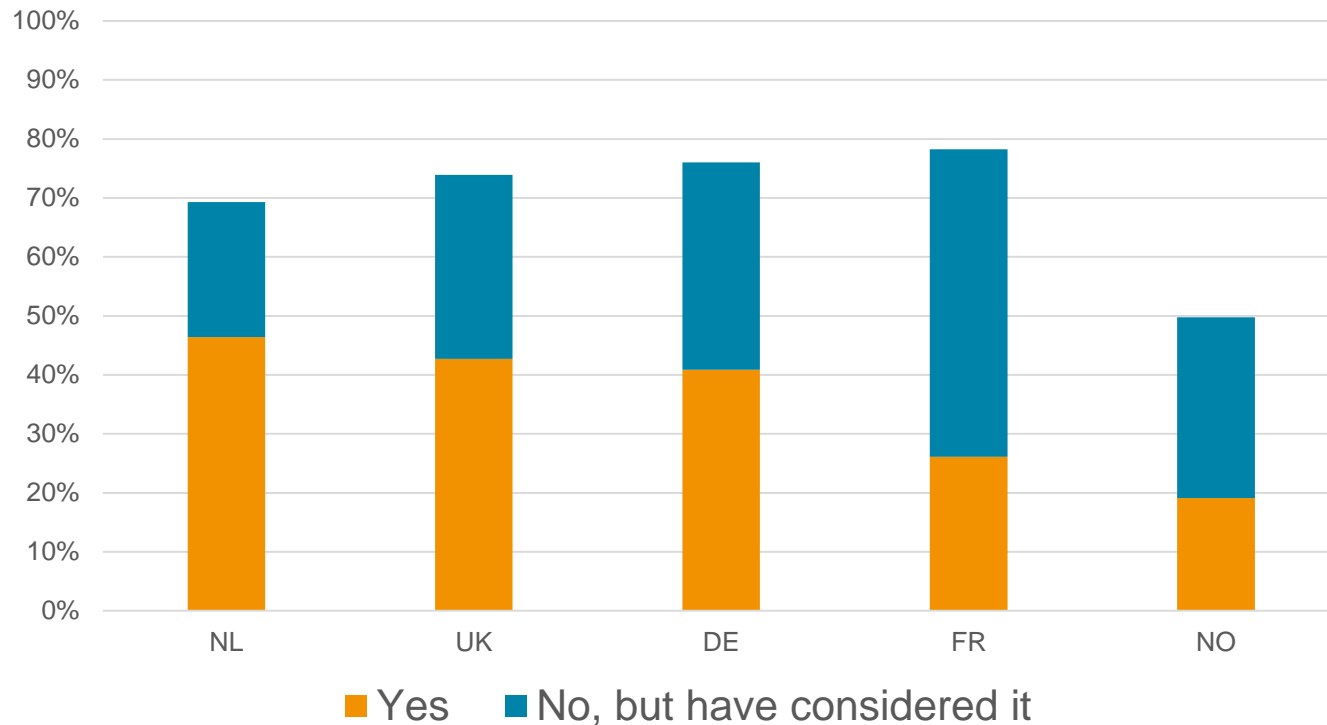


- 70% of UK participants use a CP whilst 40% of German and Norwegians use a regular electrical socket
- EVs are fast emerging as the largest connected residential electric load across Europe

EV owners are more likely to switch their electricity tariff

This is simultaneously a huge opportunity and threat for energy suppliers

Share of respondents that have switched or have considered switching due to getting an EV



Annual switching rates by country in 2017*:

NL: 15.8%

UK: 18.2%

DE: 9.6%

FR: 7.8%

NO: 18.8%

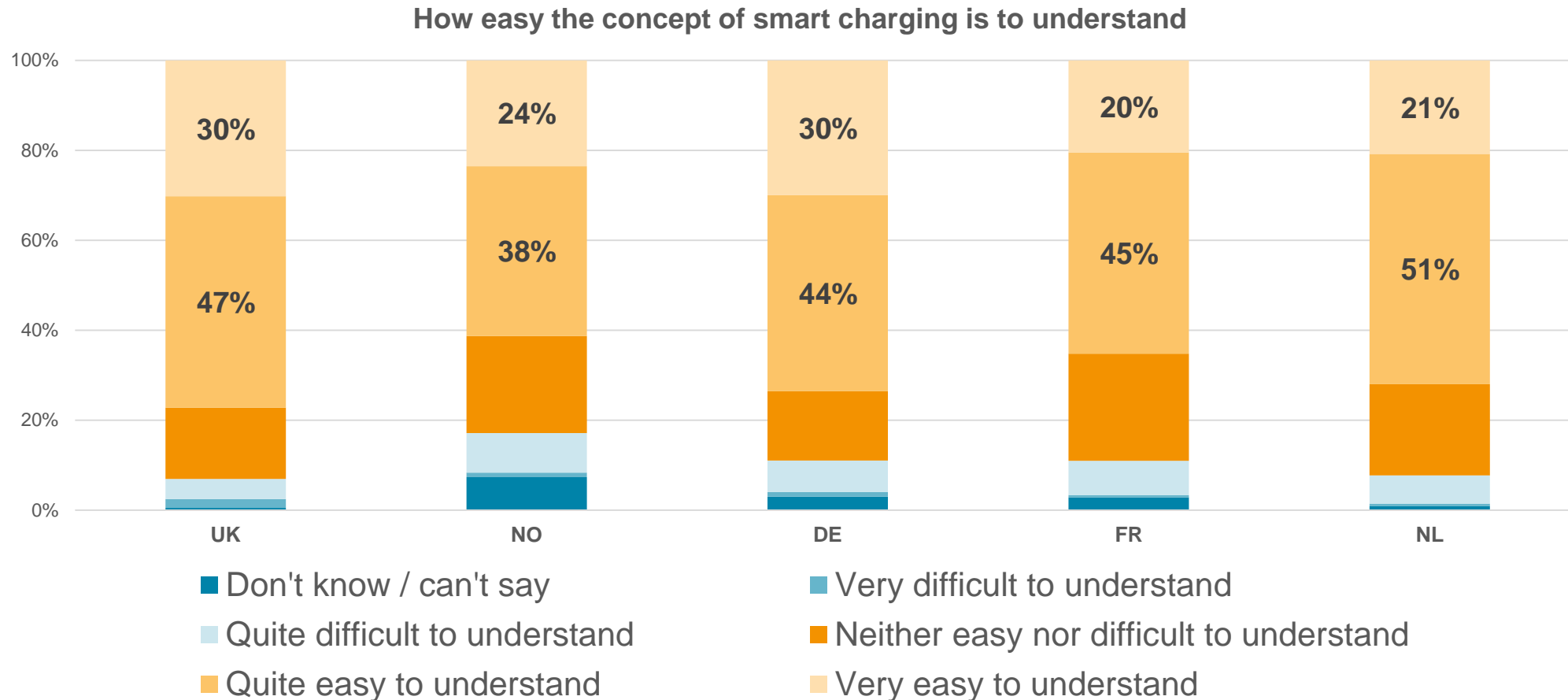
- 70% of respondents have switched, or have considered switching, their electricity tariff
- EV drivers are more than twice as active in switching their electricity supplier
- Price and the energy being renewable were the two most important factors

*CEER Monitoring Report, Performance of European Retail Markets in 2017

Smart charging insight

Smart charging is an understandable and appealing concept for customers

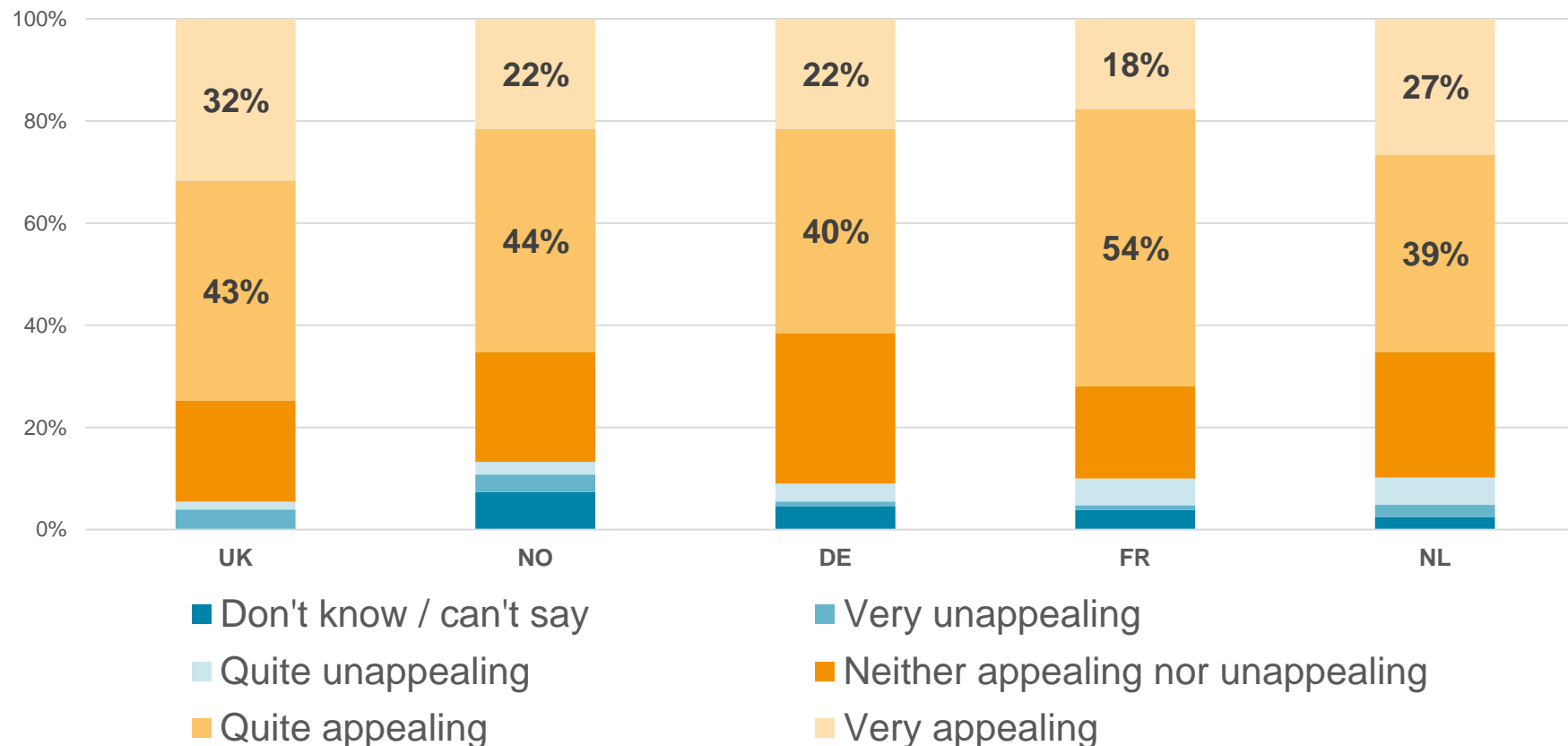
~70% of participants found the concept understandable



Smart charging is an understandable and appealing concept for customers

~70% of participants found the concept appealing

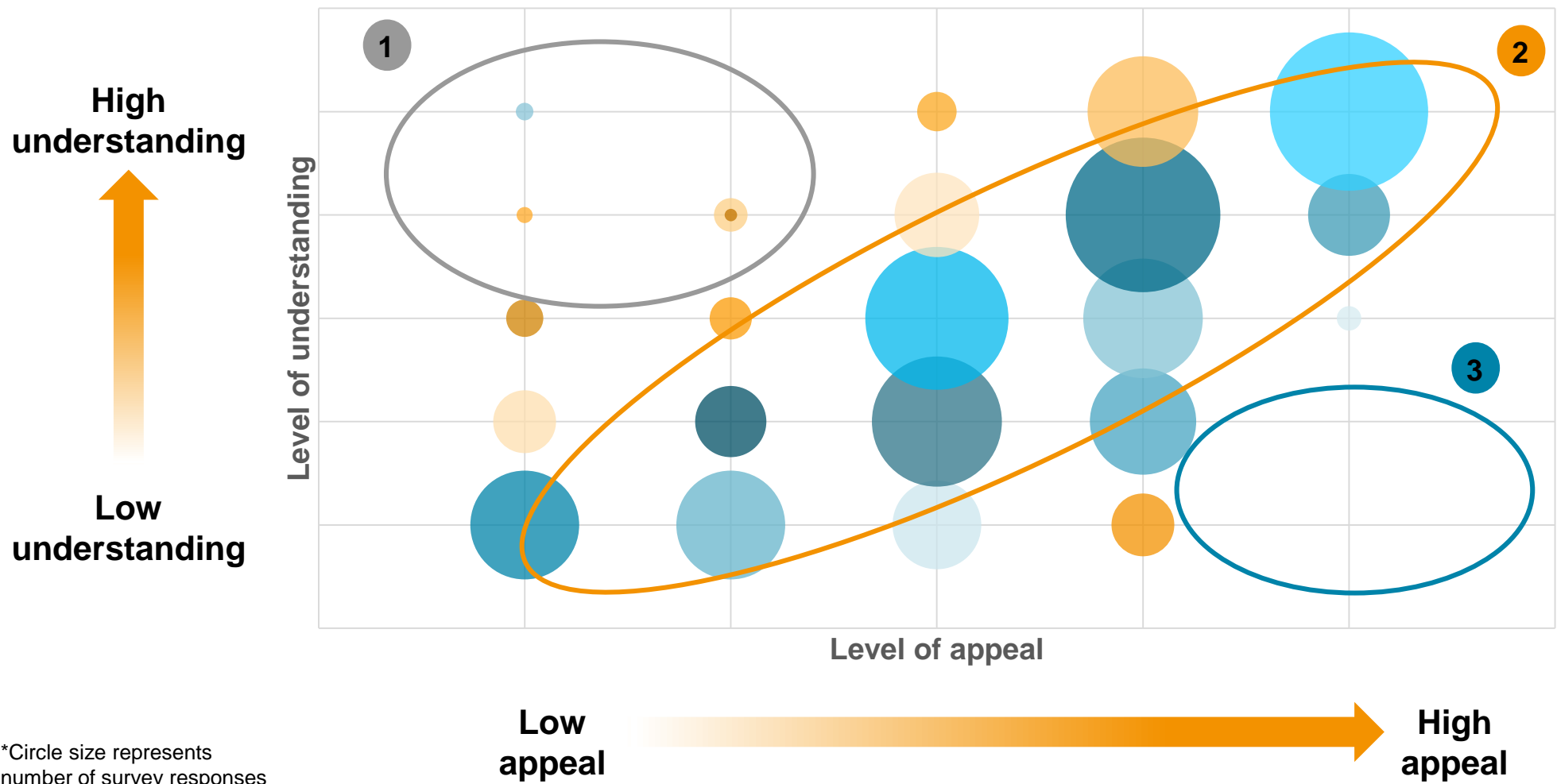
How appealing the concept of smart charging is



EV drivers had a higher level of understanding and appeal than non-EV drivers

There is a correlation between the level of understanding and the level of appeal of smart charging

Smart charging: level of understanding vs level of appeal*

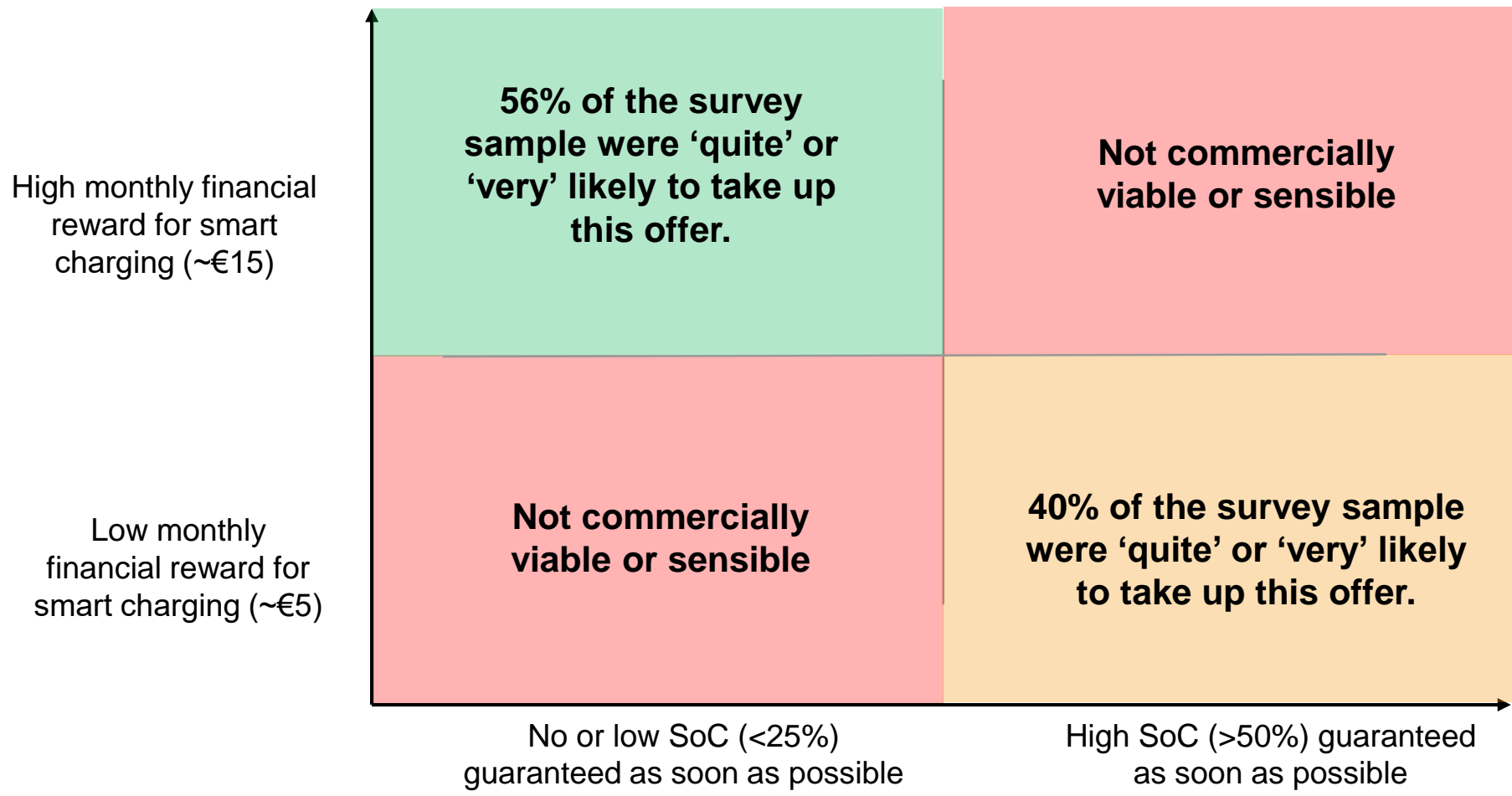


- The more understandable smart charging service providers can make their proposition, the more appealing it will be to customers

*Circle size represents number of survey responses

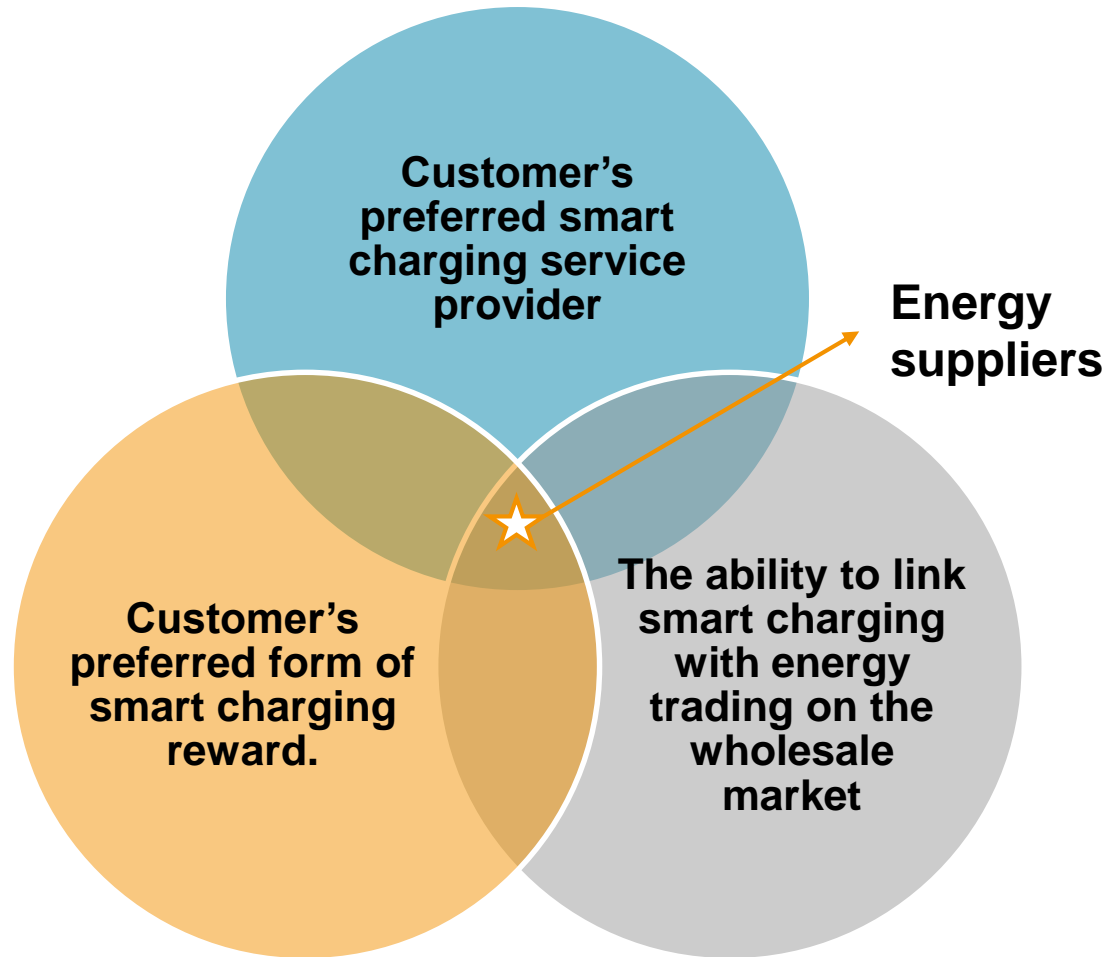
Customers are primarily motivated by the financial aspect of smart charging

Customer preferences for financial reward vs providing a certain SoC as soon as possible



- The customers are not concerned with how their EV is charged, as long as it has sufficient range when required
- Smart charging service providers should promote the financial aspect of their proposition

Energy suppliers are well-positioned to be smart charging service providers

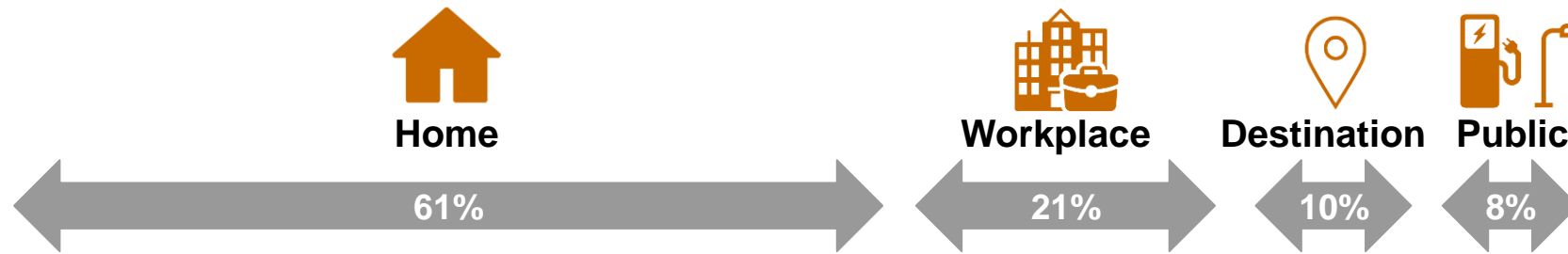


- Energy suppliers fit these three criteria
- A proposition which works well in one country is likely to work well in another

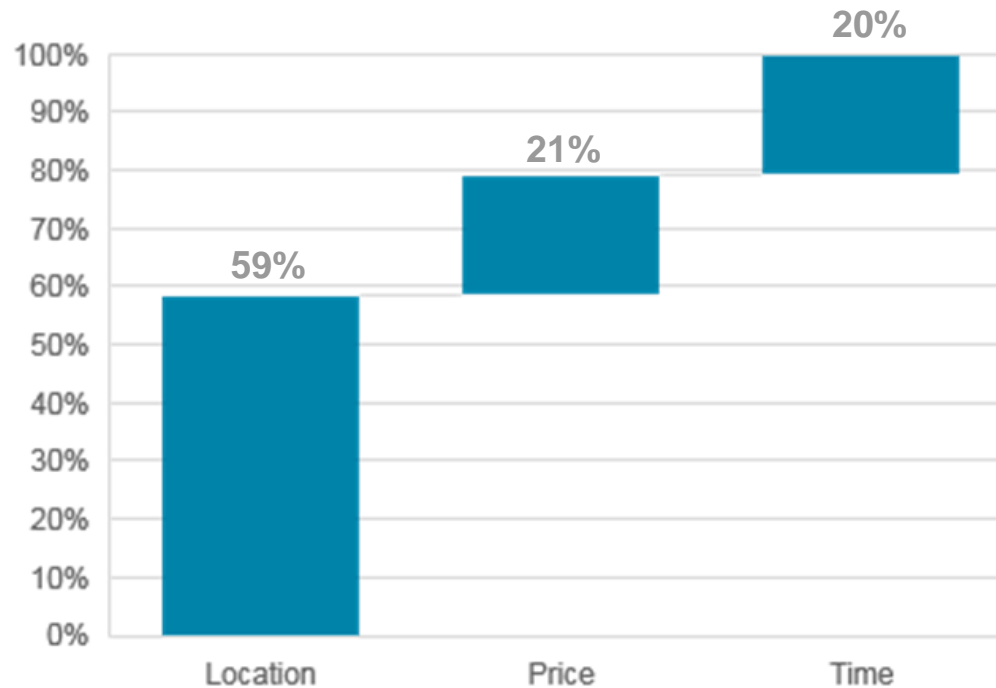
Any questions?

The EV Charging Mix – EV Customers of tomorrow

1,001 Prospective EV Drivers Surveyed (Will choose an EV in next 5 years)



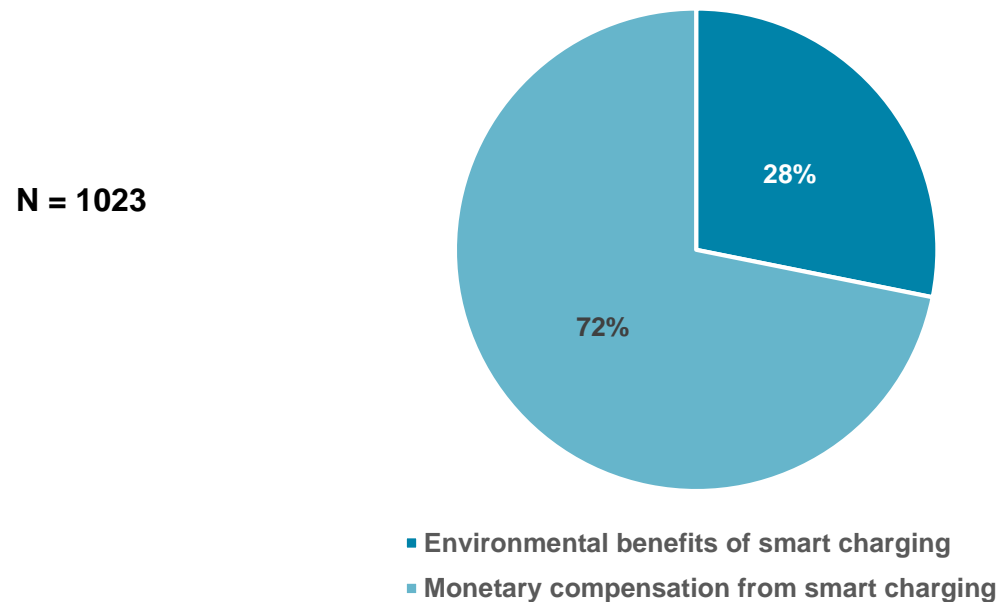
Relative importance of factor on customer choices



Customers are primarily motivated by the financial aspect of smart charging

Smart charging service providers should emphasise/market the financial aspect of the proposition above the environmental aspect

The most important aspect of smart charging



Nearly three quarters of the survey sample rated the financial aspect of smart charging as more important than the environmental aspect

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