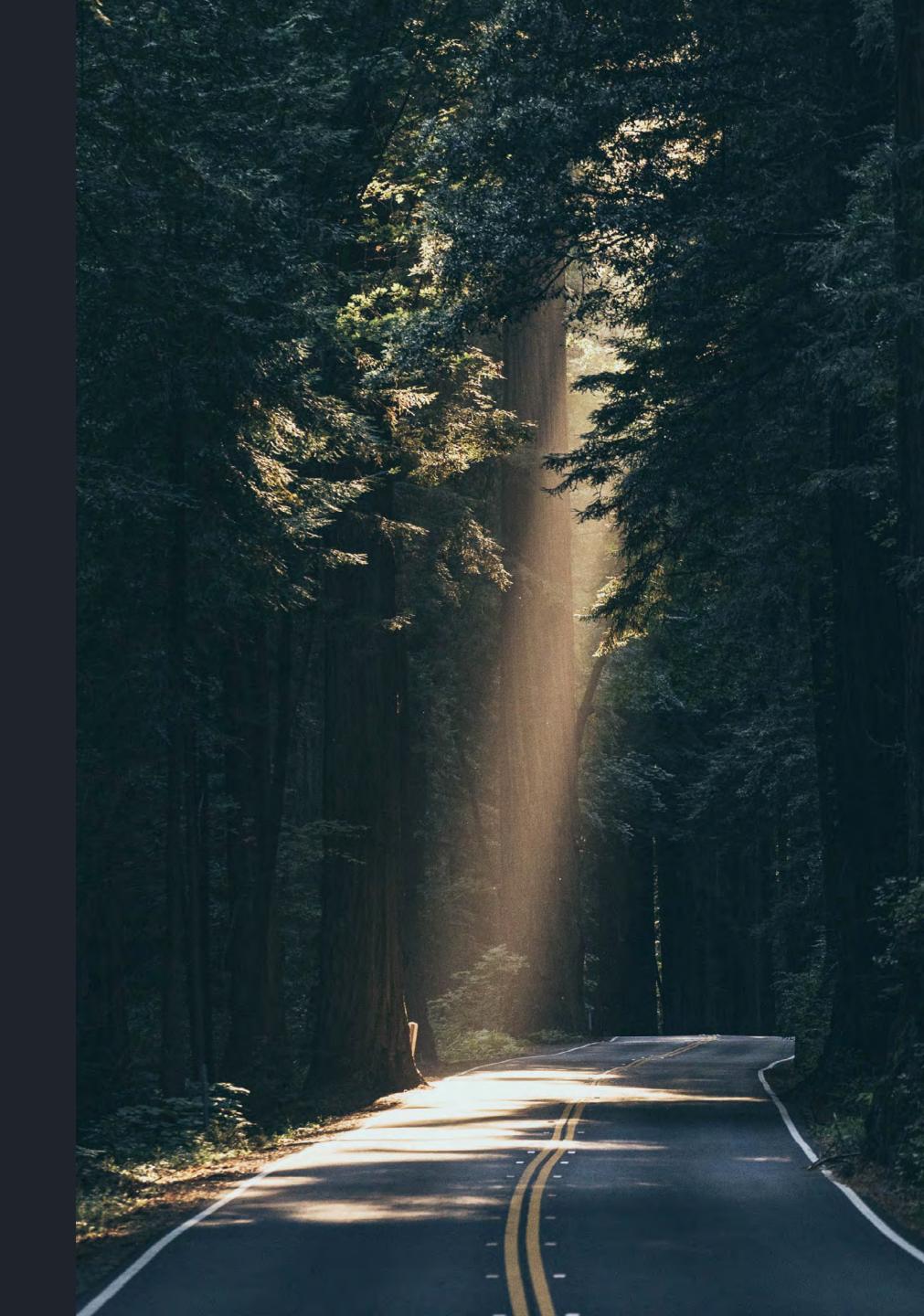




Promoting sustainable mobility

August 2020

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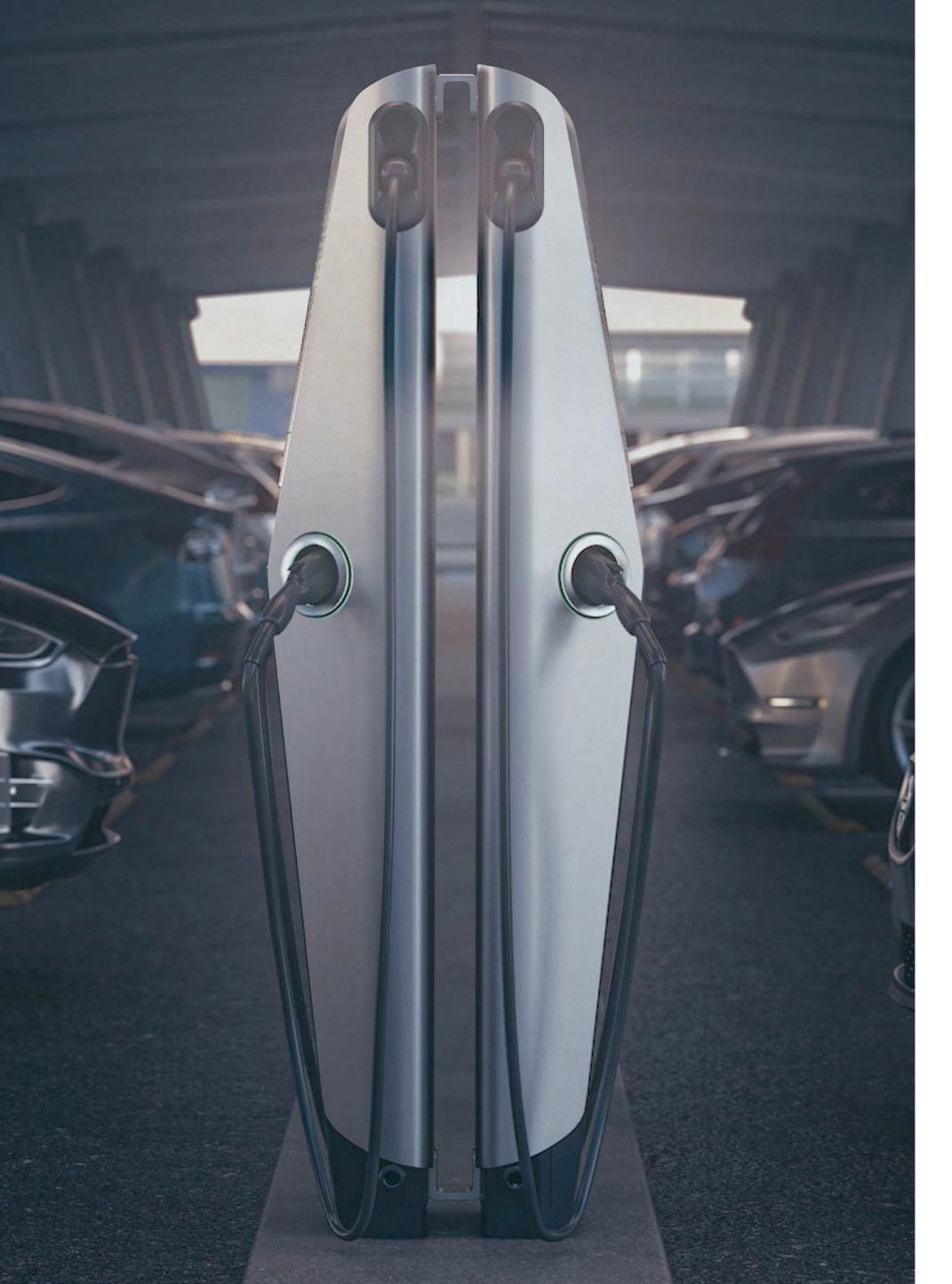


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Introduction

Sustainable Mobility

The automotive industry currently stands on the brink of a new era, as the electrification of vehicles is transforming the way we drive. It is not just new technology that is enabling this new era. There seems to be a real political momentum to act upon. Concerns about climate change and broader environmental issues are top of mind for many citizens around the globe. Meanwhile, Europe aims to set an example by striving to be the first "climate-neutral" continent by 2050, a goal formalised by a set of policy initiatives known as the European Green Deal. One of the sub-goals as defined by the European Union is to drastically increase the number of public charging points for electric vehicles in Europe.

EVBox seeks to play a pivotal role in this new transportation paradigm. As a part of this strategy, this research was carried out in order to arrive at an accurate description and understanding of the market for electric driving in Europe. For this research, we have targeted the general population, potential drivers of electric vehicles and current 'EV drivers'. The four building blocks we have focused upon in this research are (1) profiling the current and the potential drivers of electric cars; (2) environmental considerations that trigger (potential) electric drivers; (3) consumers' perceptions of barriers to electric driving and (4) the current state of fast charging in Europe.

This research report follows that same structure. Before presenting the most important insights for each of the four elements, we outline the conclusions and recommendations. The report starts with an introduction in which we formulate the overarching purpose of this project and the specific research questions.



Sjoerd van Heck Research Manager



Marierose Heineken - van Dooren Research Executive

Main questions we have answered

How to claim thought leadership in the market of electric vehicles across Europe?

What we need to understand to answer this:

1. Describe the market

Who are the current EV drivers and who are the potential EV drivers? And how do these groups differ from the general population?

2. Understand potential triggers

How can environmental considerations trigger the market potential for electric driving?

3. Understand potential barriers

What perceived obstacles do (potential) EV drivers face when it comes to buying and charging electric vehicles?

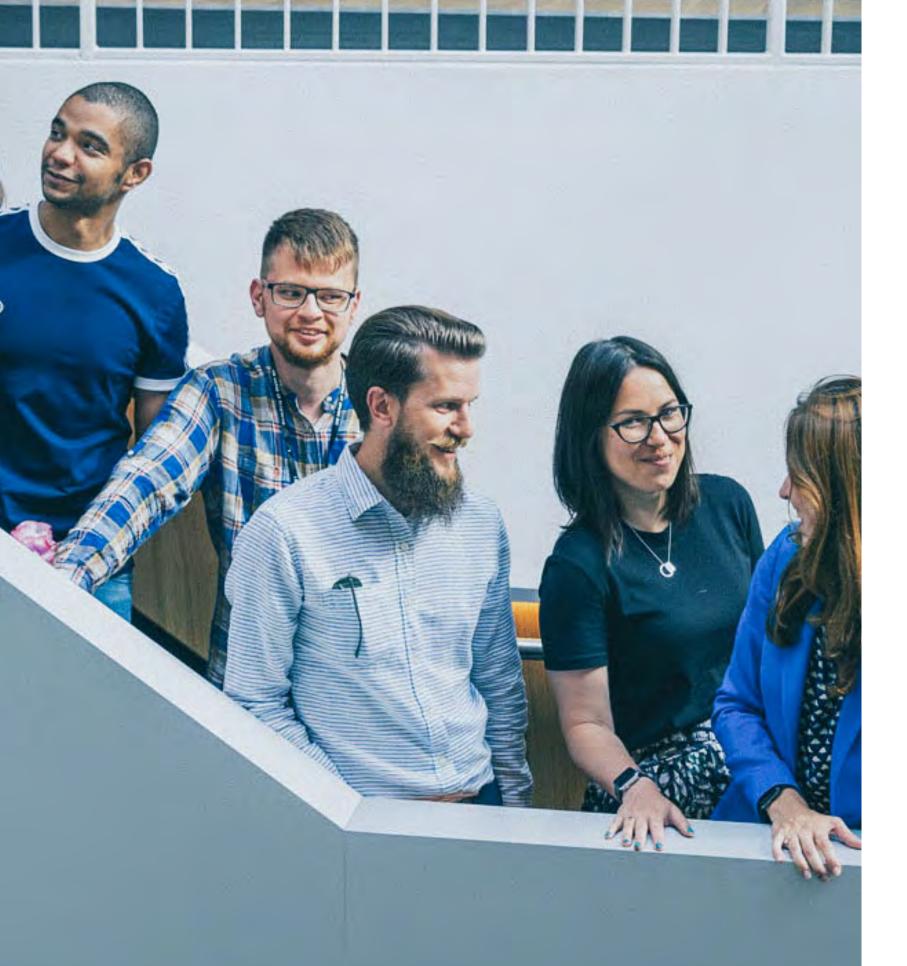
4. Offer solutions

To what extent can fast charging be a possible solution to tackle some of the obstacles as perceived by (potential) EV drivers?





How we conducted this research



1. Target group

General population, potential EV drivers and EV drivers.

Countries: Belgium, France, Germany, the Netherlands, Norway and the United Kingdom.

2. Sample size

General population samples: n=500 per country.

Total penetration of EV drivers within the general population is 8%; Belgium 5%, France 5%, Germany 3%, the Netherlands 8%, Norway 24%, the UK 5%.

EV-driver boosts to n=100 per country.

Definitions

Potential EV drivers are a subset from the general population; those who currently do not drive an an electric/plug-in hybrid car, but say they would probably or certainly opt for an electric/plug-in hybrid car in the future

EV drivers are those who currently drive an electric/plug-in hybrid car (hybrid, PEV and/or BEV).

3. Field work

The surveys were conducted by means of an online questionnaire.

Respondents were selected from the Ipsos i-Say Panels.

Fieldwork was carried out between July 3 and July 15, 2020.

4. Representativeness

The general population sample matches the profile of the target population on the variables age, gender, region and education. Weighting was applied for small corrections with very high efficiency, reflecting the accuracy of the sampling procedures. Weighting efficiency score per country (0-100%) below:

Belgium 99.7%	France 90.1%	Germany 89.1%
Norway 97.2%	The UK 91.1%	The Netherlands 98.6%



Conclusions and Recommendations

Conclusions

Electric driving needs to shift from nice to have to need to have. One way to do this is to connect more to the top of mind environmental concerns that potential EV drivers express. Price perceptions as well as doubts about charging possibilities will need be dealt with. Fast charging might offer a solution in this regard, but it is not yet widely used. In order to go the extra mile, a sizeable segment of the (potential) EV drivers needs to be convinced that this service is worth paying for.

(Potential) EV drivers

EV drivers have a different demographic profile from the general population. They are well educated, employed, more often male than female, and youngsters (<35) are overrepresented among EV drivers. EV drivers tend to drive a second car, which fits the narrative that currently electric vehicles are a nice to have rather than a need to have. Potential EV drivers resemble the general population to a larger extent than current EV drivers do.

Triggers to connect with

Both current and potential EV drivers find environmental considerations important. They worry about climate change and the environment, more than the average citizen does. In addition, they clearly link electric mobility to the broader theme of combating climate change and support government policies that incentivize electric driving. They have a favourable impression of the European Green Deal, of which they have slightly more knowledge than the general population.

Conclusion and recommendations

Main obstacles to overcome

The main obstacles that currently prevent the market from fulfilling its potential are related to pragmatic concerns about the availability of charging possibilities and the price perception of electric mobility. About half of the potential EV drivers cite uncertainty about charging possibilities as a reason to doubt opting for an electric car. And many see electric or plug-in hybrid cars as part of the upper price segment in the market.

Fast-charging as a possible solution

Fast charging can be a possible solution to at least some of the obstacles. As to date, however, fast charges are not used frequently by EV drivers. Moreover, a significant share of electric drivers is saying that they are not yet willing to pay more at a public charging spot knowing that their car will be charged faster.





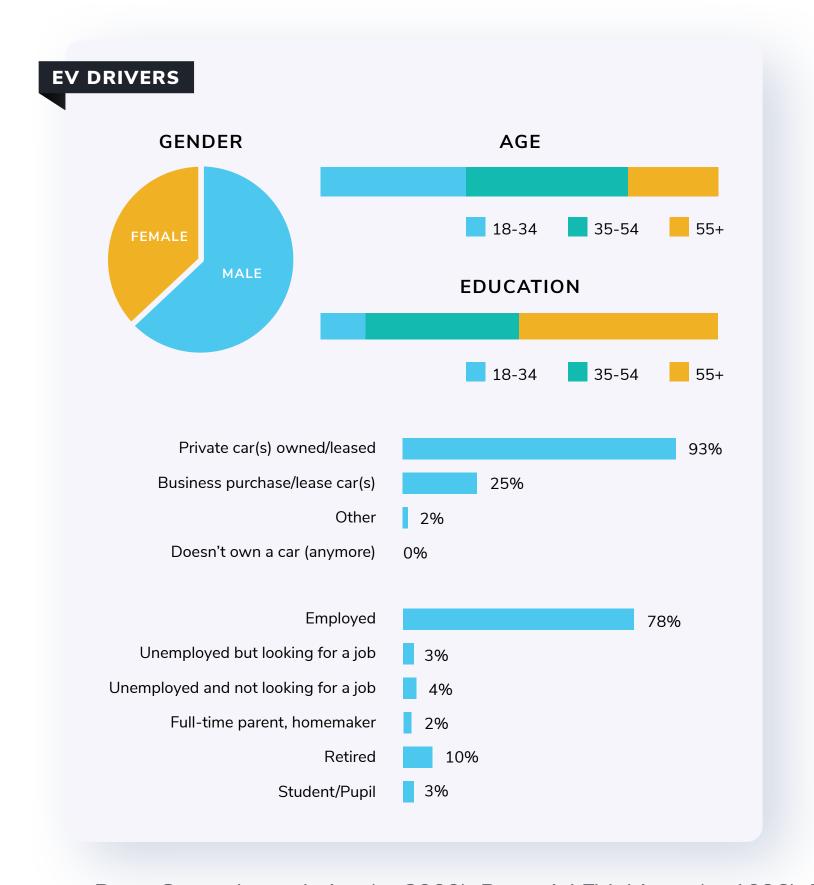
Chapter 01

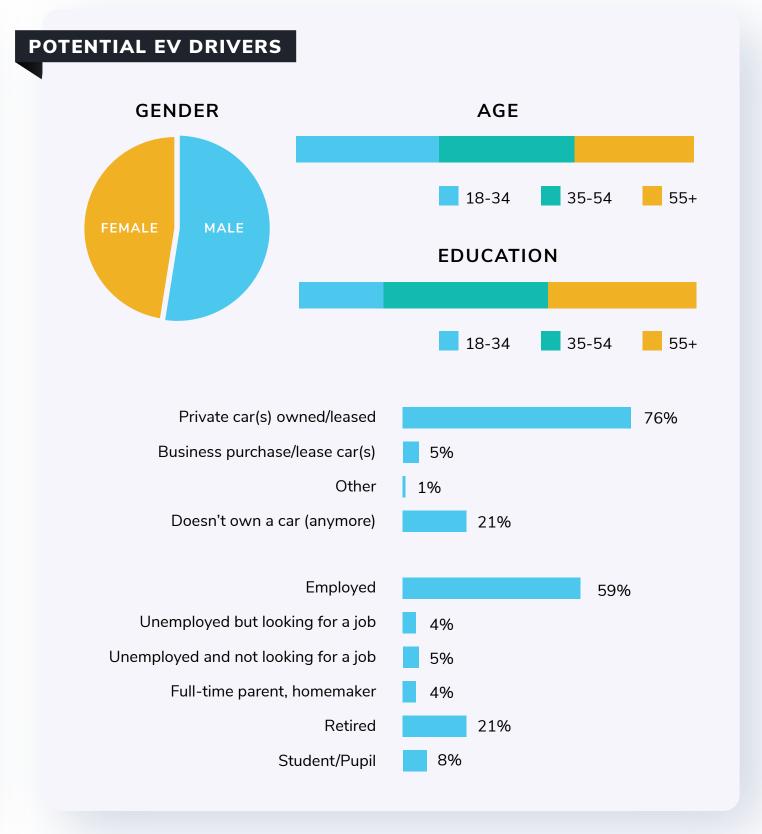
Current and potential EV drivers

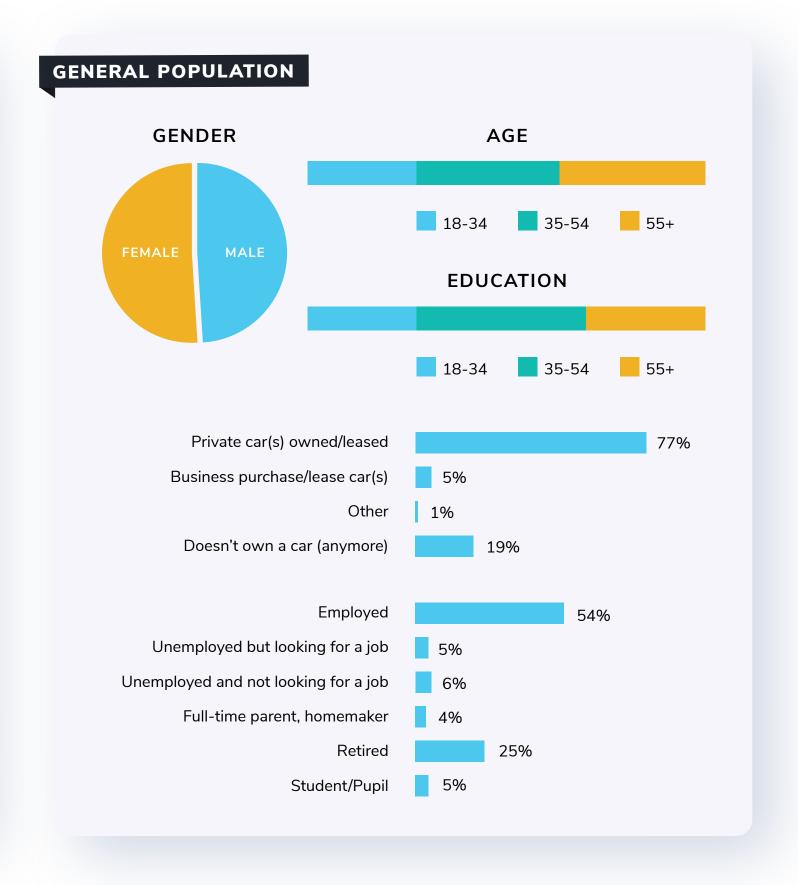
Profile

Current EV drivers are predominantly male, between 35 and 54 years of age, highly educated, and working full-time. They often own both a private (lease) car and/or a business lease/purchase car.

Potential EV drivers resemble the general population more closely. Compared to current EV drivers, potential EV drivers are older, more often female, slightly lower educated and more often retired or student. Around 1/5 does not own a car currently.





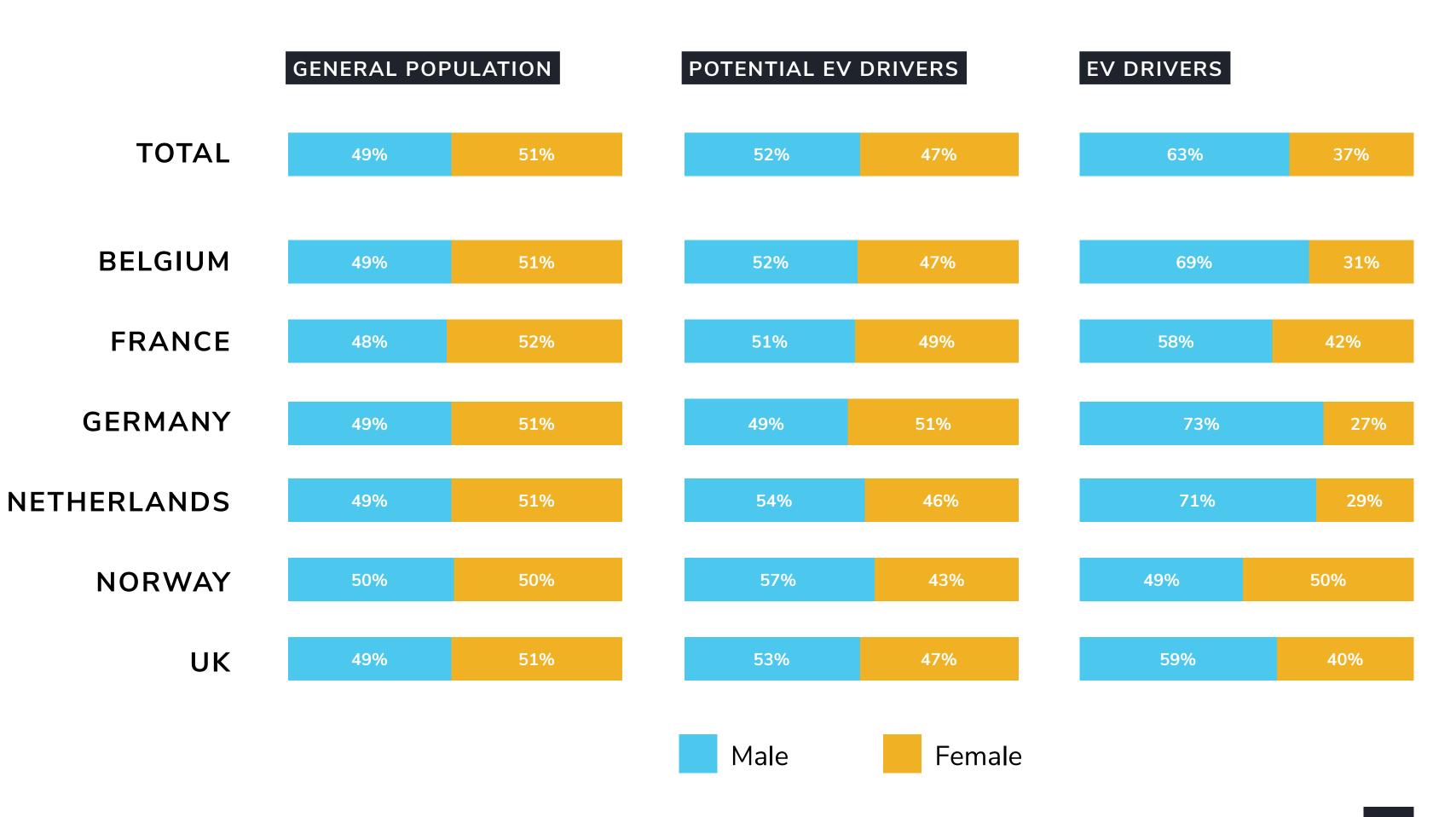


Base: General population (n=3000), Potential EV drivers (n=1096), EV drivers (n=600)

Men are overrepresented among EV drivers, except in Norway

Men are overrepresented among EV drivers. This is especially the case in Belgium, Germany and the Netherlands. In Norway, the gender distribution is more equal among EV drivers.

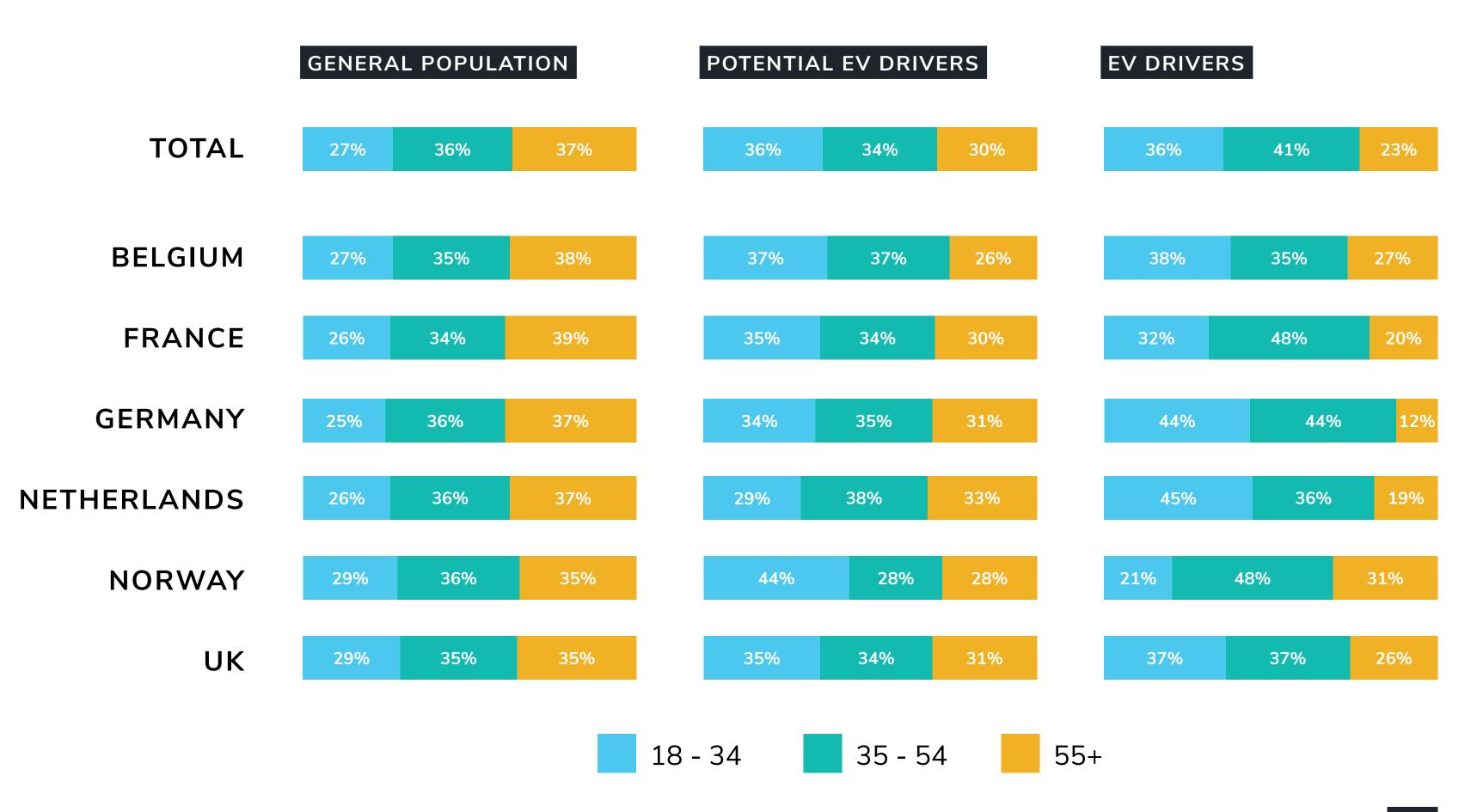
Across the board, men and women are more equally balanced among potential EV drivers.



About 1 in 3 (potential) EV drivers are under 35

Youngsters tend to drive electric, this is especially the case in the Netherlands and Germany.

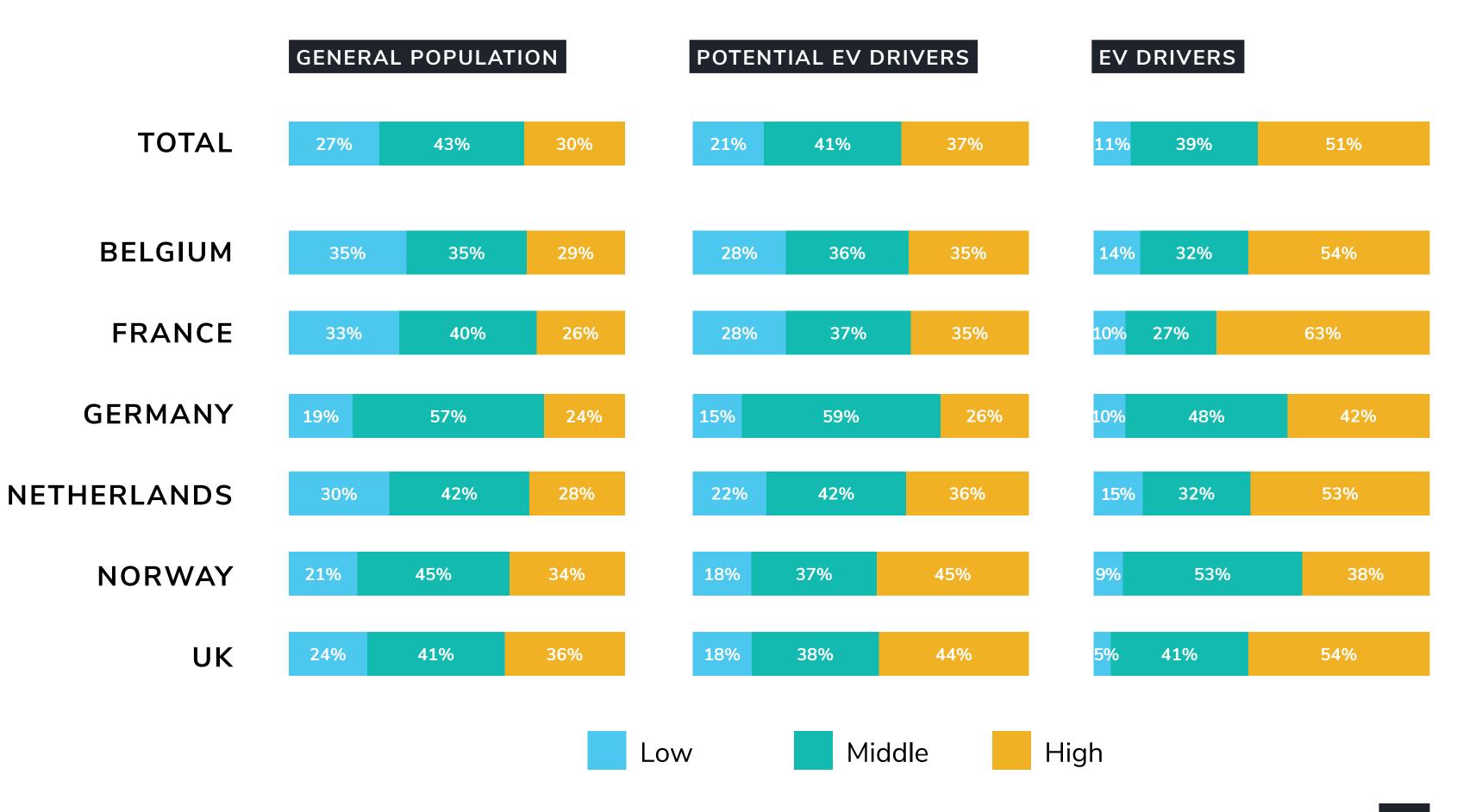
Although potential EV drivers are more like the general population, youngsters are also overrepresented among the potentials.



EV drivers are more often highly educated than the general population

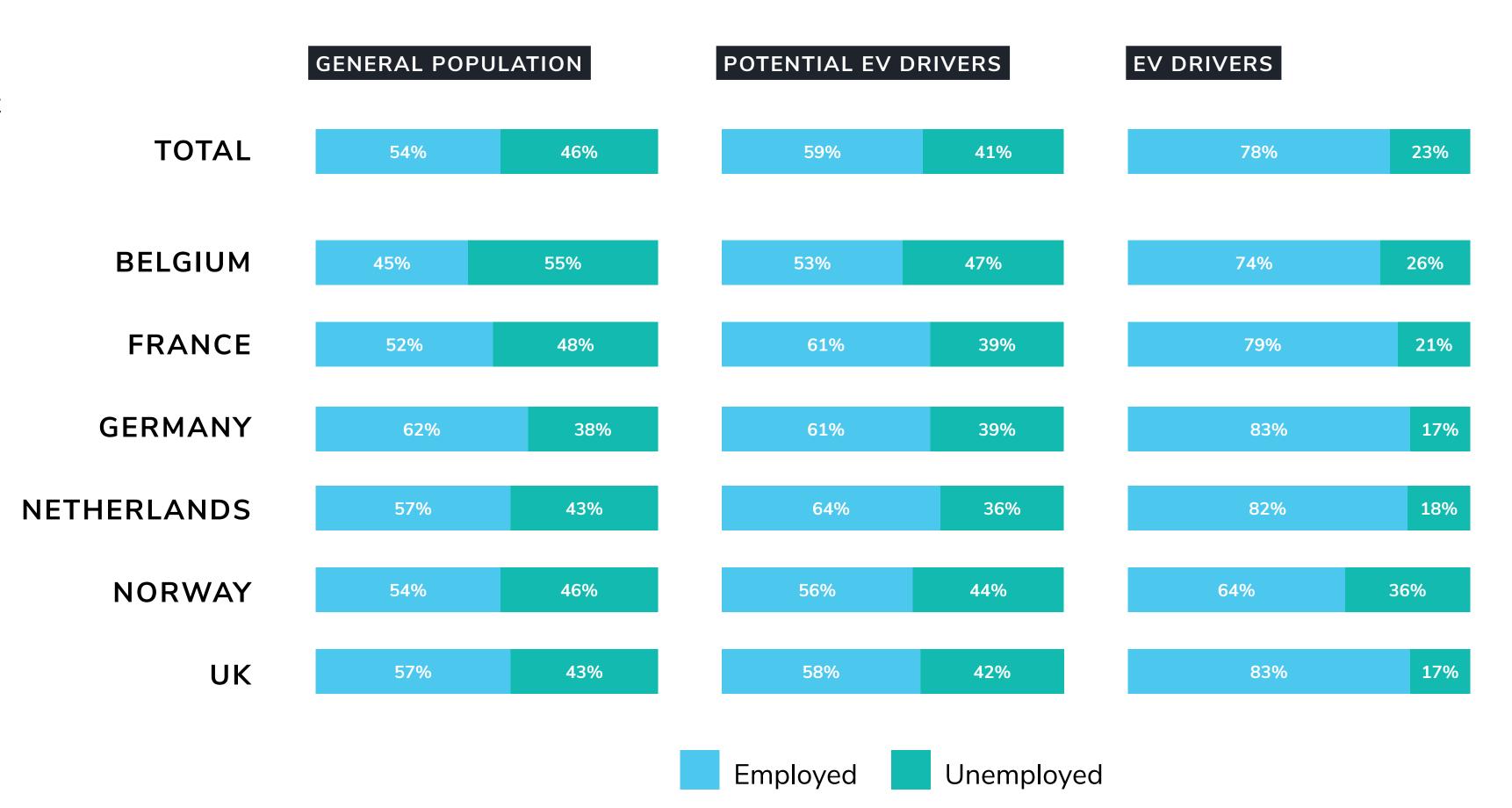
EV drivers are more highly educated than the average citizen.

Potential EV drivers resemble the general population more in terms of educational. attainment than current EV drivers do. Still, even among potentials the lower educated are underrepresented.

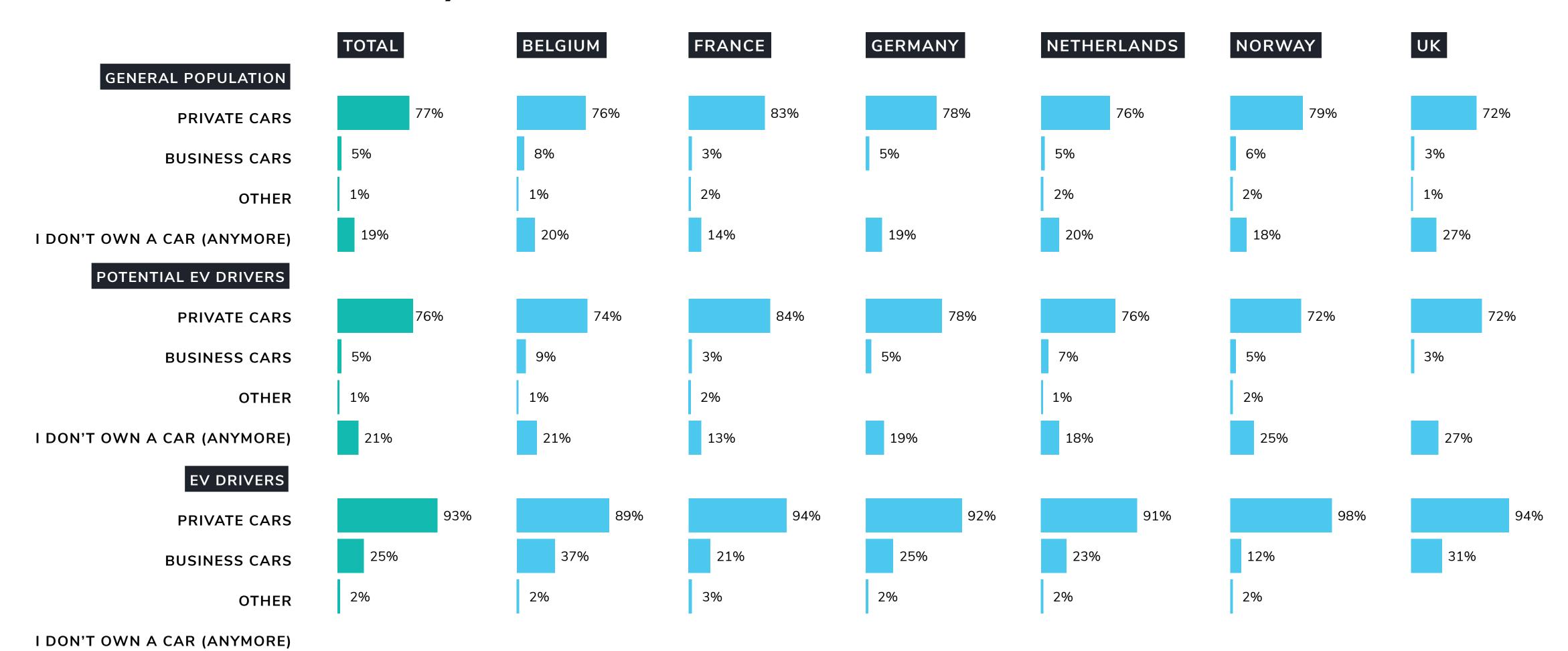


Both EV drivers and potential EV drivers are more often full-time employed

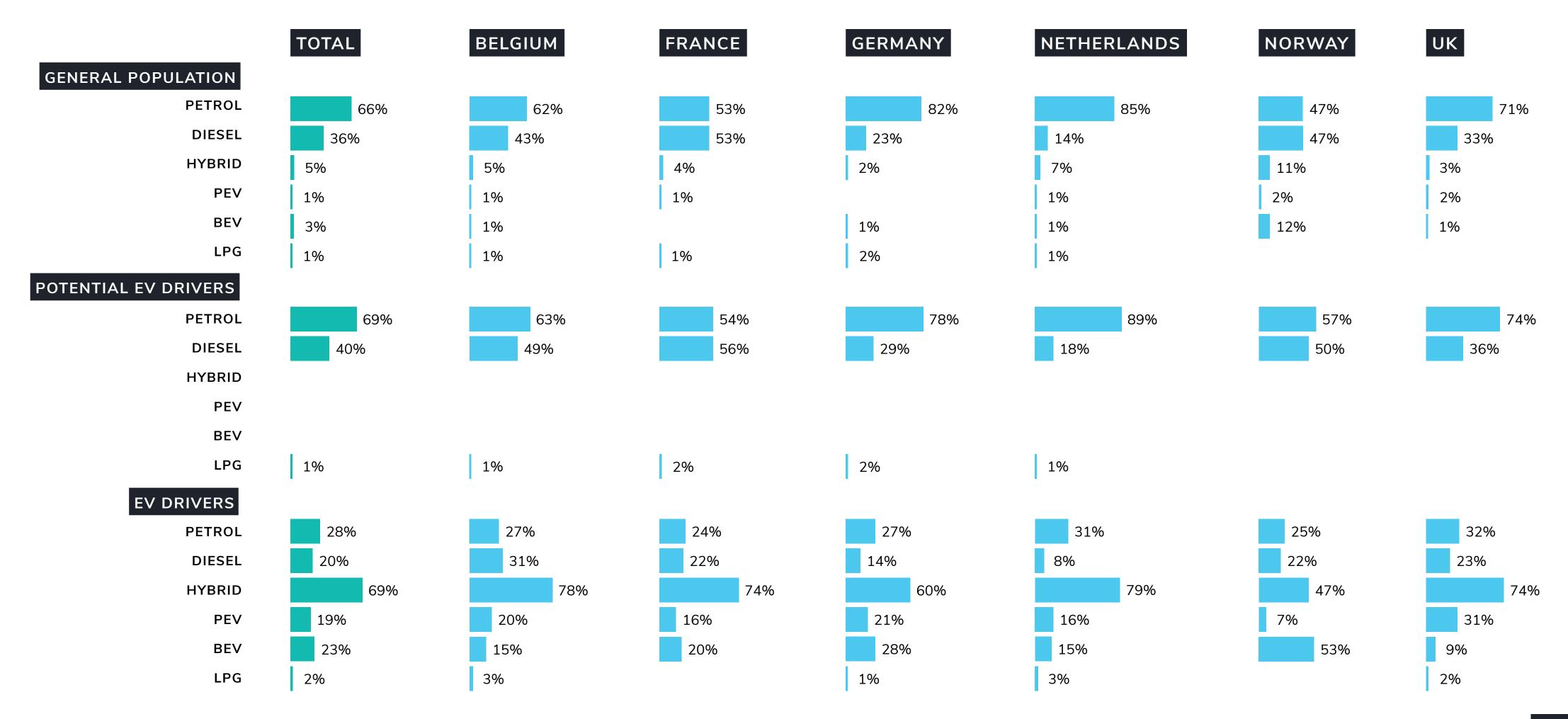
Compared to the general population and potential EV drivers, EV drivers are most often employed. This is the case in all countries, but to a lesser extent in Norway.

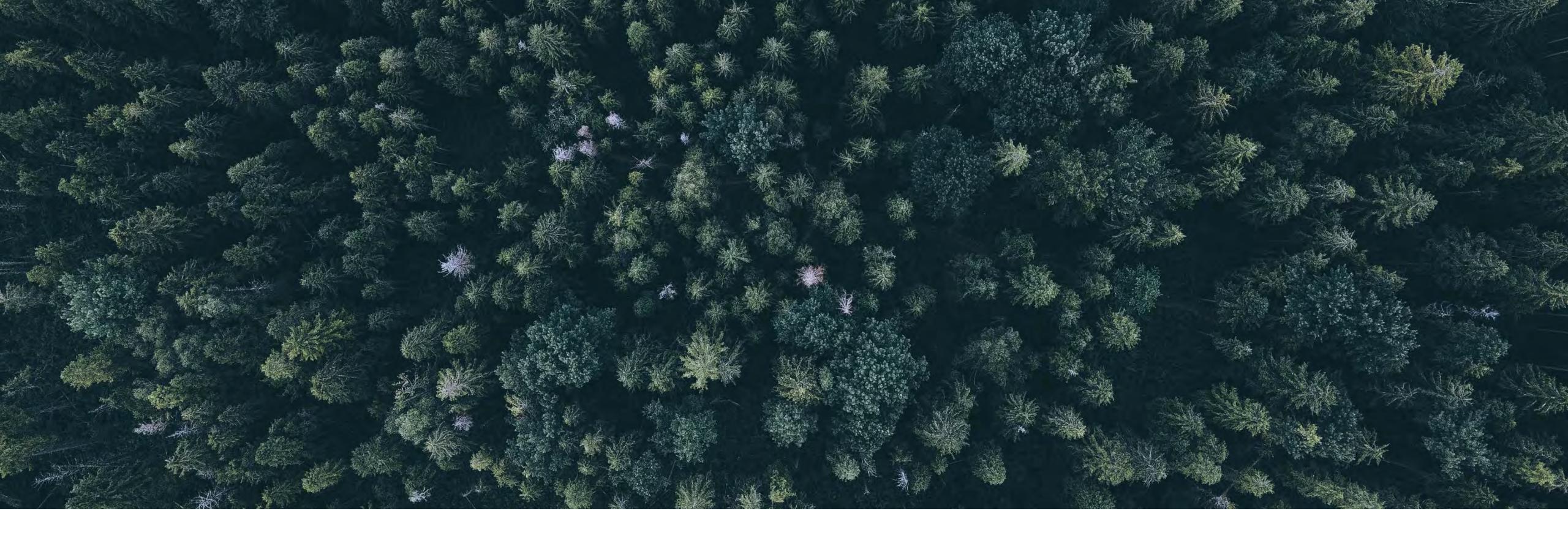


20% of citizens currently don't own a car



EV drivers often own multiple cars





Chapter 02

Environmental considerations

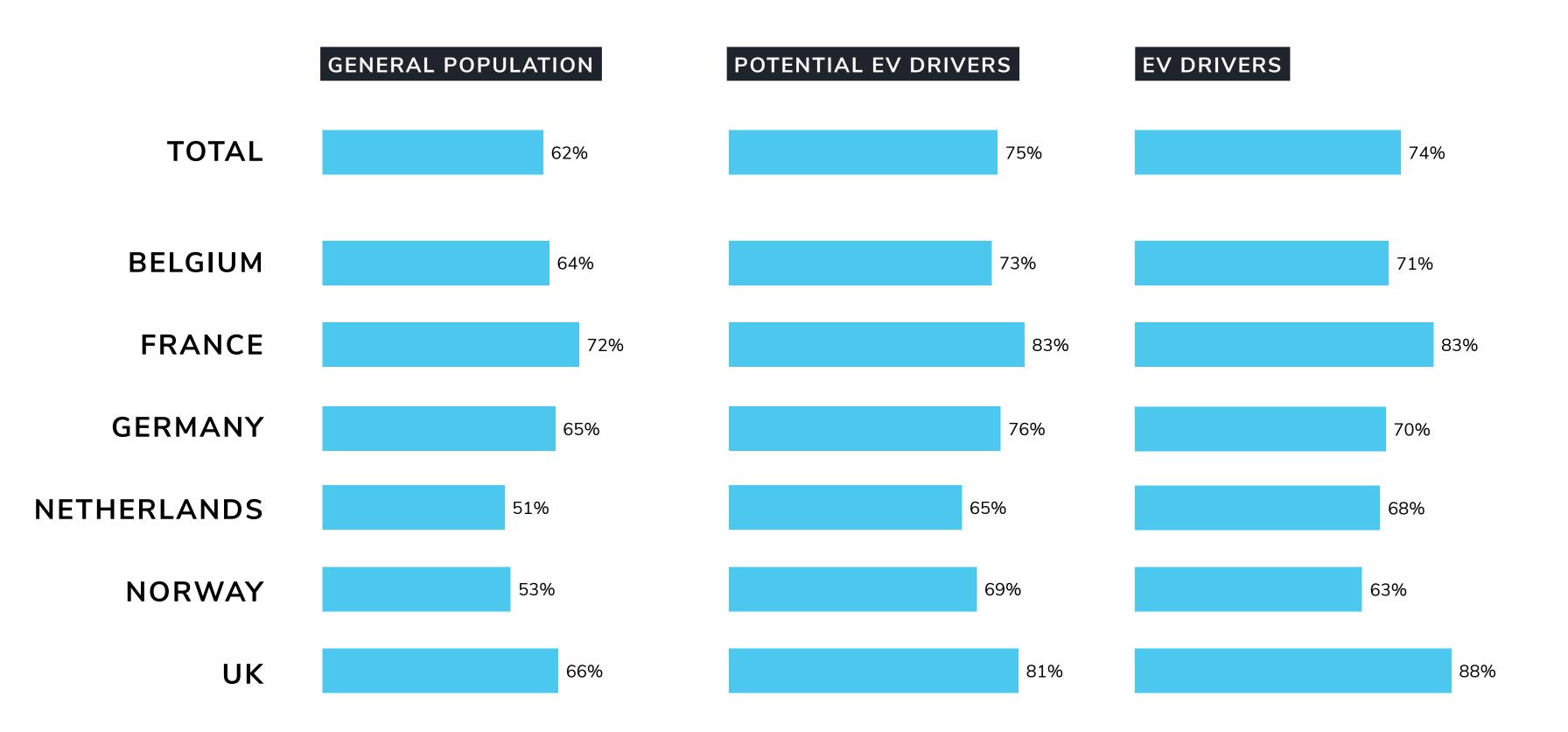
(Potential) EV drivers more likely to say climate change is personally important to them

Climate change is important to me personally - % (strongly) agree

About 3 in 4 (potential) EV drivers say climate change is personally important to them, compared to 6 in 10 among the general population.

The French seem most involved in climate change matters.

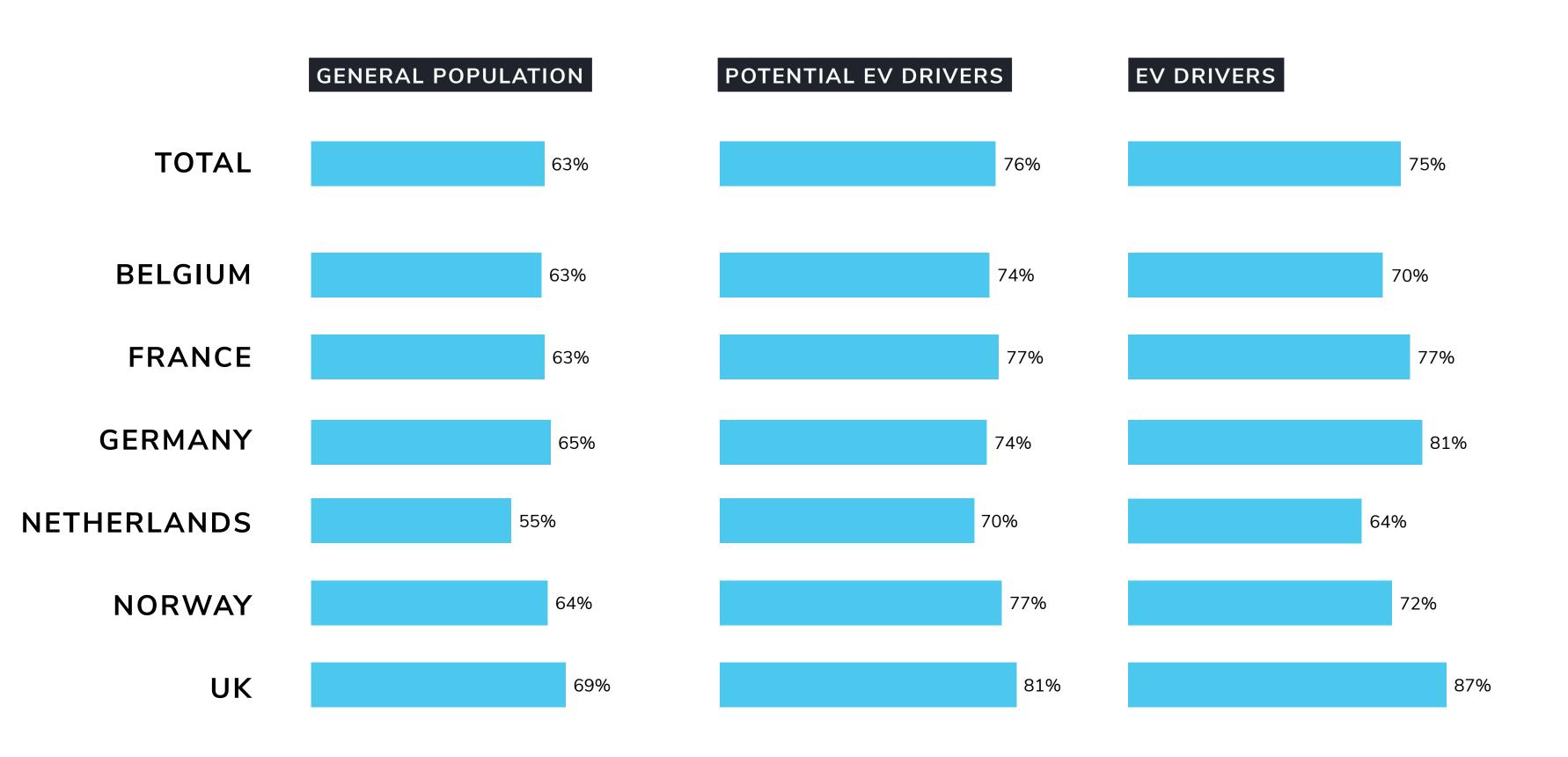
In the UK, the difference between EV drivers and the average citizen is most pronounced.



(Potential) EV drivers think that it is important that the government prioritizes policies that protect the environment

It is important to me that my government prioritizes policies that protect the environment - % (strongly) agree

Compared to the general population, both potential EV drivers and EV drivers are more likely to say that the government should prioritize policies that protect the environment, this is especially the case in France and UK.

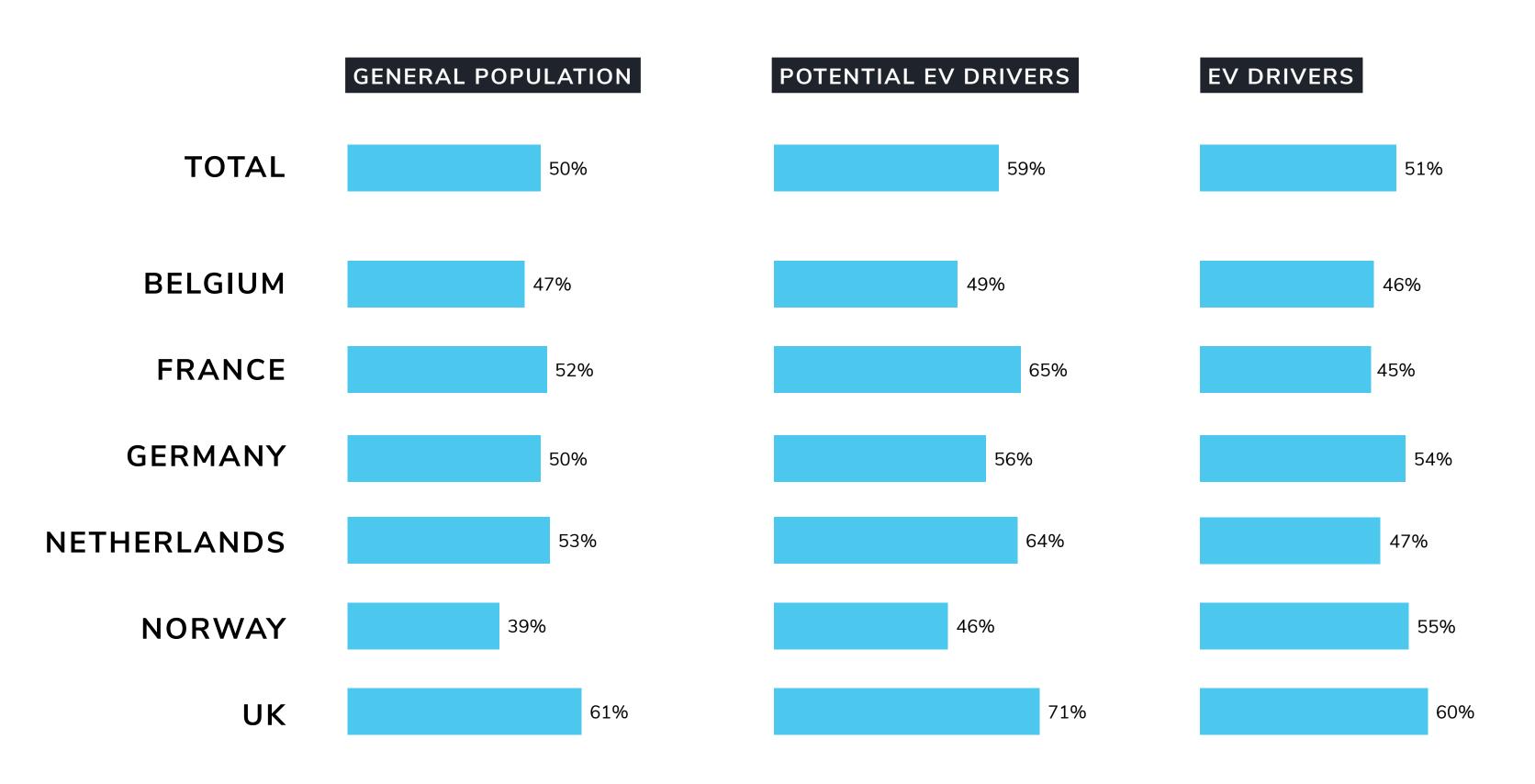


Opinions are divided on whether human activities are the main cause of climate change, even so among EV drivers

Human activities are the main cause of the climate change we are currently seeing - % (strongly) agree

Potential EV drivers are more likely to say that human activities are the main cause of climate change, compared to both the general population and EV drivers.

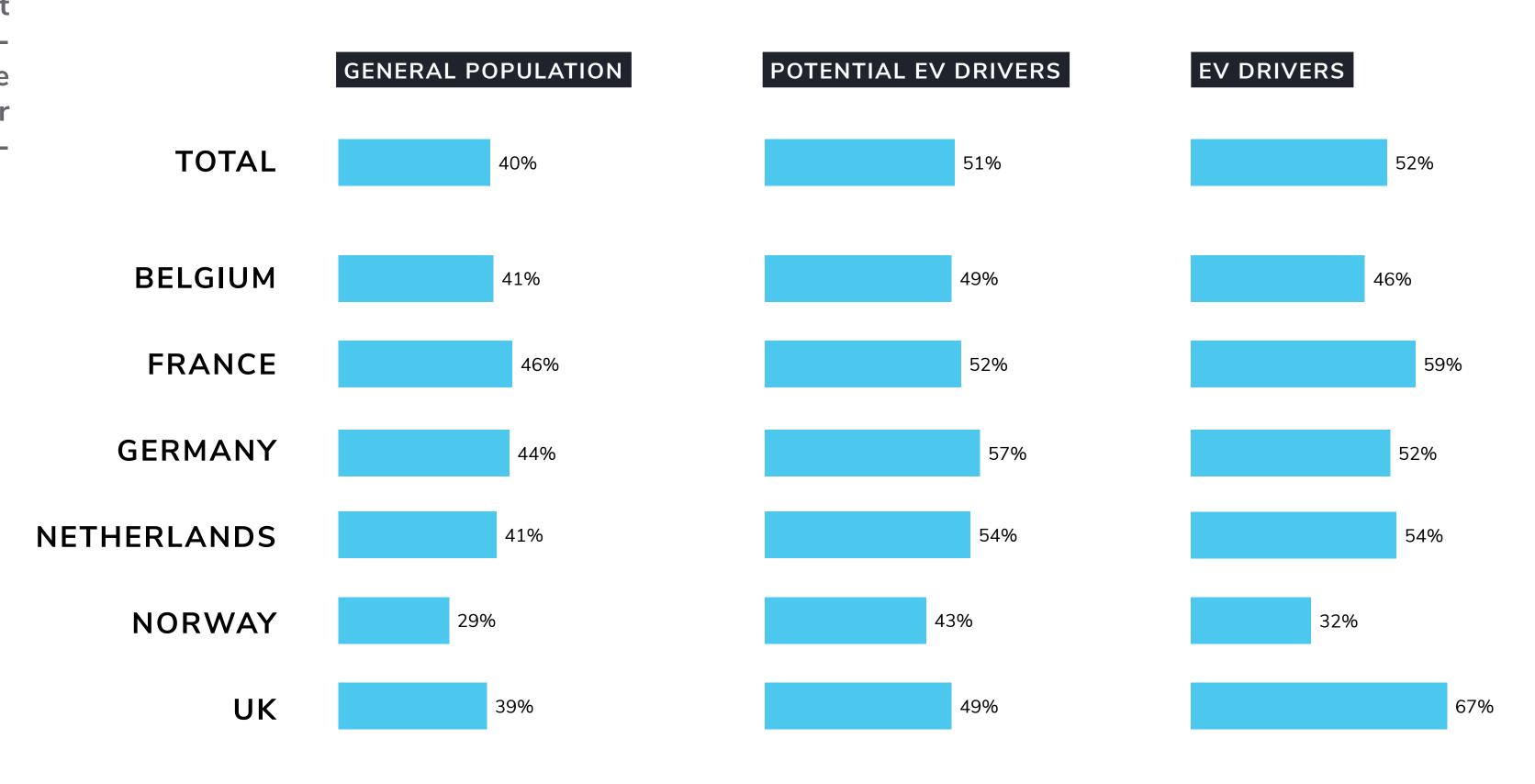
Opinions on this statement vary more by country as compared to other statements.



(Potential) EV drivers are slightly more likely to say the government should only support eco-friendly companies during the coronavirus crisis

During the coronacrisis, my government should only give financial aid to companies who agree to take demonstrable measures to significantly reduce their impact on the environment - % (strongly) agree

Across the board, opinions are divided on whether governments should limit financial aid to companies who take steps to reduce their impact on the environment.

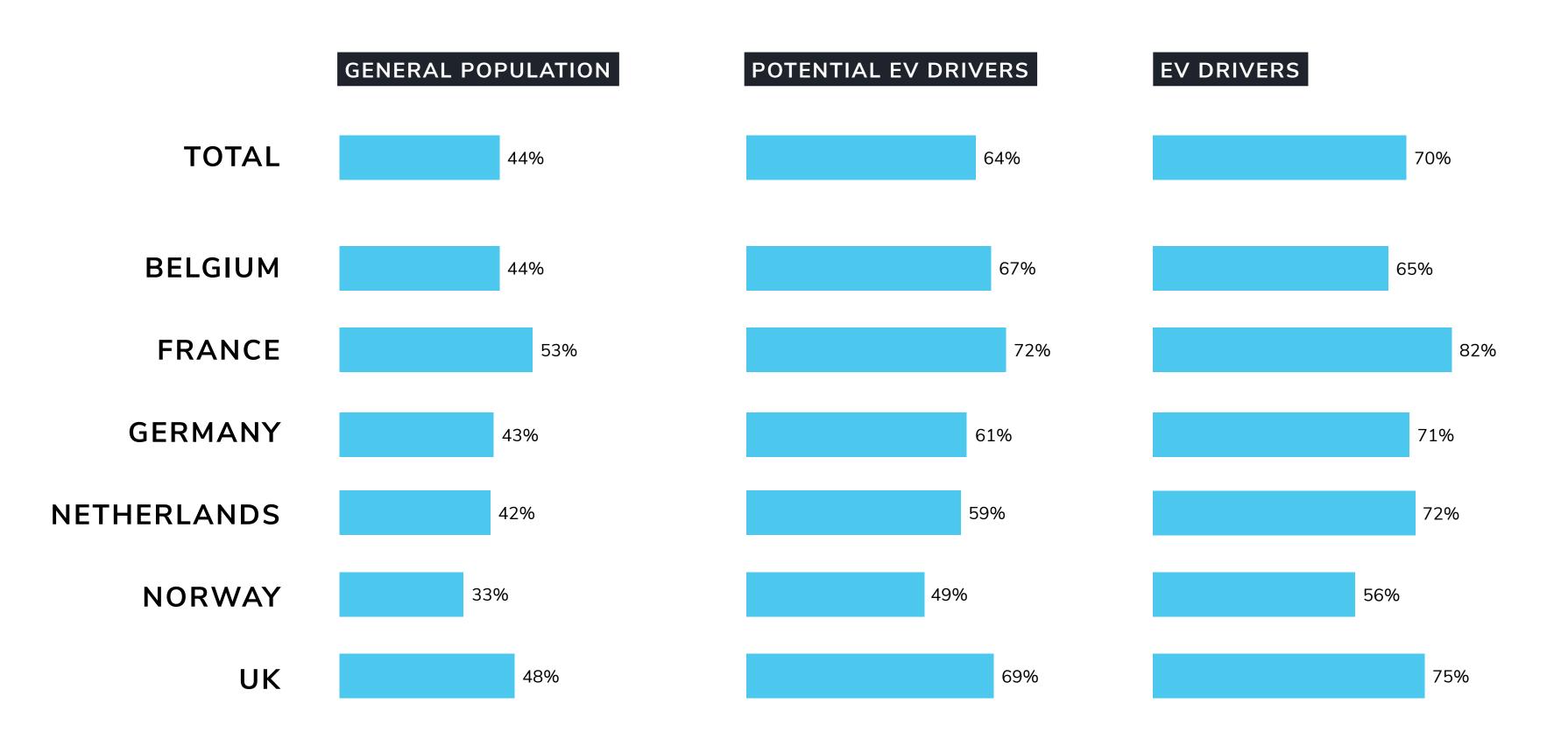


Current and potential EV drivers strongly support tax credits for electric driving

My government should give (more) tax credits to people who buy electric/hybrid cars - % (strongly) agree

Support for tax credits among (potential) EV drivers is especially strong in France, the Netherlands and the UK.

Among the general population there is, across the board, no majority support for tax credits for electric driving.

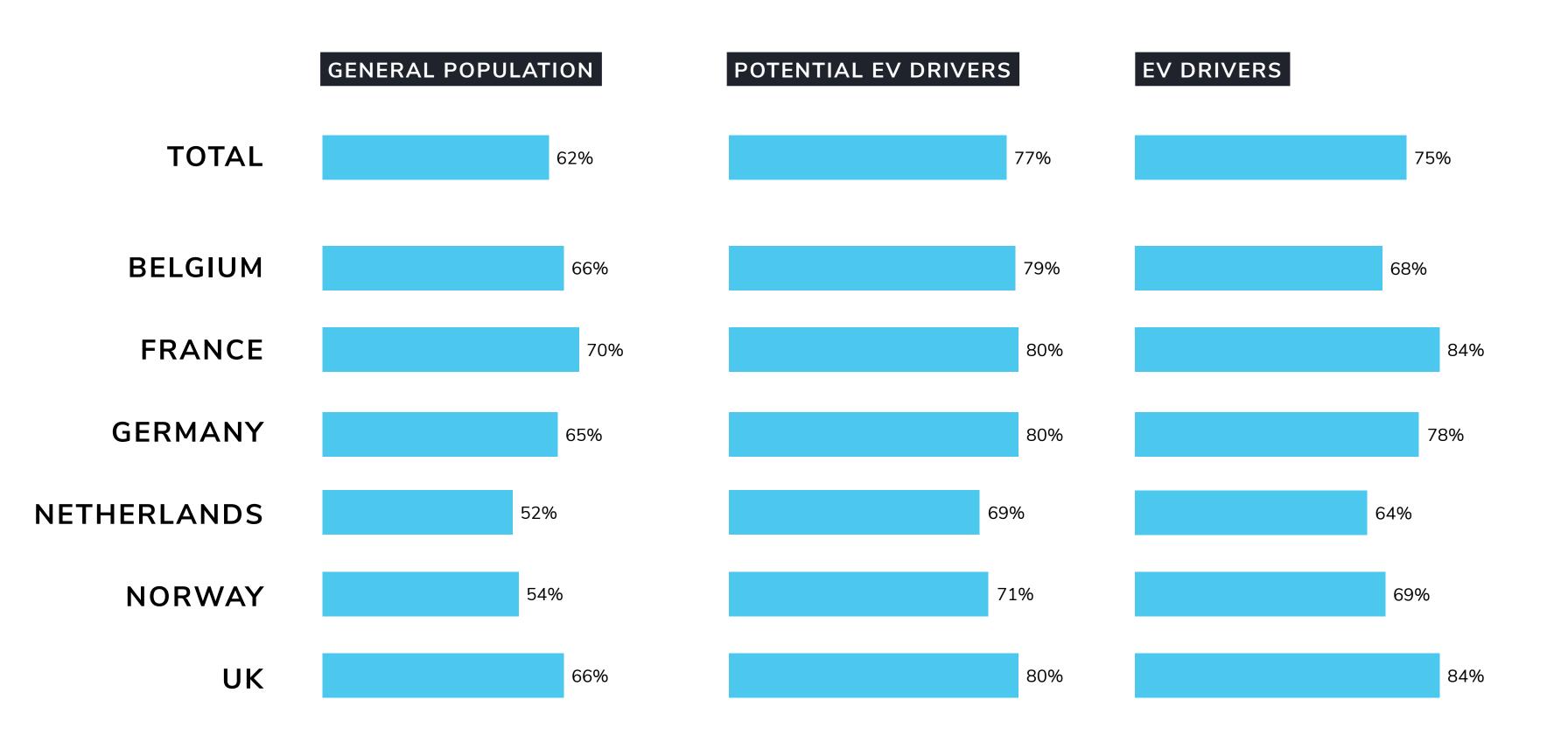


About 6 in 10 among general public say reducing CO2 emissions in transportation is important to them

Reducing CO2 emissions in transport is important to me - % (strongly) agree

Except for the Netherlands and Norway, clear majorities say reducing CO2 emissions in transport is important.

(Potential) EV drivers are more inclined to say so than members of the general public.

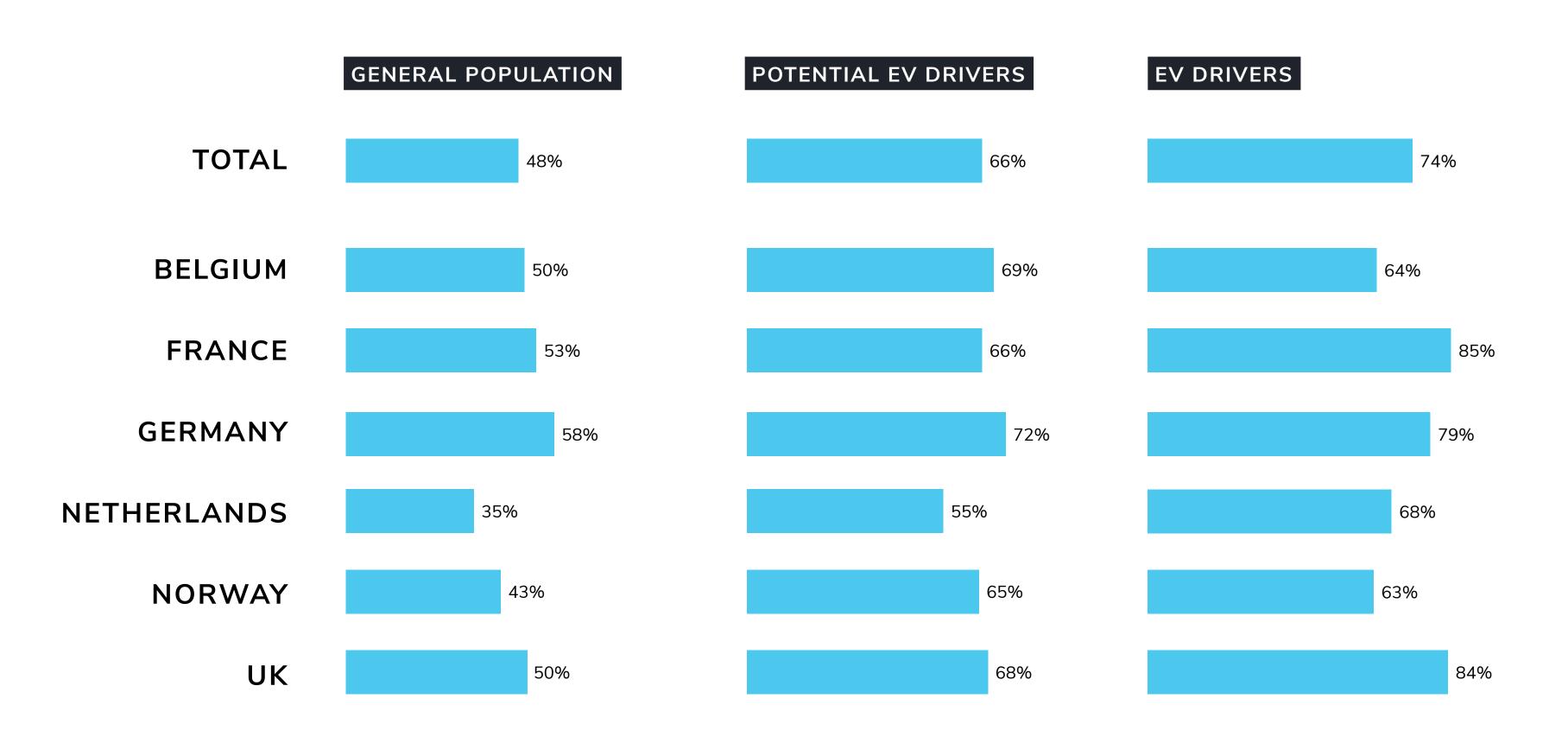


About half of the general population says environmental considerations are important when buying a car

Environmental considerations are important for me when buying a car - % (strongly) agree

In all countries, environmental considerations are important when buying a car for both potential EV drivers and EV drivers, compared to the general population.

Environmental considerations are more important for EV drivers when buying a car, compared to the general population and potential EV drivers. This is especially the case in France, the Netherlands, and the UK.





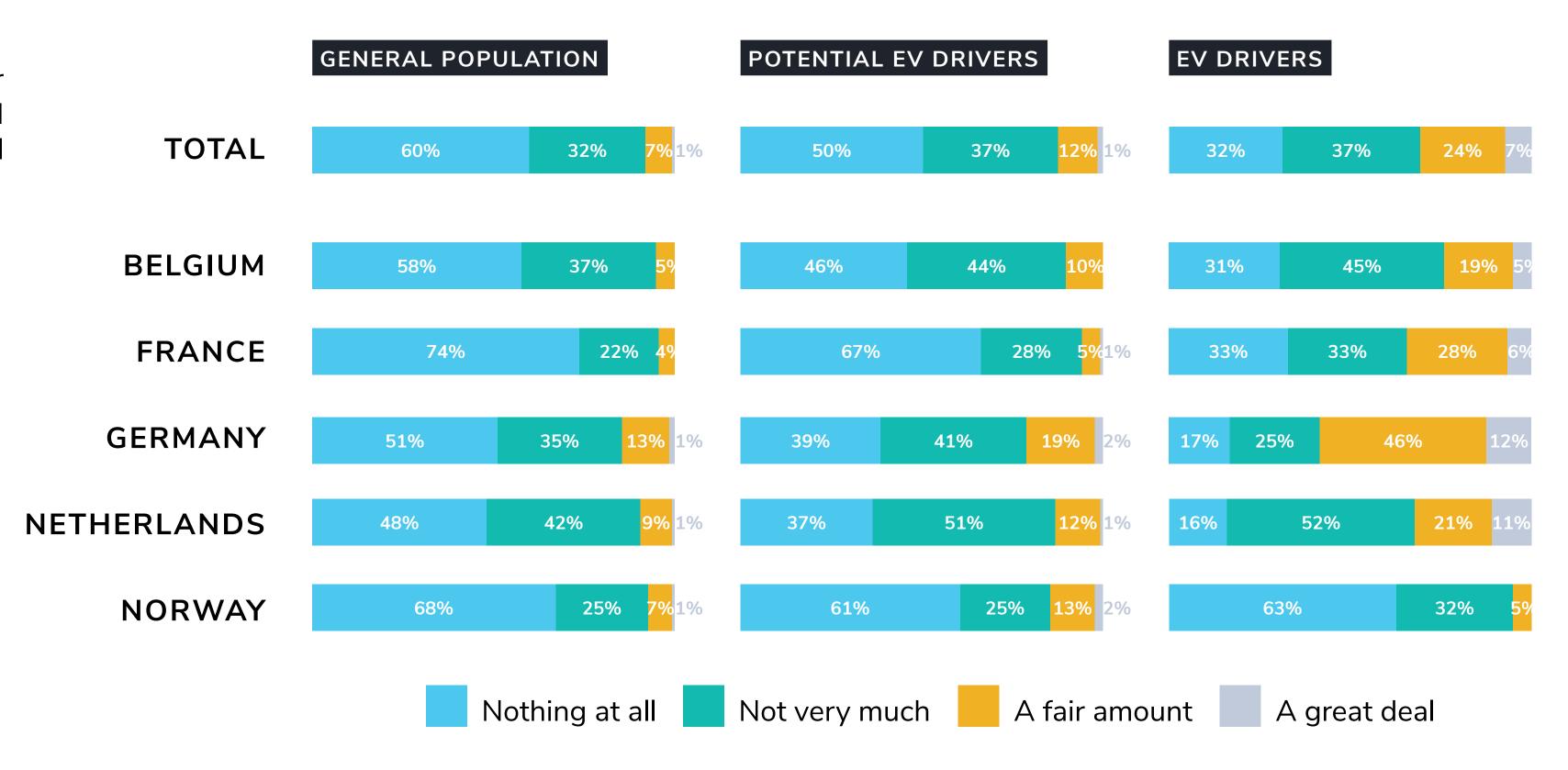
Chapter 03

The European Green Deal

EV drivers are more familiar with the European Green Deal than the general public

Knowledge about the 'European Green Deal'

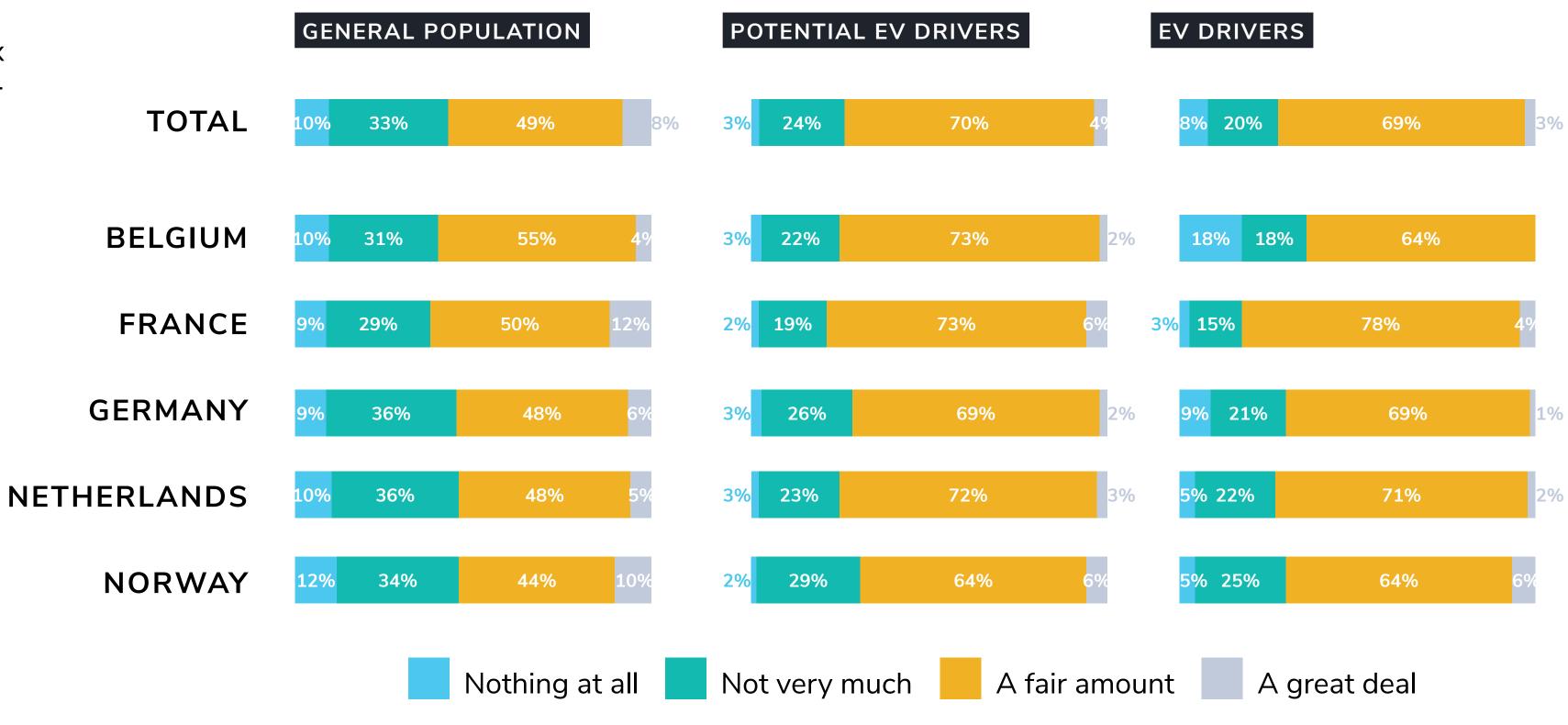
About 3 in 10 electric drivers are familiar with the European Green Deal, compared to less than 1 in 10 among the general public.



Approximately 7 in 10 (potential) EV drivers have a favourable view of the European Green Deal

Knowledge about the 'European Green Deal'

Only very small minorities across all six countries hold negative views of the European Green Deal (after reading about it).

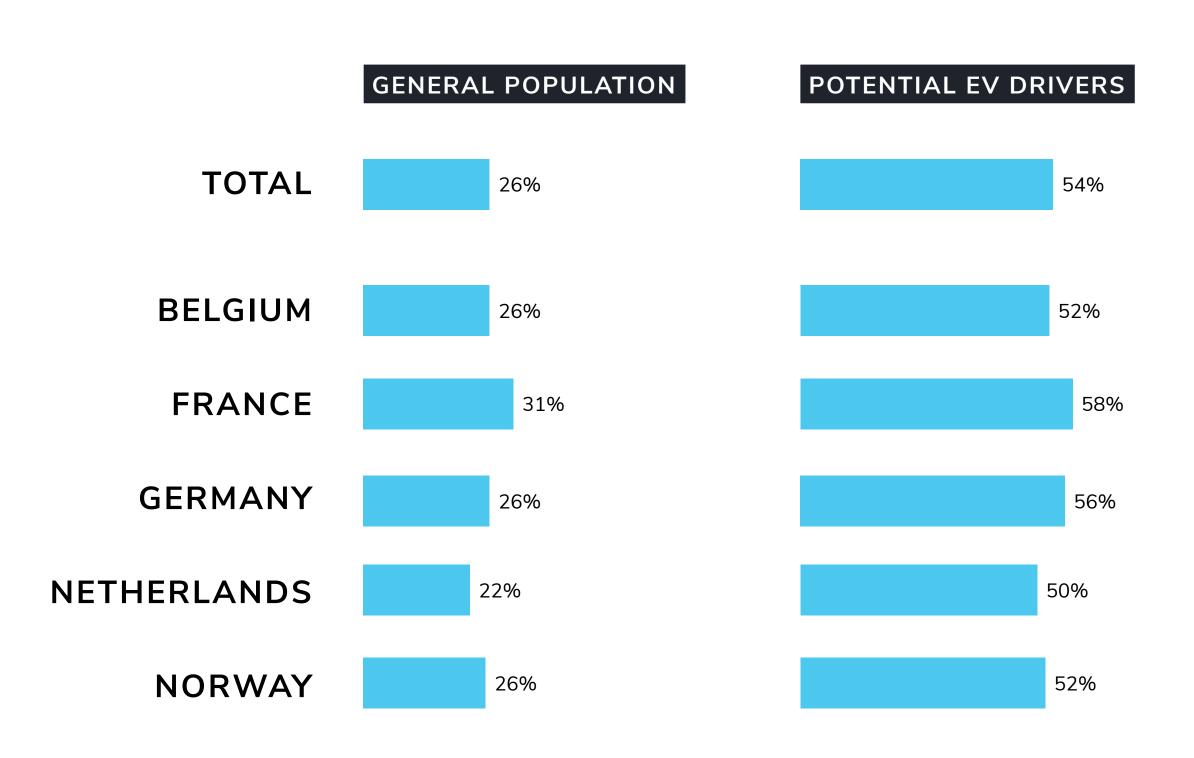


A05. After explanation: Now that you have read this, how would you describe your view about the 'European Green Deal'? (for full wording of the question see the chapter research setup) Base: General population (n=2500 total: n=500 per country), Potential EV drivers n=856: Belgium n=178, France n=195, Germany n=175, the Netherlands n=143, Norway n=165), EV drivers (n=500 total: n=100 per country) from Europe

About half of potential EV drivers say the European Green Deal makes it attractive for them to switch to electric driving

Because of the 'European Green Deal', I am more inclined to switch from petrol/gas cars to an electric/plug-in hybrid car [only for non-electric drivers] - % (strongly) agree

In all countries, about 50% of the potential EV drivers are inclined to switch to an EV because of the European Green Deal, as compared to about a quarter who say so among the general public. This pattern is broadly comparable across the five EU countries.

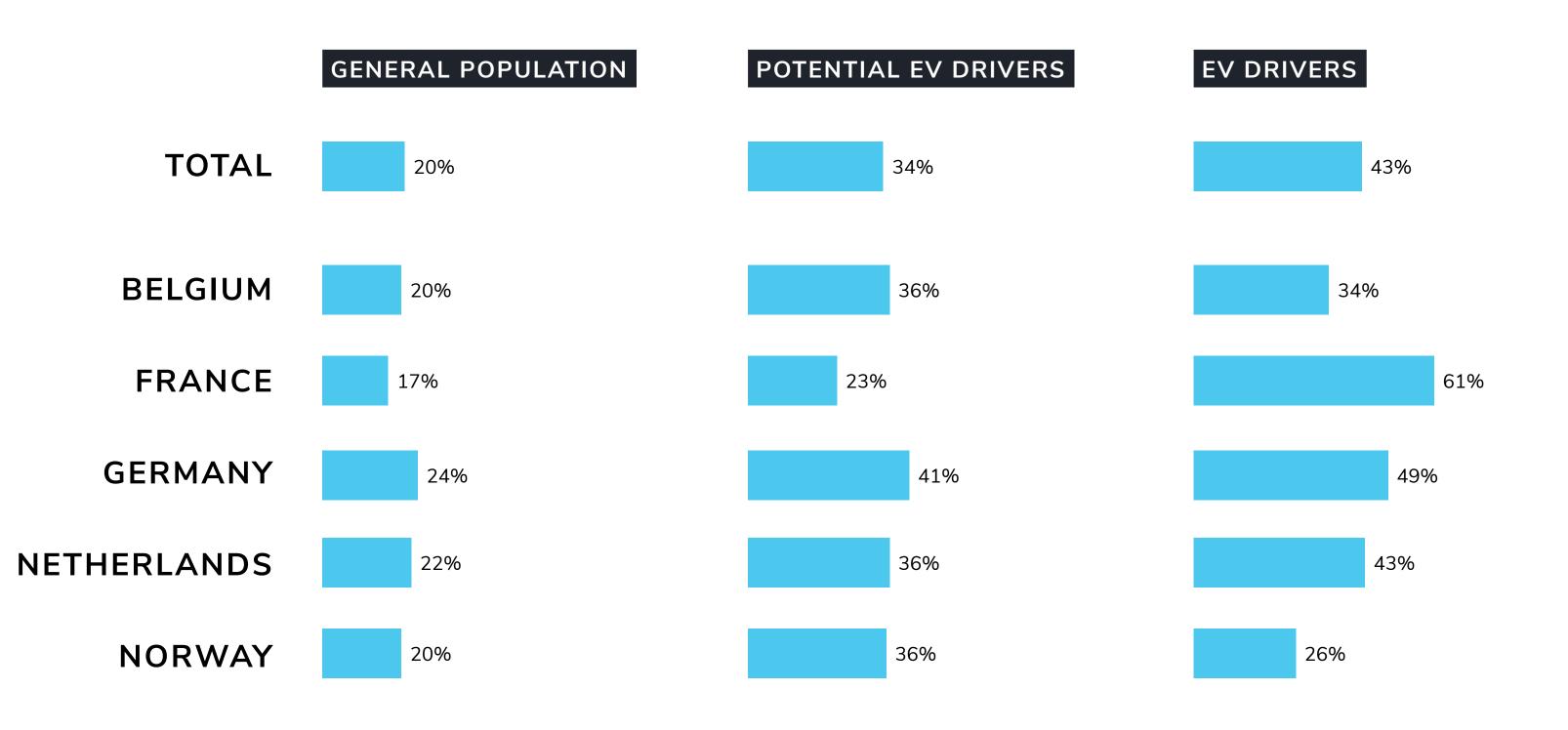


EV drivers are twice as likely to say there should be an EU tax on petrol/ gas than members of the general public

There should be a European tax on petrol/ gas to discourage people from driving cars that run on petrol/gas - % (strongly) agree

There is no majority support for the introduction of European taxes on petrol and gas across the five EU countries under investigation.

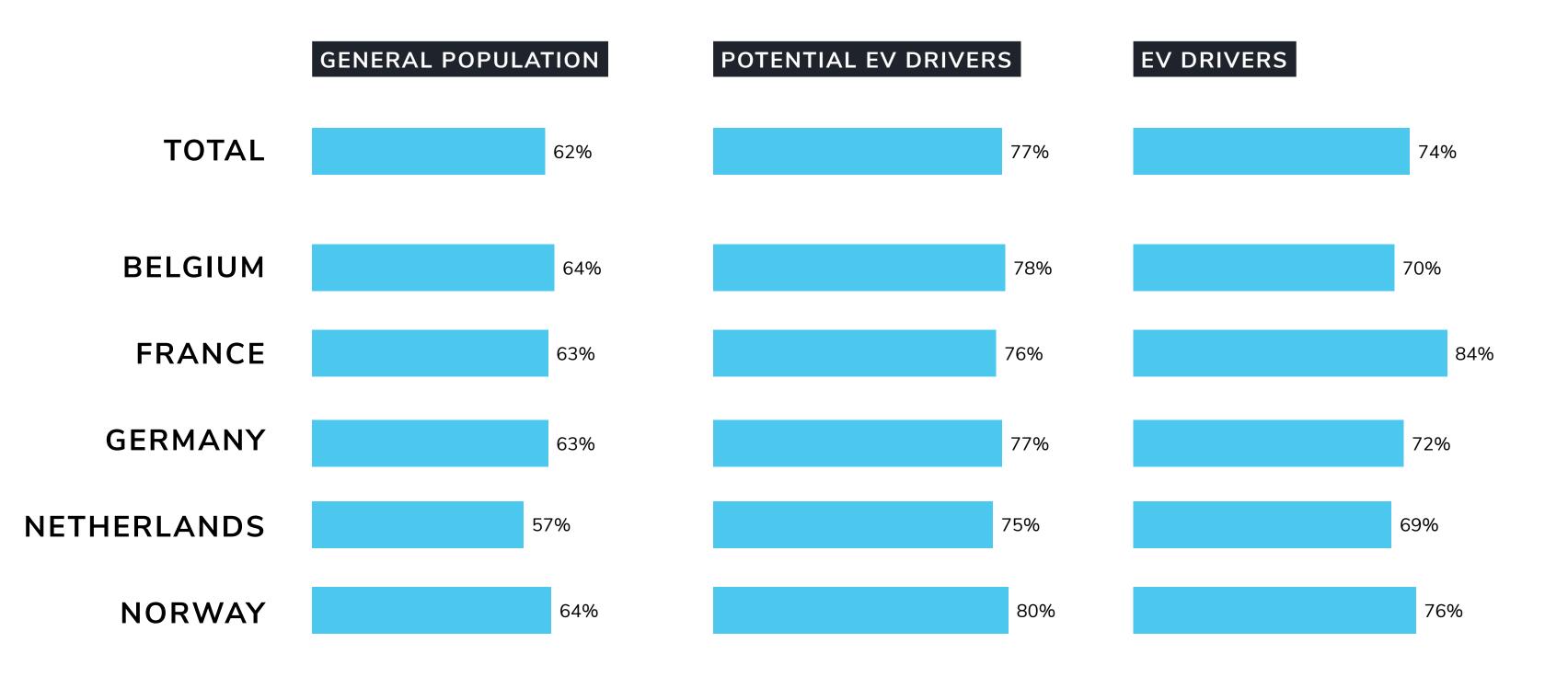
EV drivers in France are most likely to say petrol and gas should be taxed by the EU.



Broad support for the notion to prioritize EU policies that protect the environment

It is important to me that the European Union prioritize policies that protect the environment - % (strongly) agree

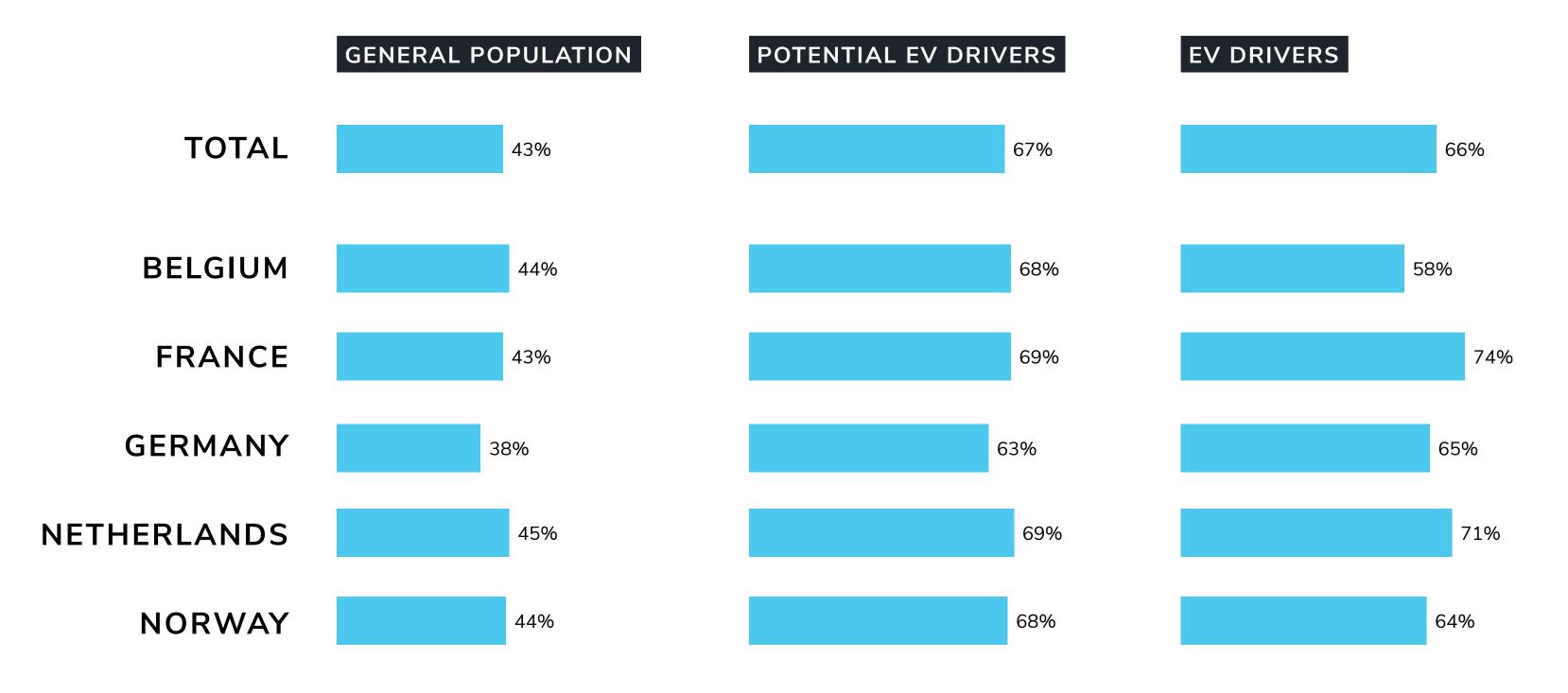
In all countries, (potential) EV drivers are more likely to say they find it important the European Union prioritizes policies that protect the environment.

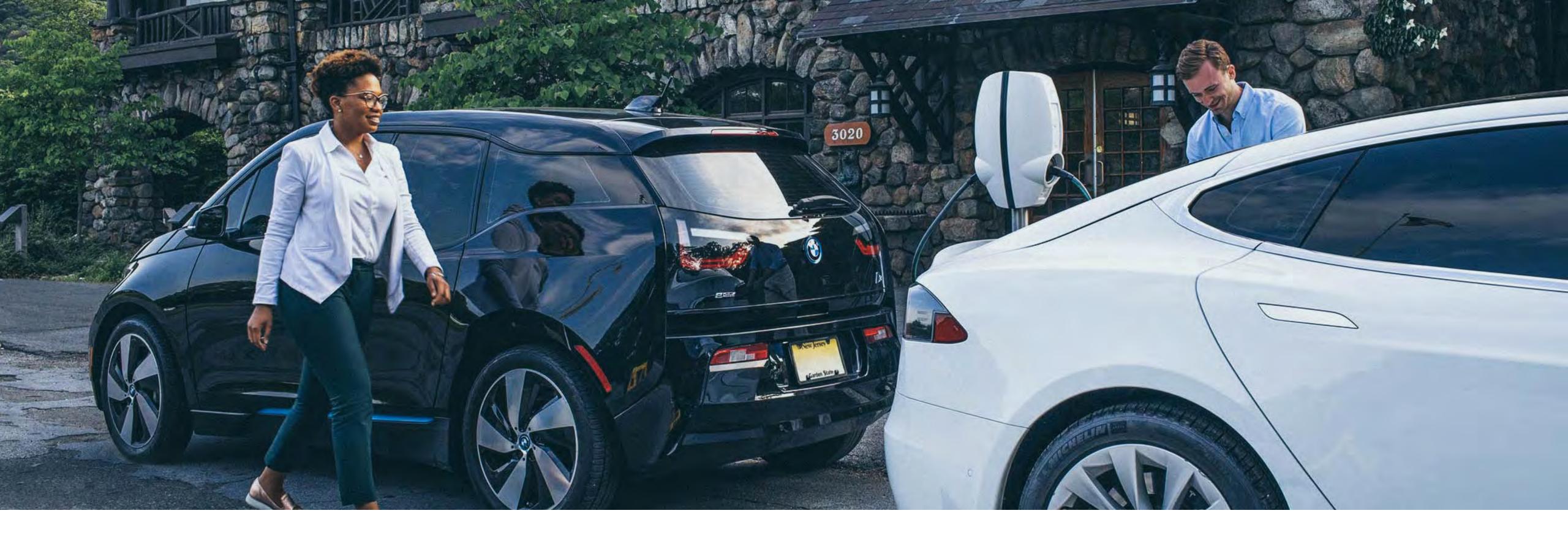


Approximately 2 in 3 (potential) EV drivers think electric cars are part of the solution to fight climate change

Electric cars are part of the solution to combat climate change - % (strongly) agree

Among the general public, about 4 in 10 say electric driving is part of the solution to climate change. Support for this notion is quite similar across the 5 EU countries.

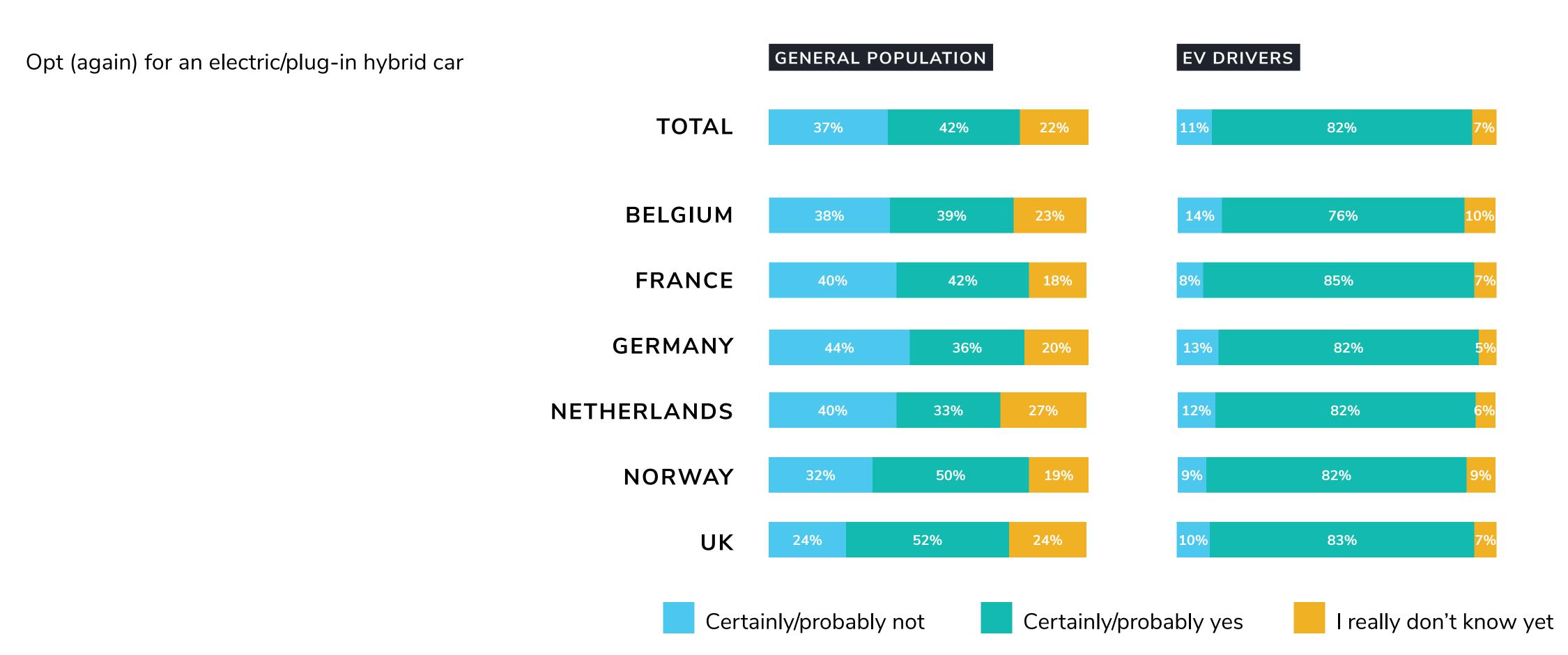




Chapter 04

Barriers to electric driving

Most EV drivers would opt again for an electric car; general public is divided

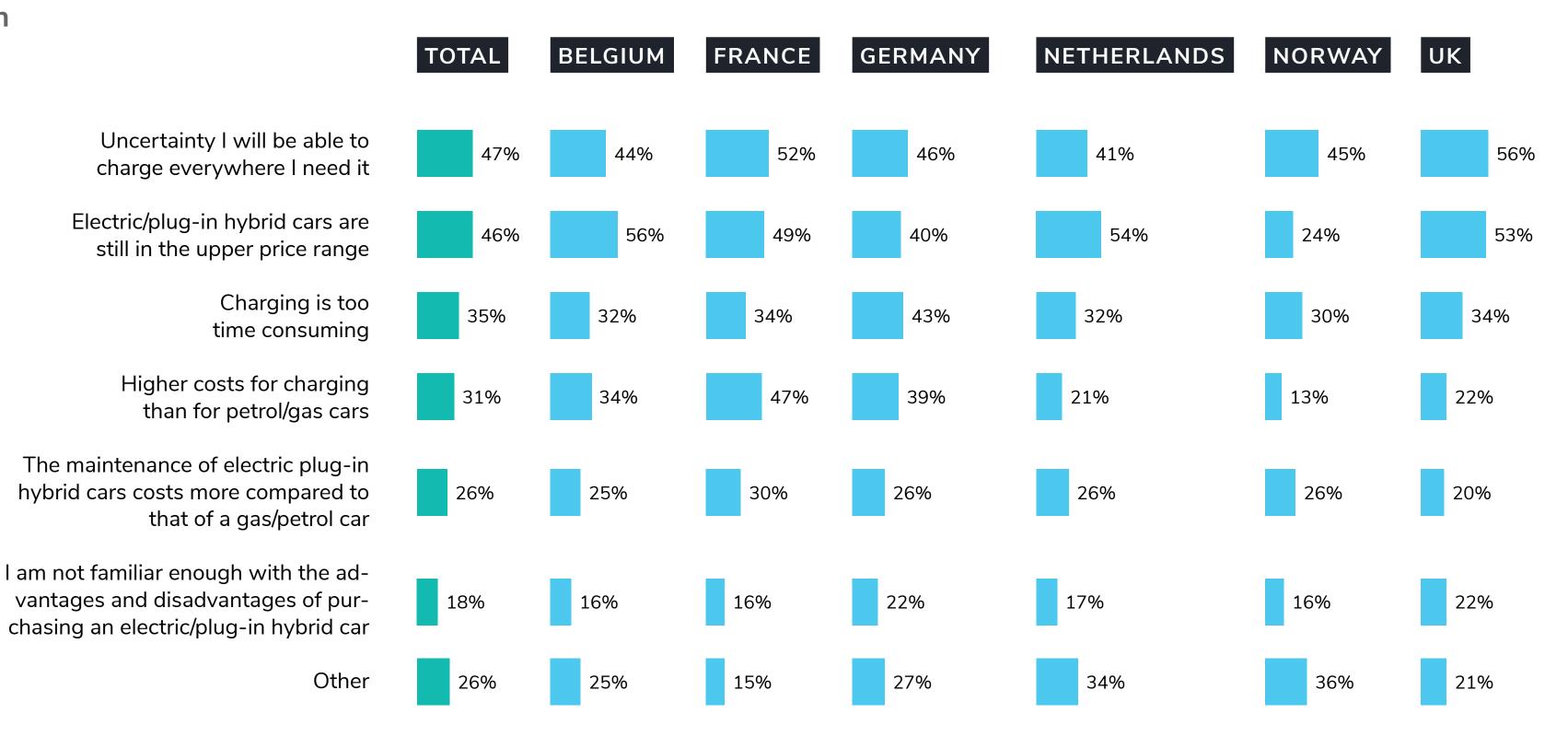


S03. You have indicated that you drive one or more electric/plug-in hybrid car(s). To what extent would you (again) opt for an electric/plug-in hybrid car? / You have indicated that you do not drive an electric/plug-in hybrid car. To what extent would you opt for an electric/plug-in hybrid car?Base: General population (n=3000 total: n=500 per country), EV drivers (n=600: n=100 per country)

Charging possibilities and price constitute barriers to electric driving

Opt for an electric/plug-in hybrid car - certainly or probably not General population

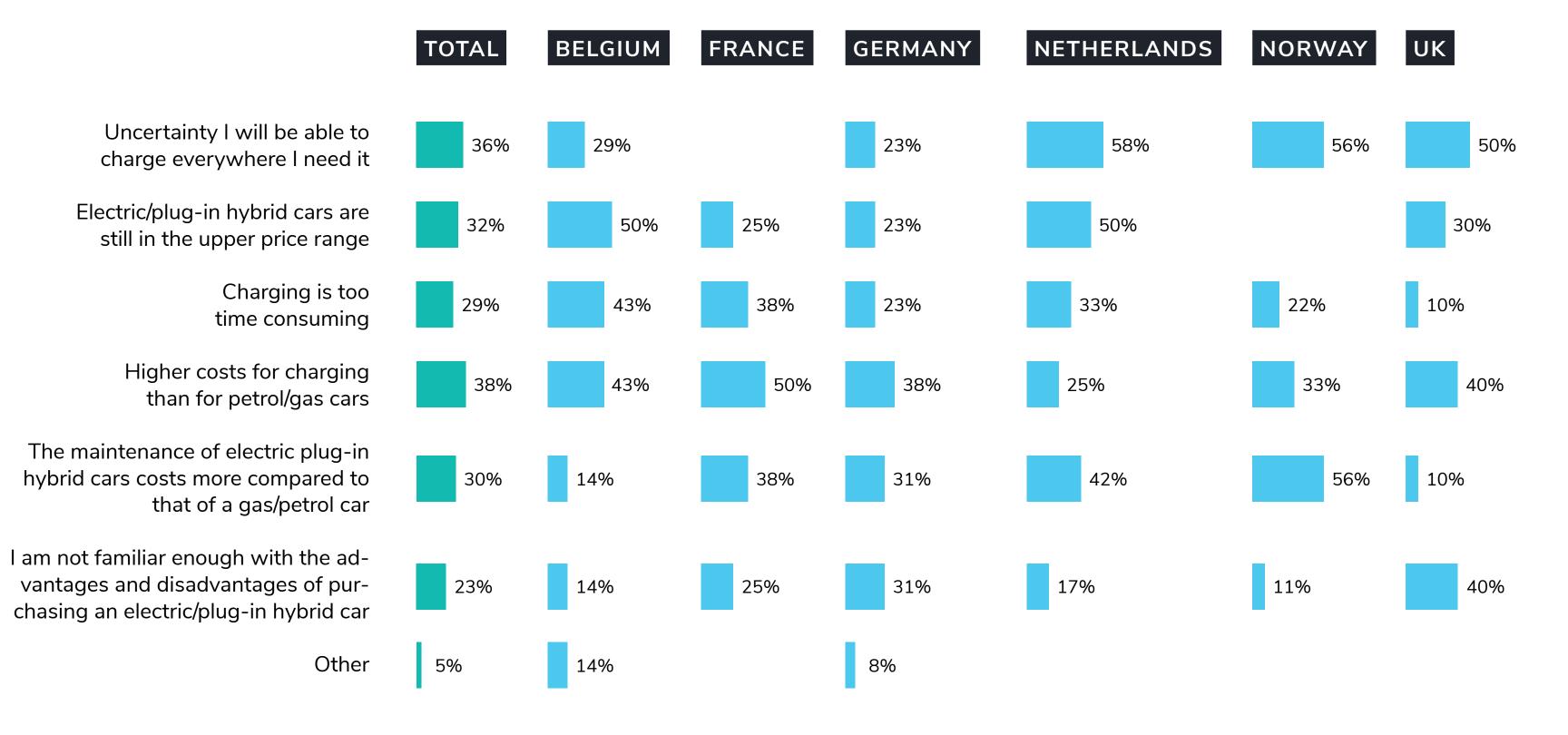
In all 6 countries, except Norway, those who say they would not opt for an electric car list charging possibilities and price perception as main reasons. In Norway, concerns about the time needed to charge top worries over the price range of electric cars.



EV drivers mentioned multiple reasons not to opt again for an electric car

Opt (again) for an electric/plug-in hybrid car

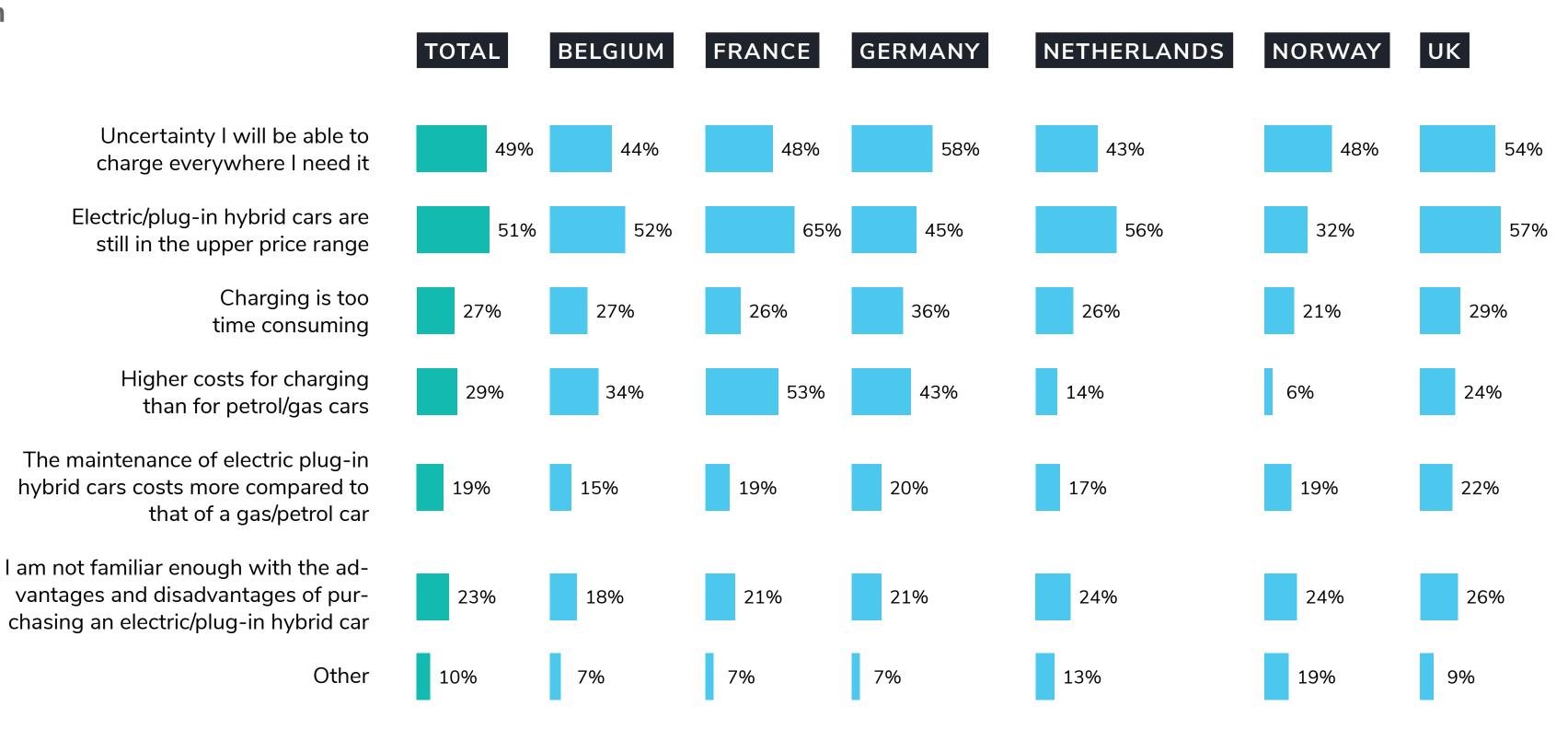
- certainly or probably not EV drivers



Those among the general public who doubt about an electric car name charging possibilities as well as the price range as reasons

Opt for an electric/plug-in hybrid car - certainly or probably not general population

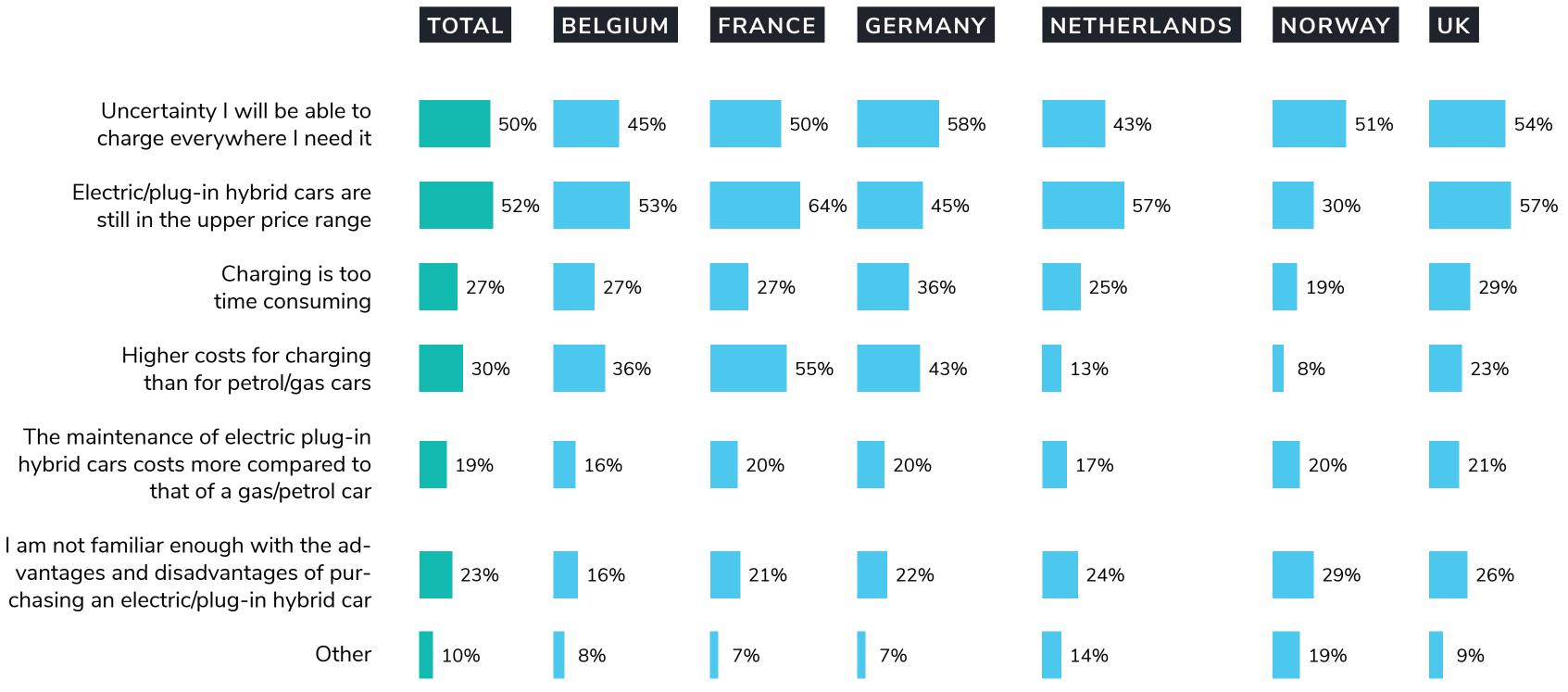
In all 6 countries except France, those who say they have doubts about electric cars list charging possibilities and price perception as main reasons.



Charging possibilities and price are barriers for potential EV drivers too

Opt (again) for an electric/plug-in hybrid car - probably yes (potential EV drivers)

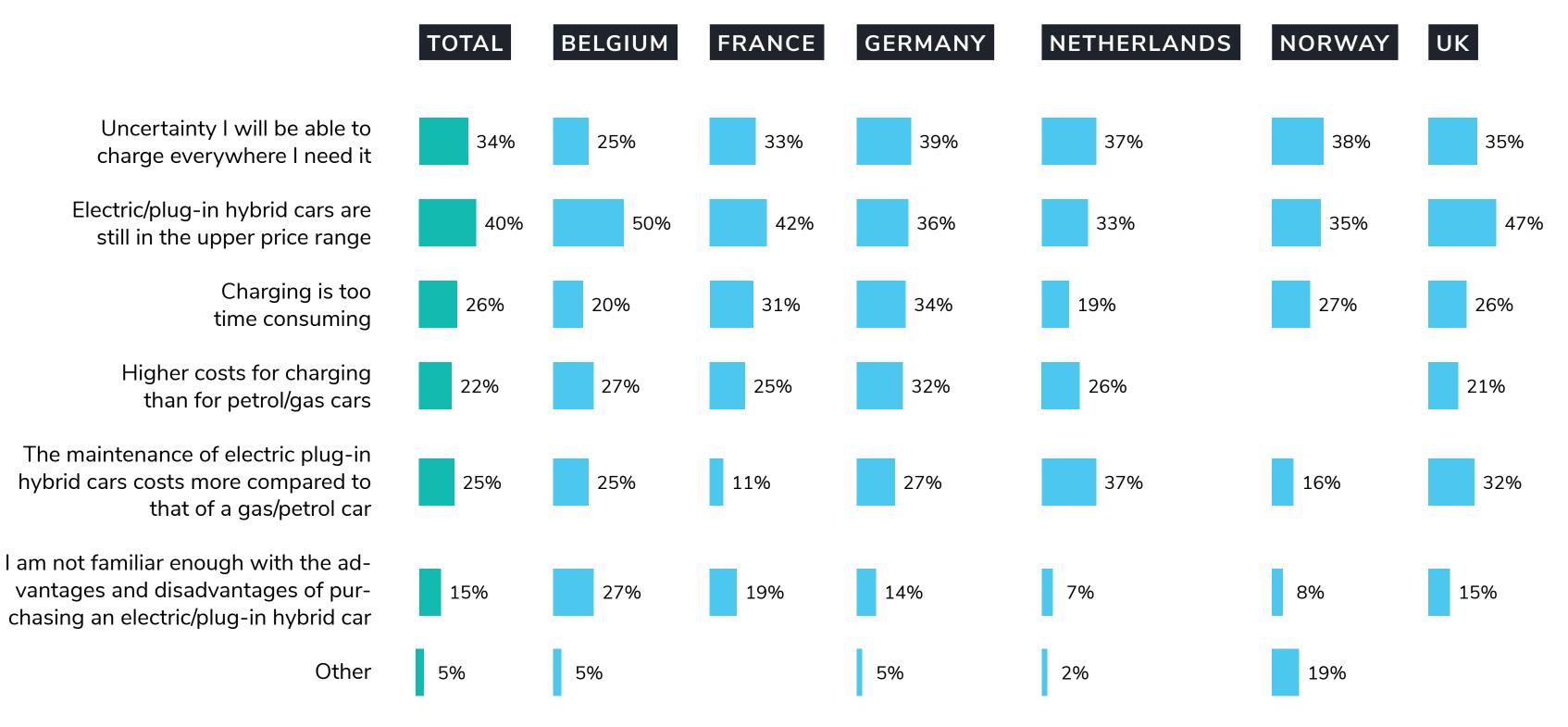
For potential EV drivers, we find the same pattern as observed among the general population: those who say they have doubts about electric cars list charging possibilities and price perception as main reasons.



Main doubts of EV drivers focus on price and charging possibilities

Opt (again) for an electric/plug-in hybrid car - probably yes (EV drivers)

Again the same pattern is observed: current EV drivers who say they will "probably" opt again for an electric car list charging possibilities and price perception as main reasons for doubting.





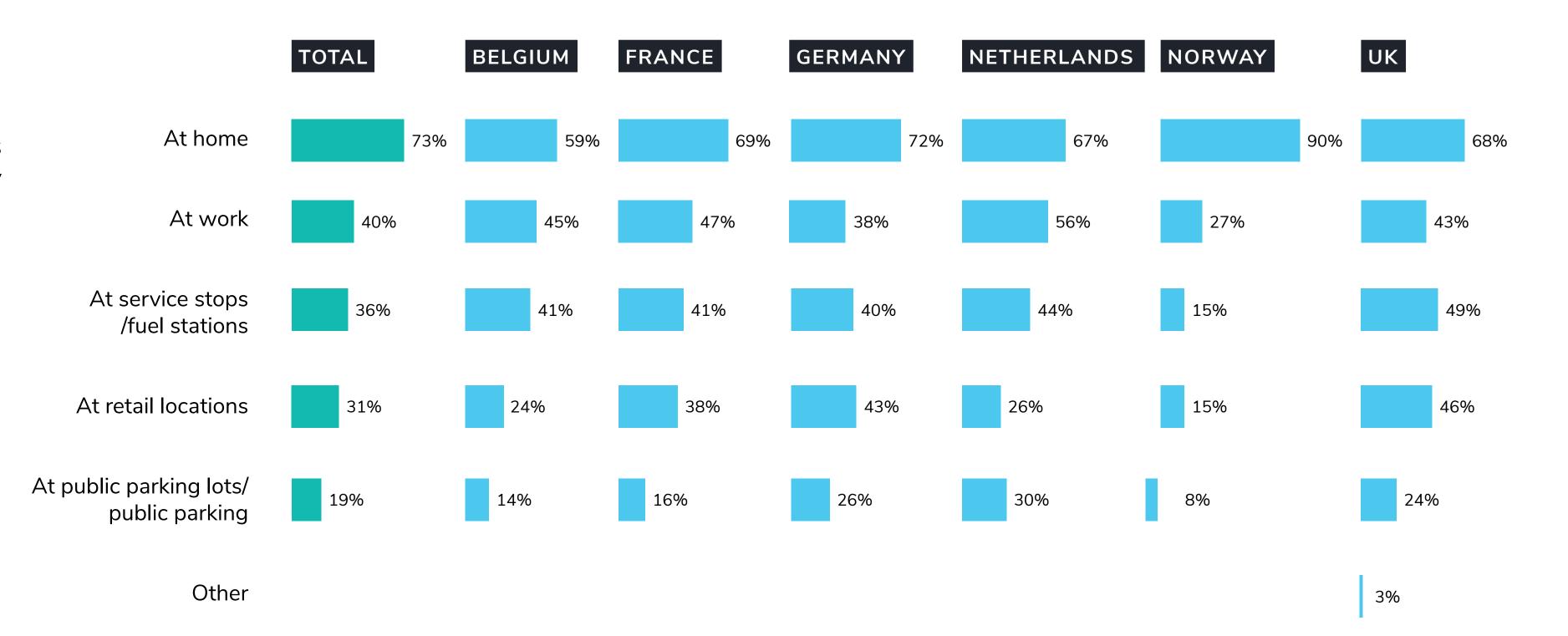
Chapter 05

Charging infrastructure

Majority of the electric/plug-in hybrid cars are currently charged at home

Where do you charge your electric/plug-in hybrid car(s) currently? - EV drivers (no full-hybrid)

In most countries, EV drivers charge their cars predominantly at home or at work.

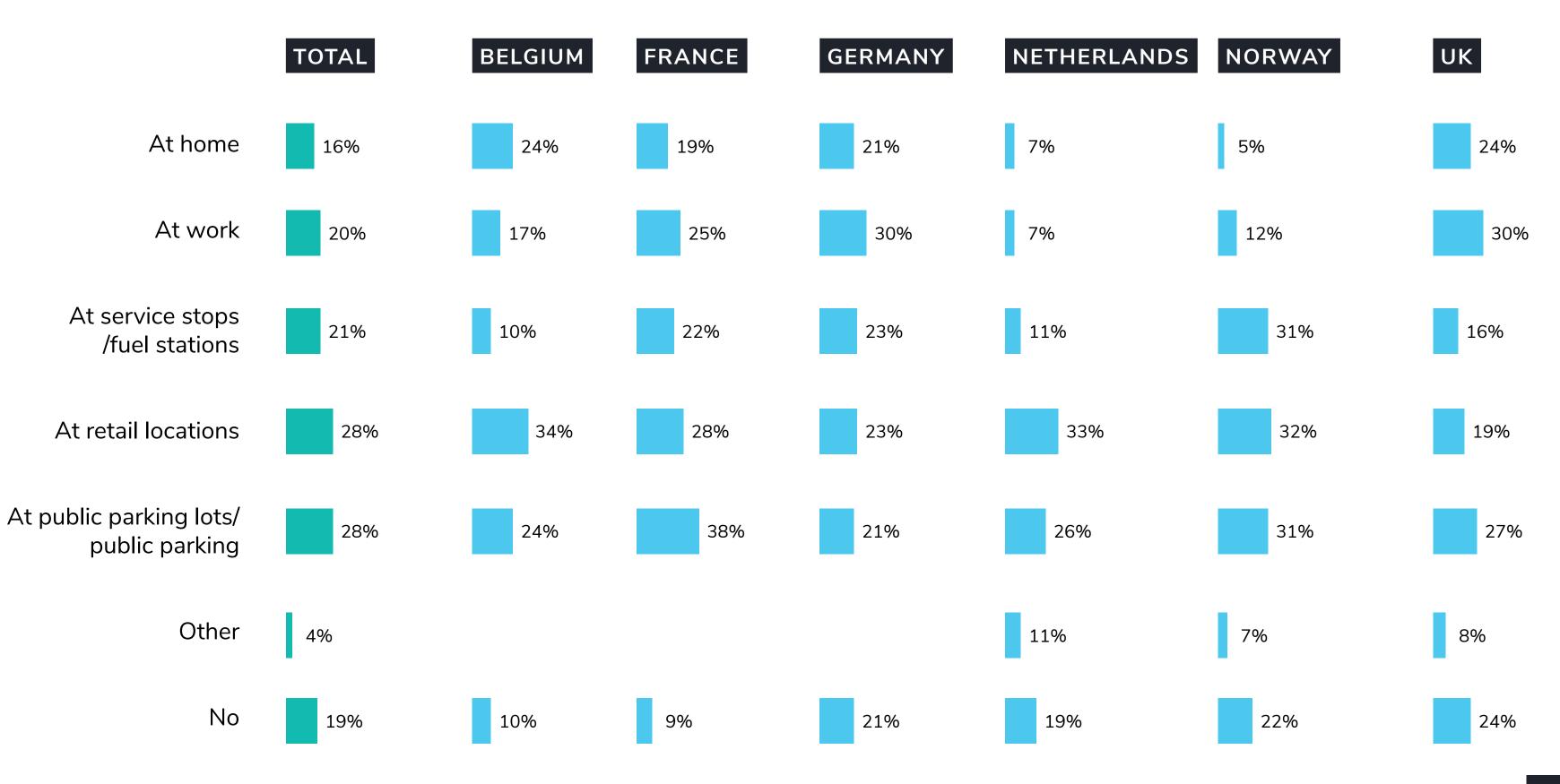


B01. You mentioned you have one or more electric/plug-in hybrid car(s). Where do you charge your electric/plug-in hybrid car(s) currently? Base: EV drivers (n=231 total: Belgium n=29, France n=32, Germany n=47, the Netherlands n=27, Norway n=59, UK n=37), electric/plug-in hybrid cars, no full-hybrid

Different locations are named as preferred alternative spots for charging

Where would they like to charge electric/plug-in hybrid car(s) - only EV drivers (no full-hybrid)

There is no clear preferred alternative spot for charging, but retail locations and public parking lots are mentioned by about a quarter of EV drivers across markets.

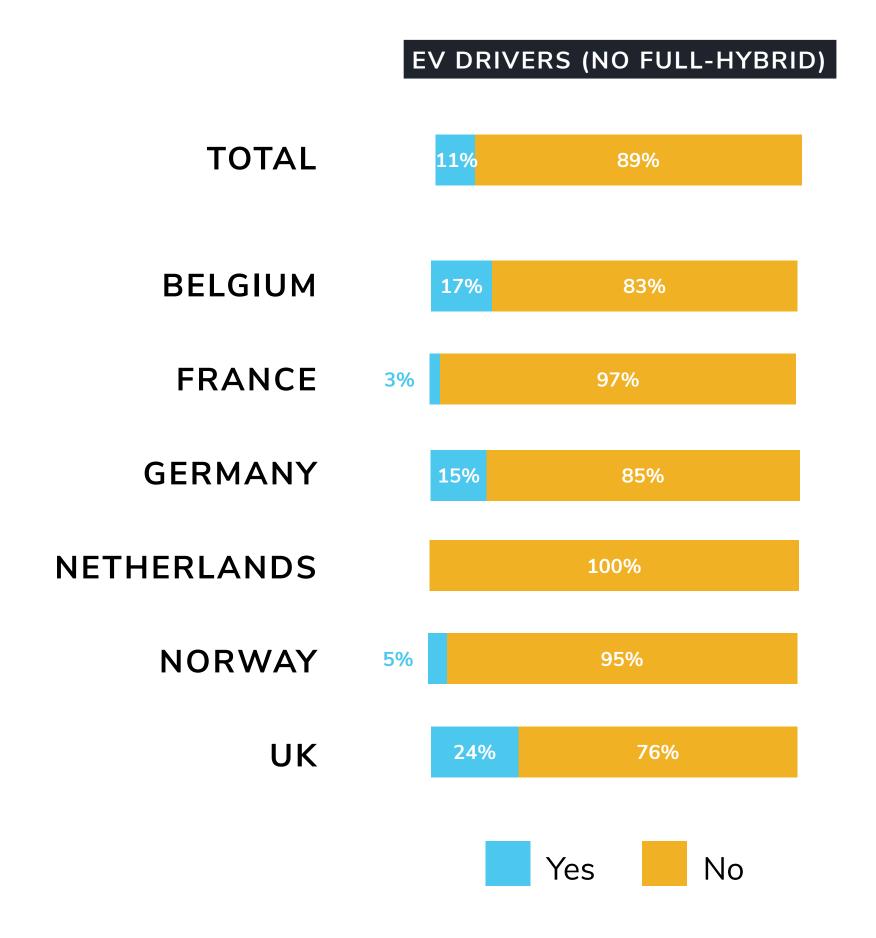


Majority of current EV drivers encounter no problems when charging

Problems when charging electric/plug-in hybrid car(s)

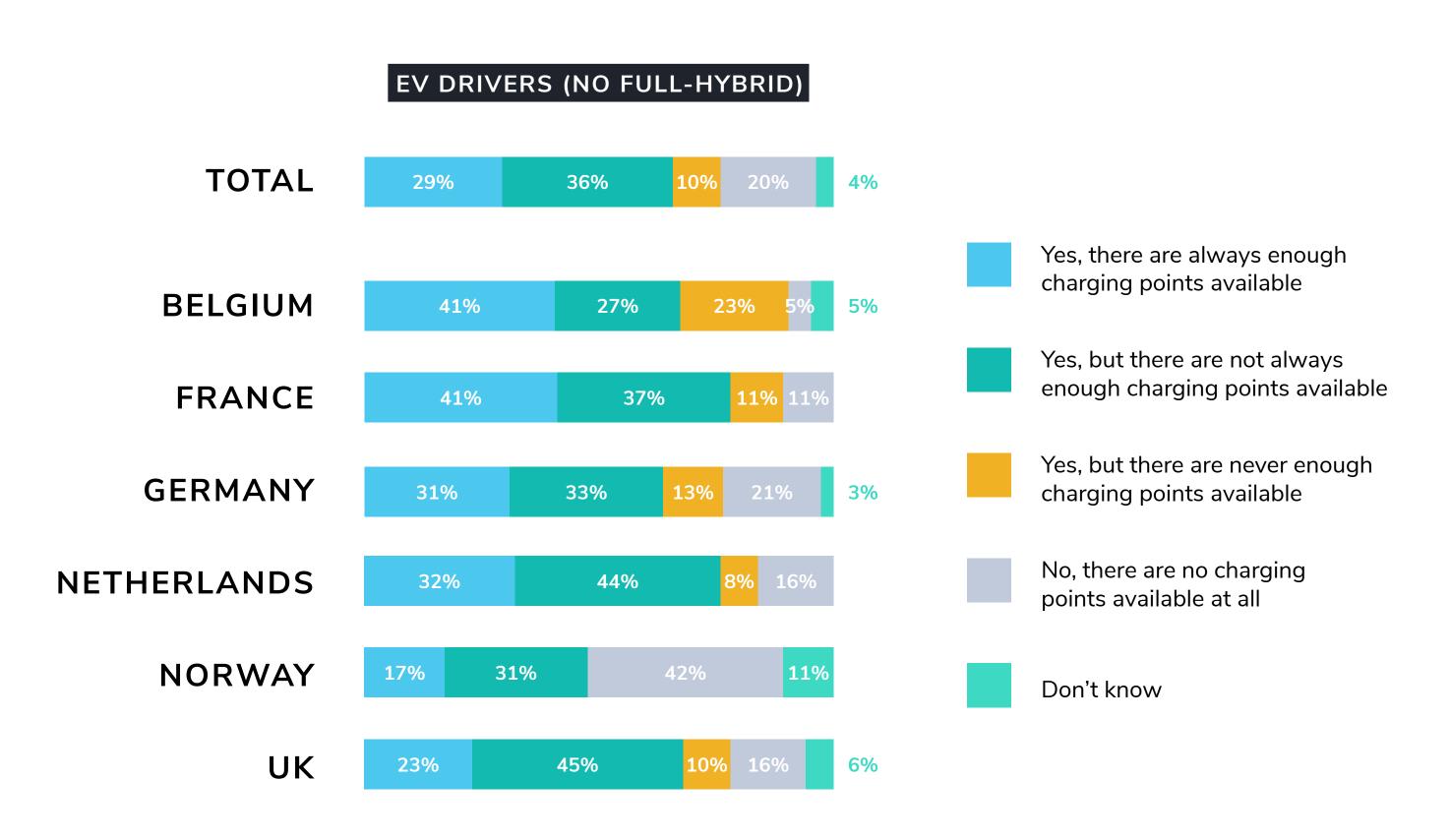
Main problems mentioned:

Availability of charging spots
Charging time



More charging points at work preferable

In general, in 29% of the cases there are always enough charging points available. There is thus room for improvement when it comes to the amount of charging points at the workplace.

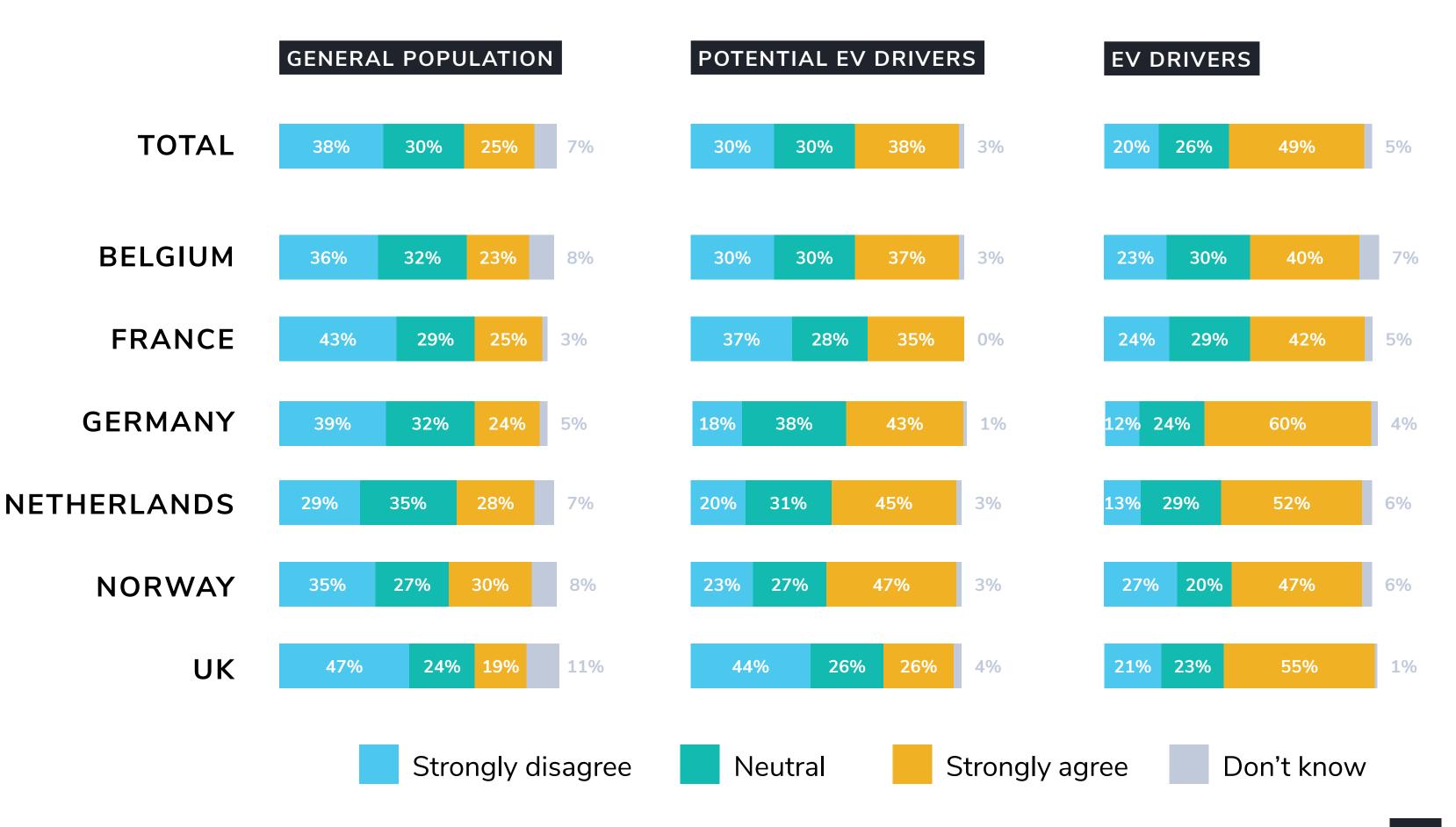


1 in 5 EV drivers is concerned about charging possibilities along the road

I am confident that when I buy an electric/ hybrid car, I will be able to charge it along the road whenever needed - % (strongly) agree

Potential EV drivers are divided about charging along the road: 30% foresees issues, 38% thinks all will be fine.

Although 1 in 5 EV drivers is concerned, a larger group (almost half) is confident to encounter plenty of charging possibilities along the road



D01. Please let us know how much you agree with the following statements Base: General population (n=3000 total: n=500 per country), Potential EV drivers (n=1096 total: Belgium n=178, France n=195, Germany n=175, the Netherlands n=143, Norway n=165, UK n=240), EV drivers (n=600 total: n=100 per country)



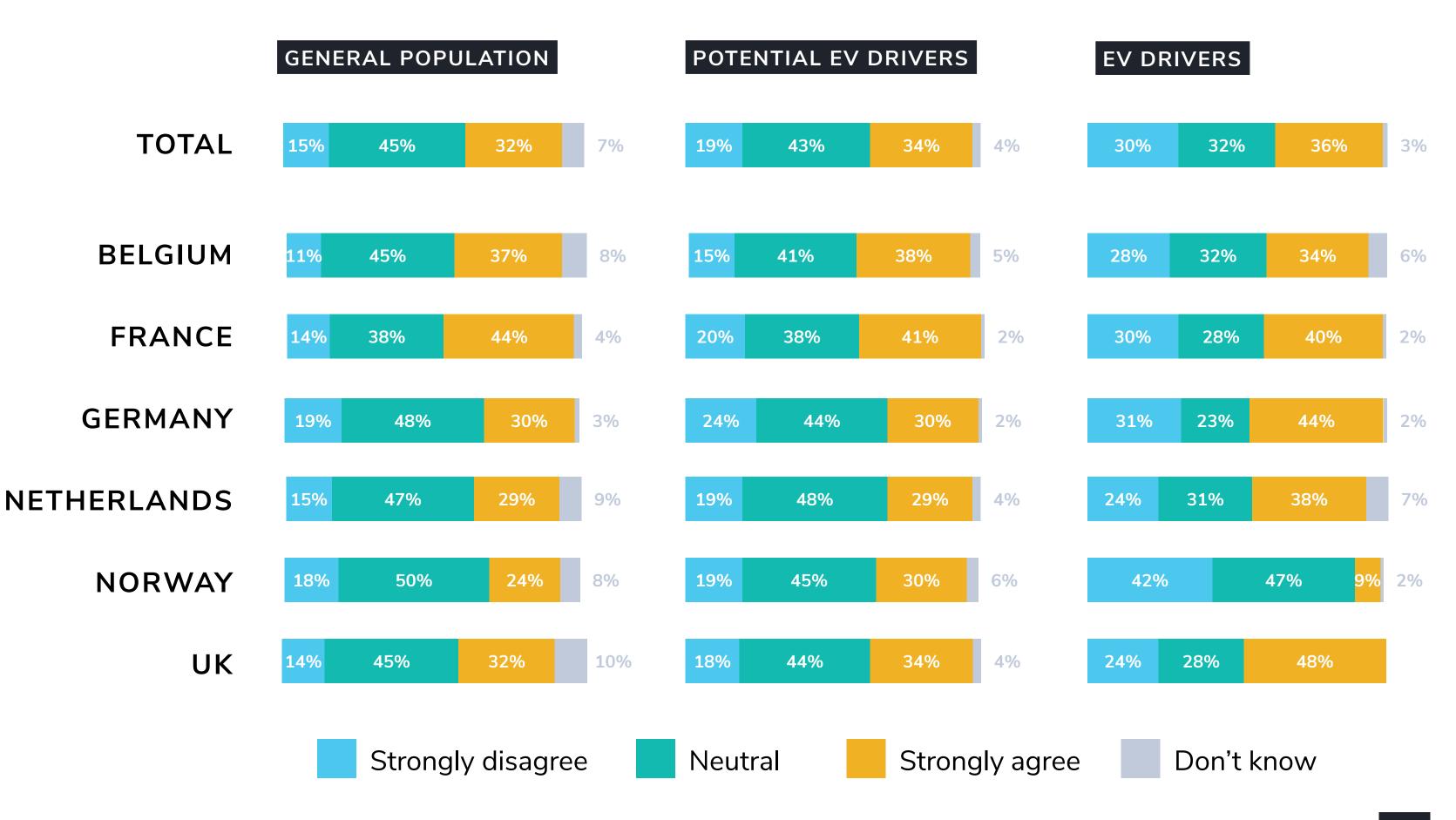
Chapter 06

Conventional vs electric driving

EV drivers are divided as to whether taking care of their electric care costs more effort than taking care of a conventional car

Taking care of an electric/plug-in hybrid car costs more effort than a petrol/diesel car - % (strongly) agree

Interestingly, in Norway (where the market penetration of electric cars is highest) EV drivers more often think taking care of their car is easy.

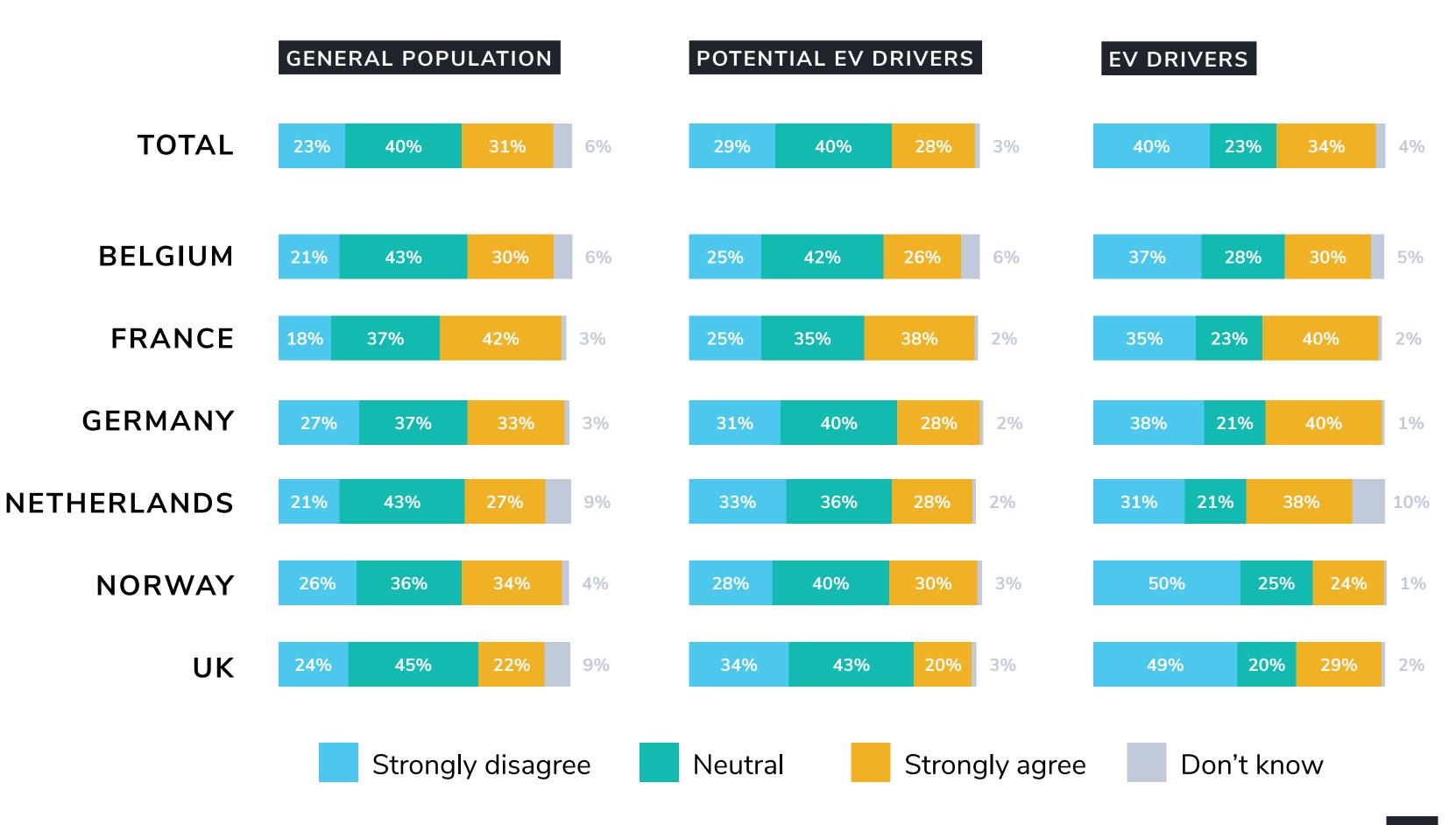


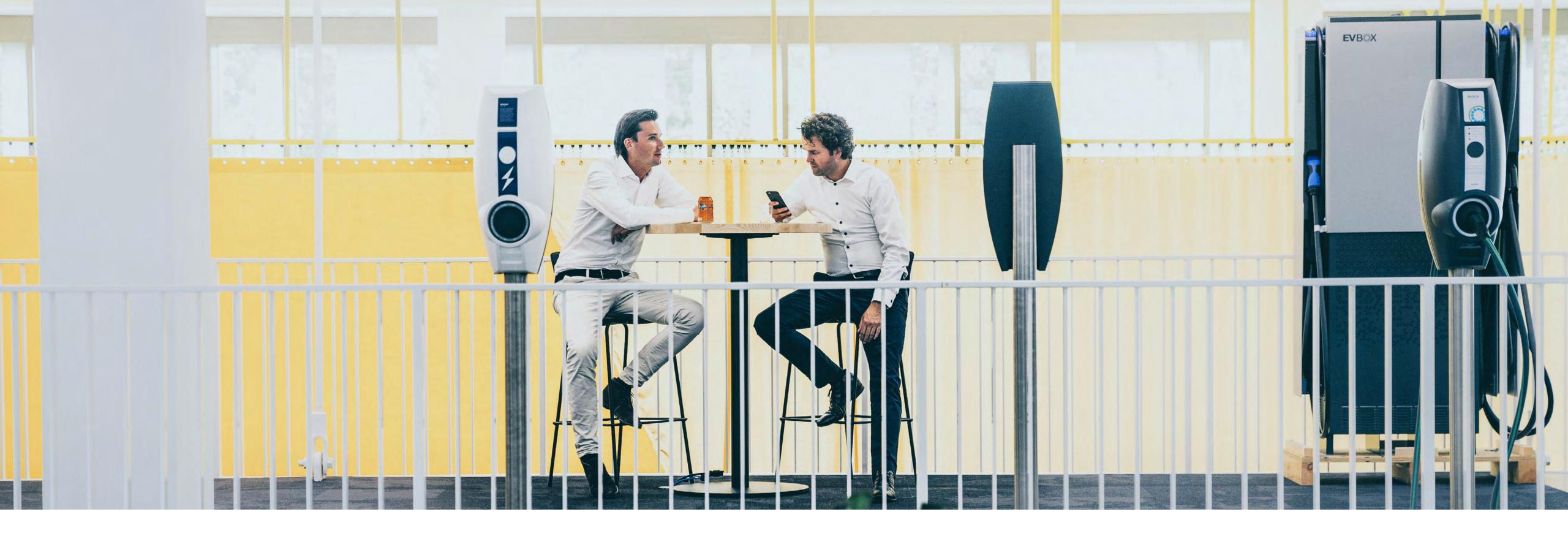
Except for France, most countries are split on whether electric cars perform as well as conventional cars

Electric/hybrid cars don't perform as well as petrol/gas cars - % (strongly) agree

In France, around 4 in 10 citizens say petrol/ gas cars outperform electric cars, whereas less than 2 in 10 say the opposite.

Potential EV drivers are, across the board, divided.





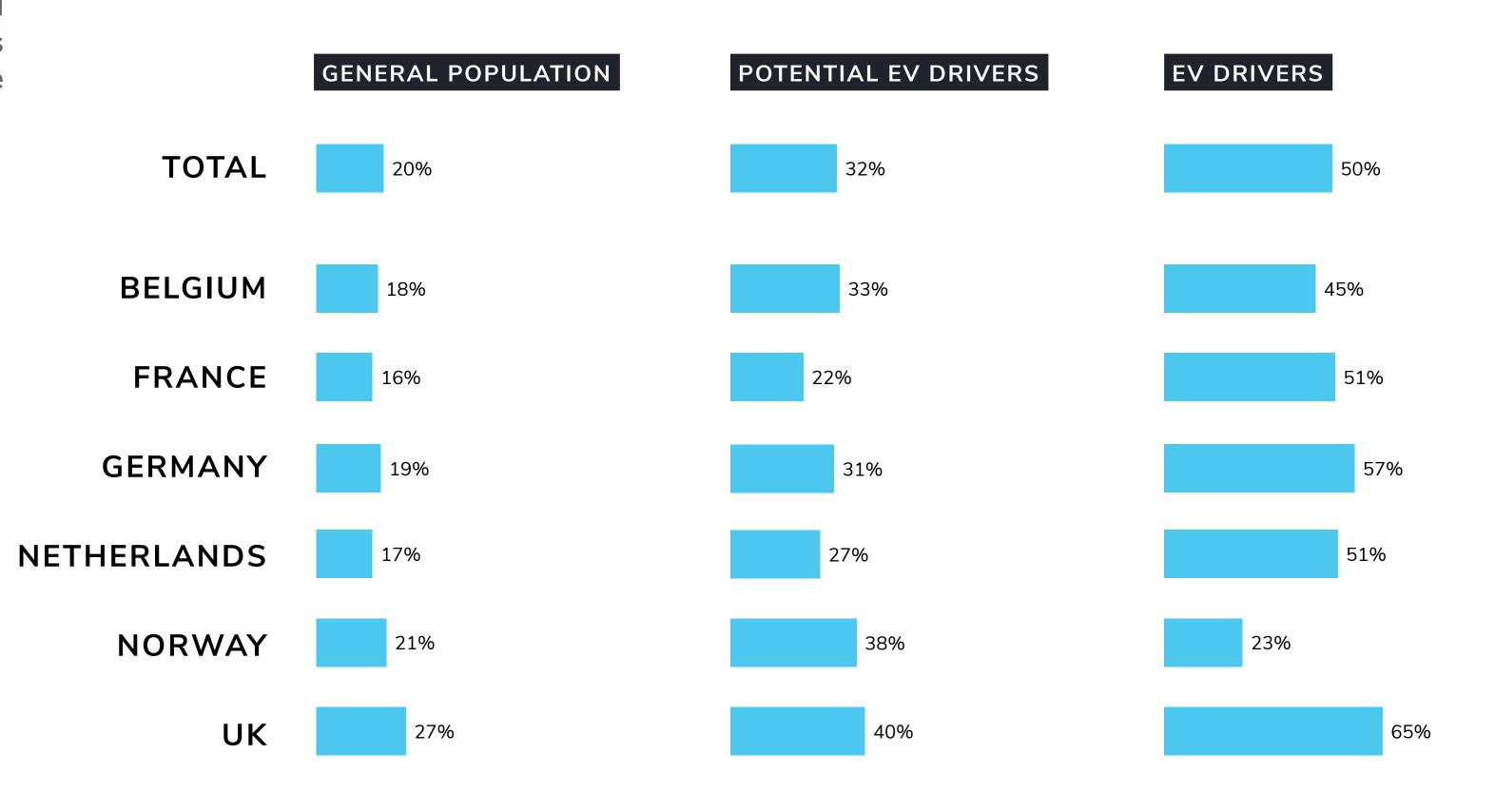
Chapter 07

The workplace

Just 2 in 10 of those employed work at a company that offers electric cars

The possibility of an electric/plug-in hybrid car is offered when choosing for a business car plan at my company - % (strongly) agree

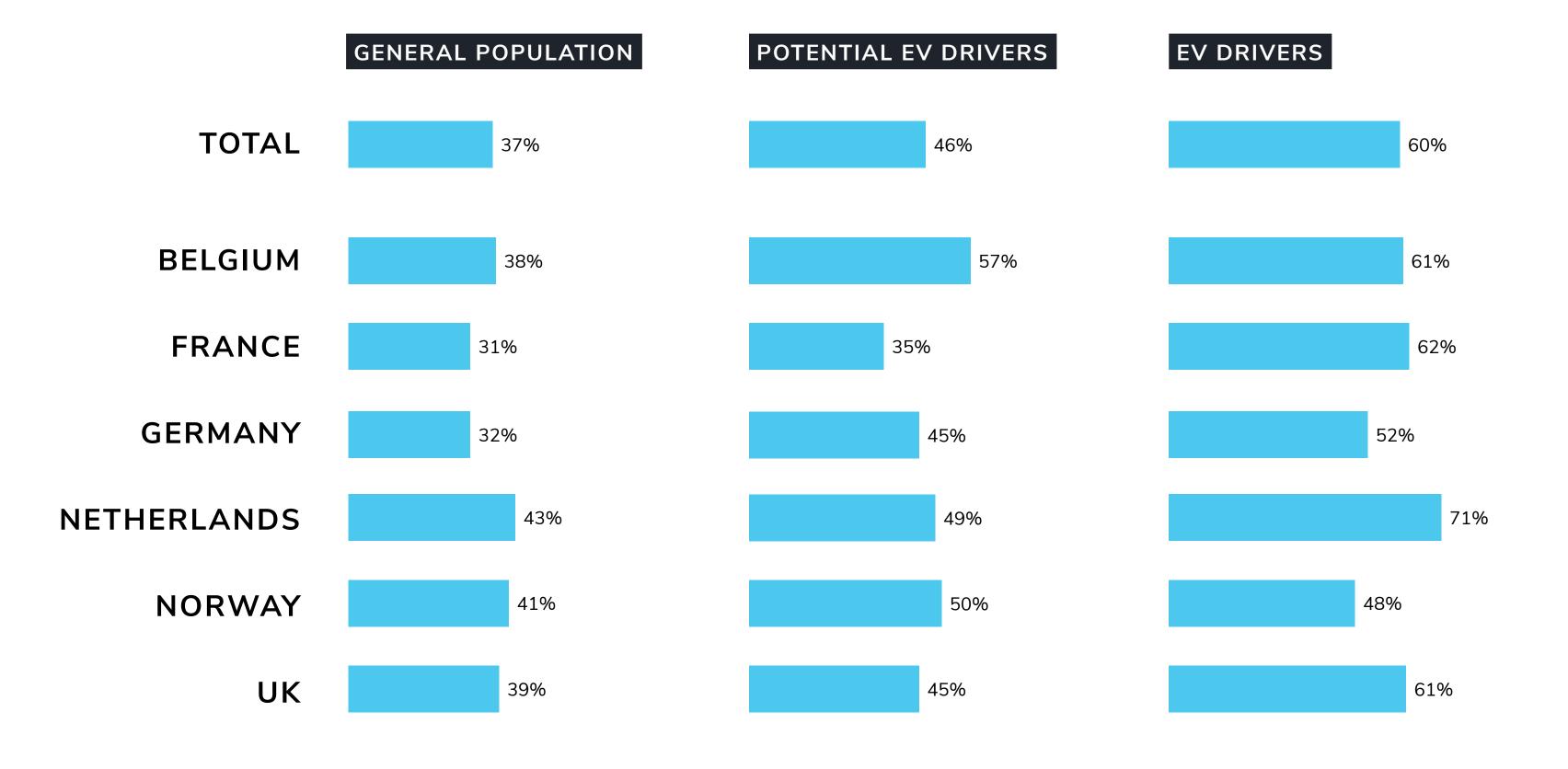
The UK seems to have the largest share of employed citizens working at a company that currently offers electric cars in their business car plan; Belgium is doing worst.



Roughly 4 in 10 are employed at a company with a sustainability vision

My company has a sustainability vision in place - % (strongly) agree

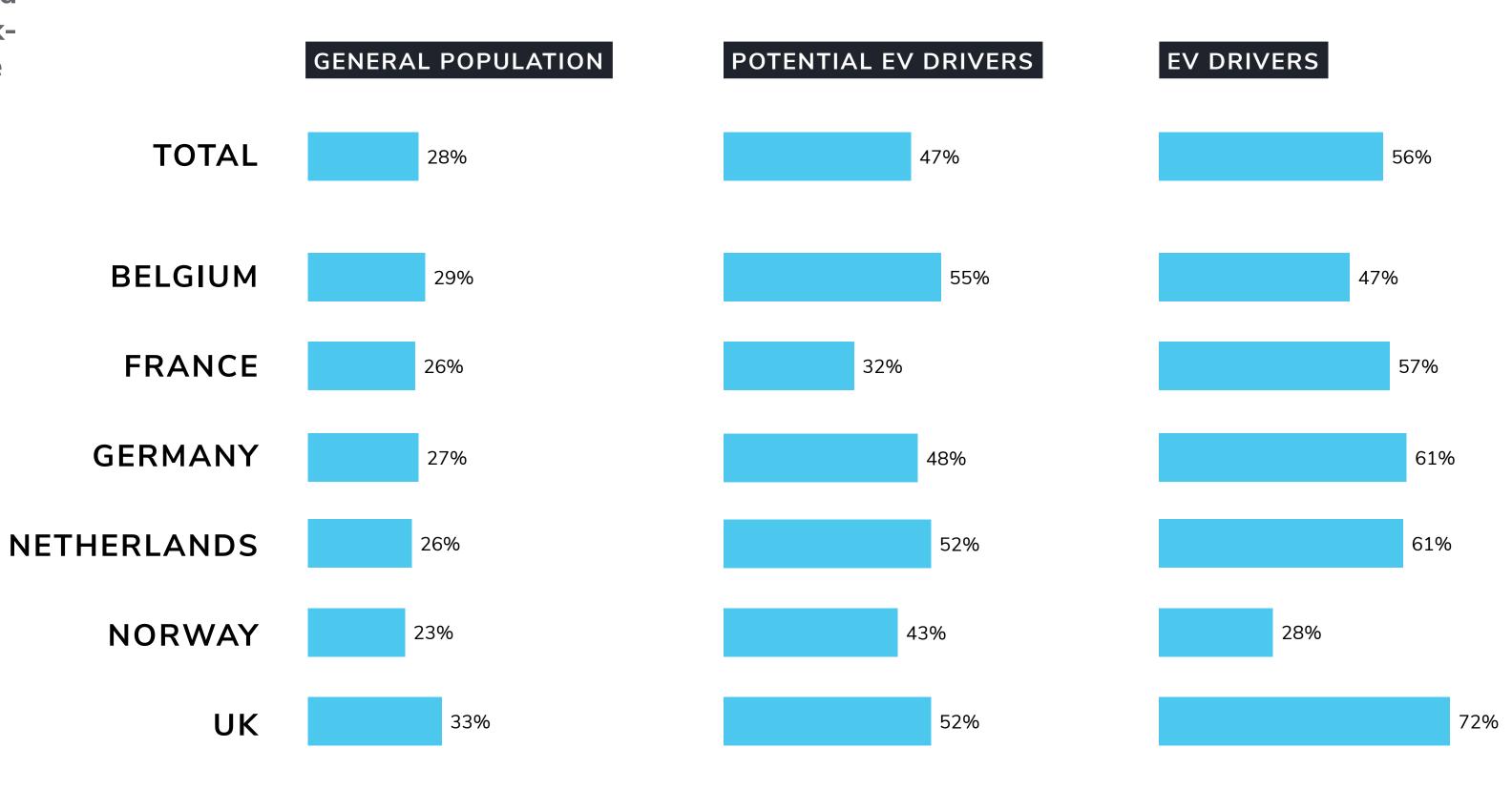
(Potential) EV drivers are more likely to work at a company that has a sustainability vision in place.

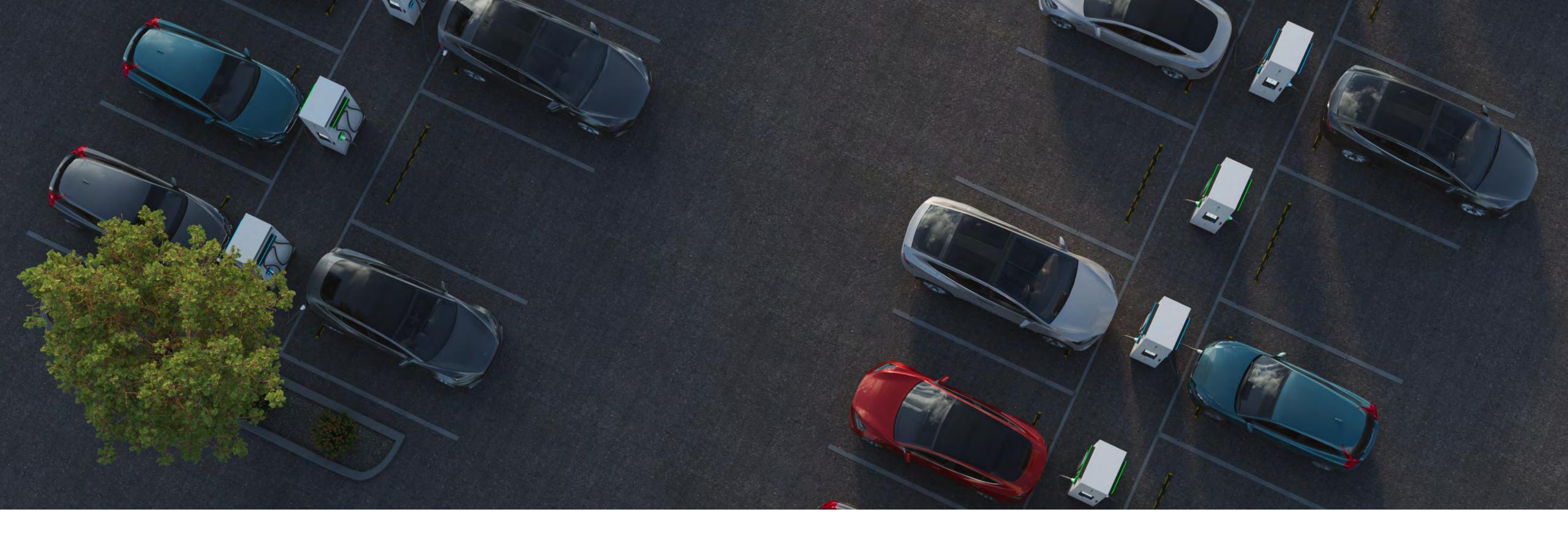


Half of potential EV drivers say they would like to work for a company that offers electric cars

Offering electric/plug-in hybrid cars would make it more attractive for me to choose working for a future employer - % (strongly) agree

Among the general public, around 3 in 10 would find an employer more attractive if it would offer the possibility to have an electric car.





Chapter 08

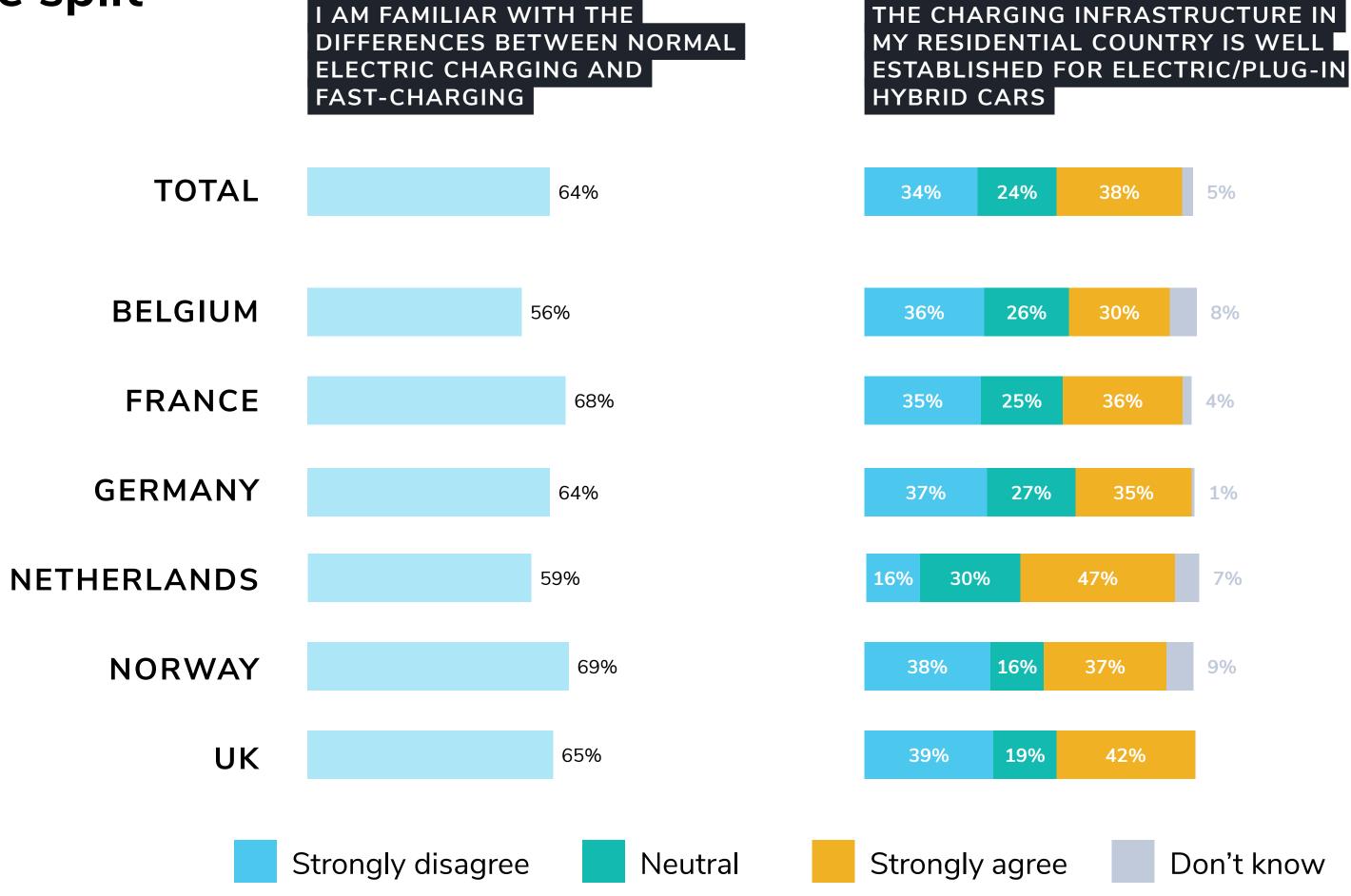
Fast charging

In most countries EV drivers' views on charging infrastructure are split

EV drivers - % (strongly) agree

Most EV drivers are familiar with the differences between normal and fast electric charging.

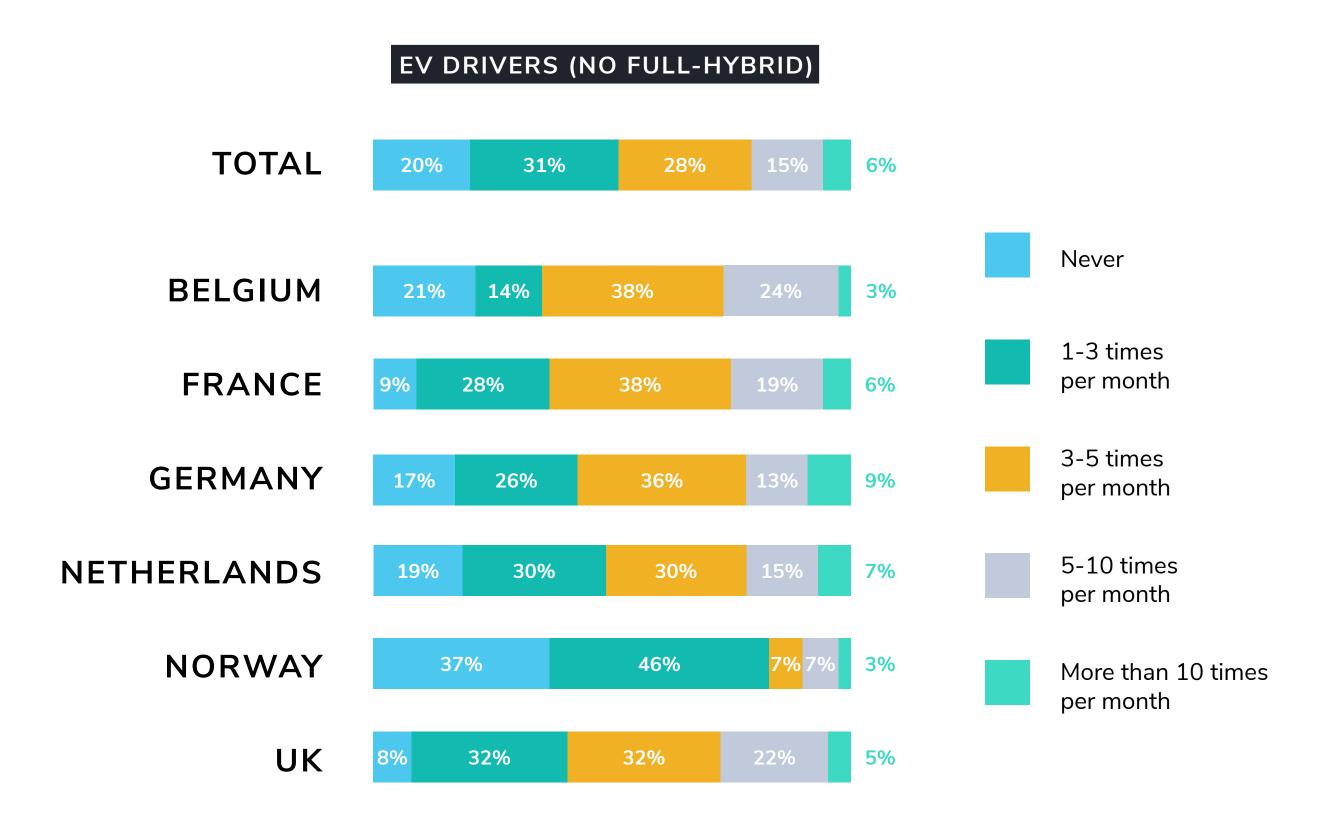
In the Netherlands, EV drivers have relatively positive views on the charging infrastructure. In most other countries opinions are divided.



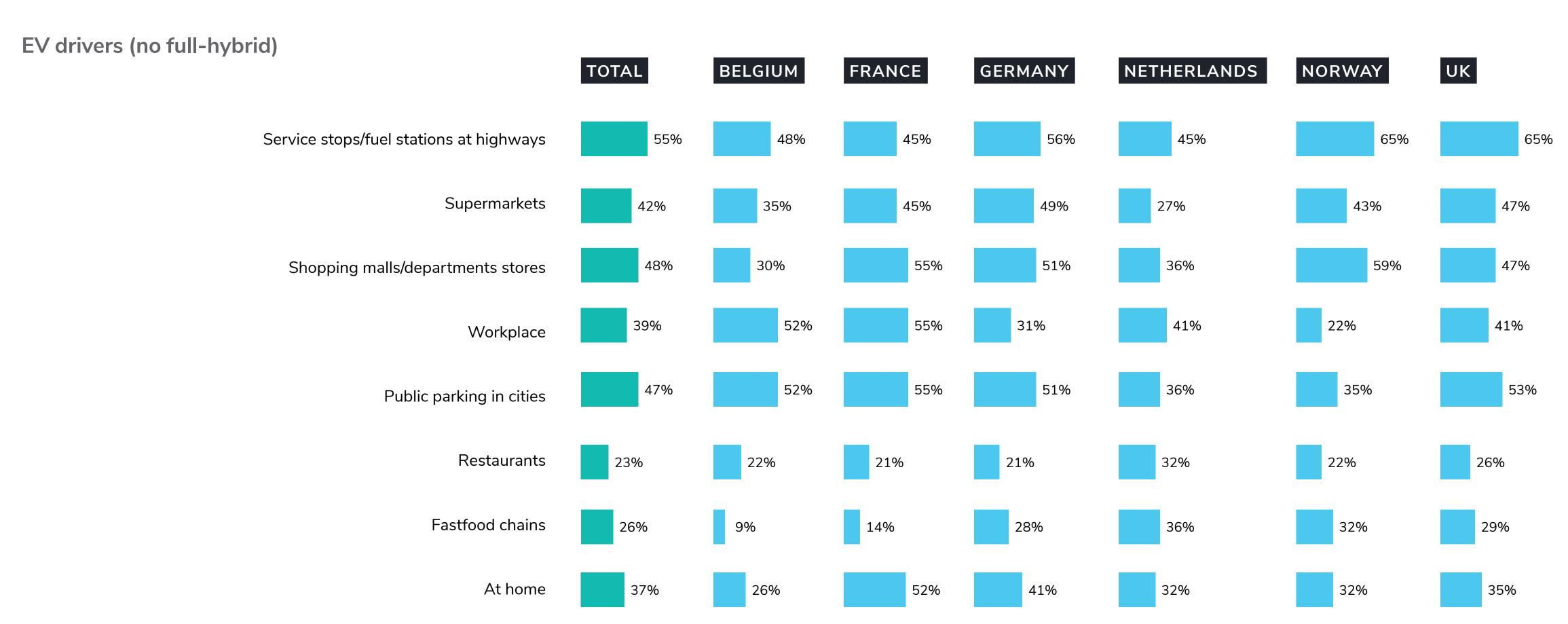
Electric/plug-in hybrid car drivers do not use fast charging regularly

How often do you use fast-charging?

1 in 5 EV drivers across the 6 countries never uses fast charging.

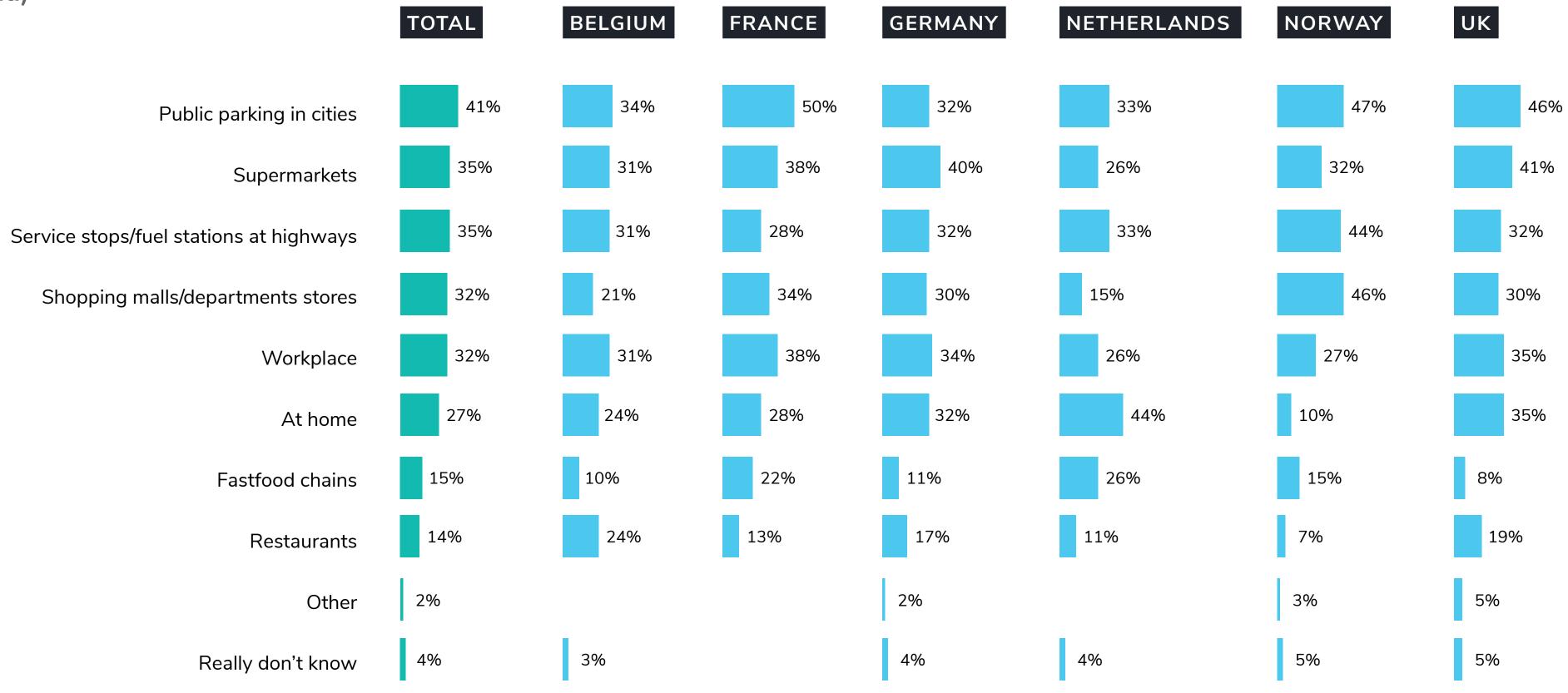


About half of the EV drivers currently use fast-chargers at service stops/fuel stations at highways, shopping malls/department stores, or public parking



EV drivers would like to see (more) fast-chargers at public parking in cities, supermarkets and fuel stations

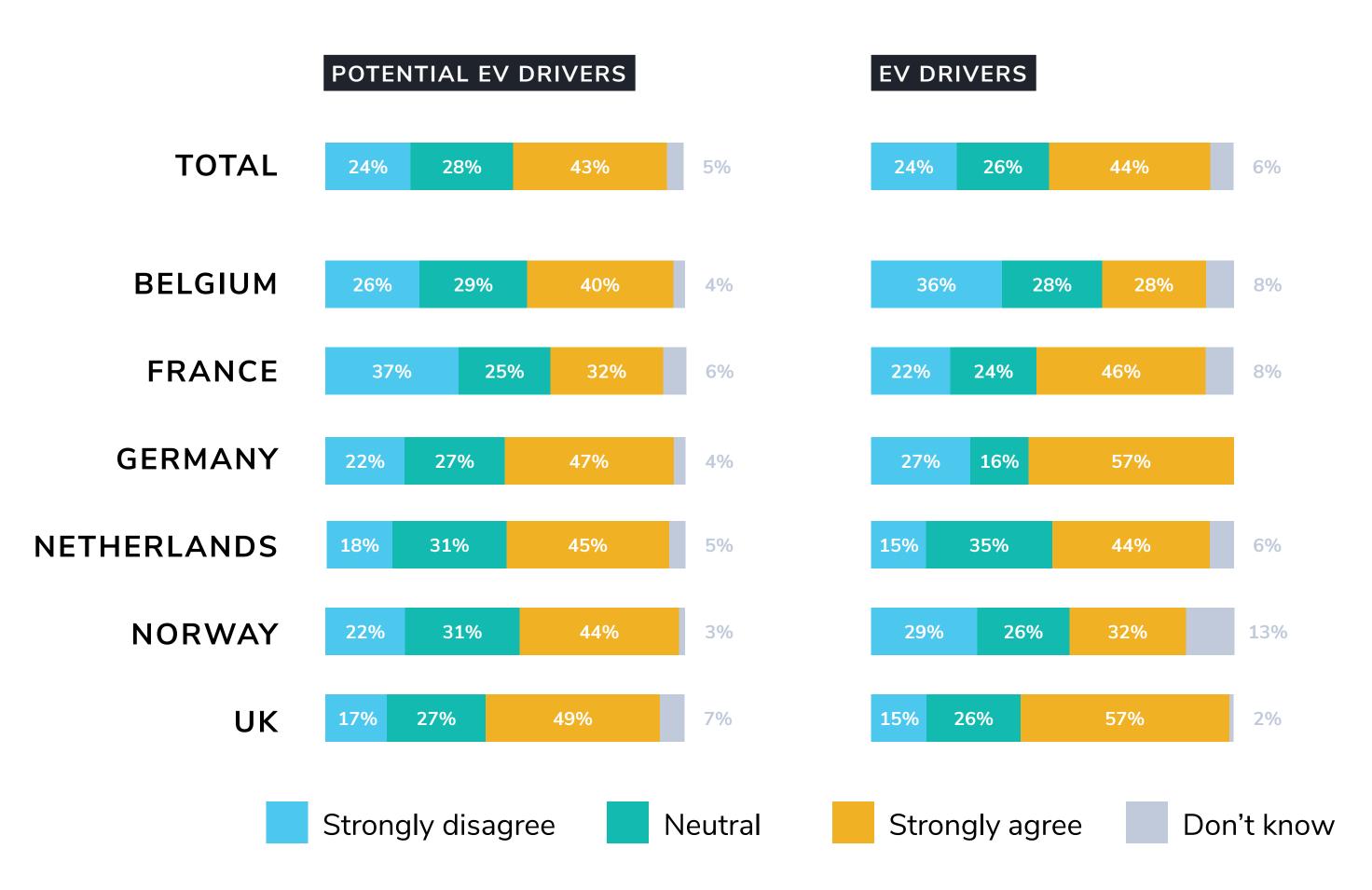




Around 4 in 10 (potential) EV drivers are willing to pay more for fast-chargers

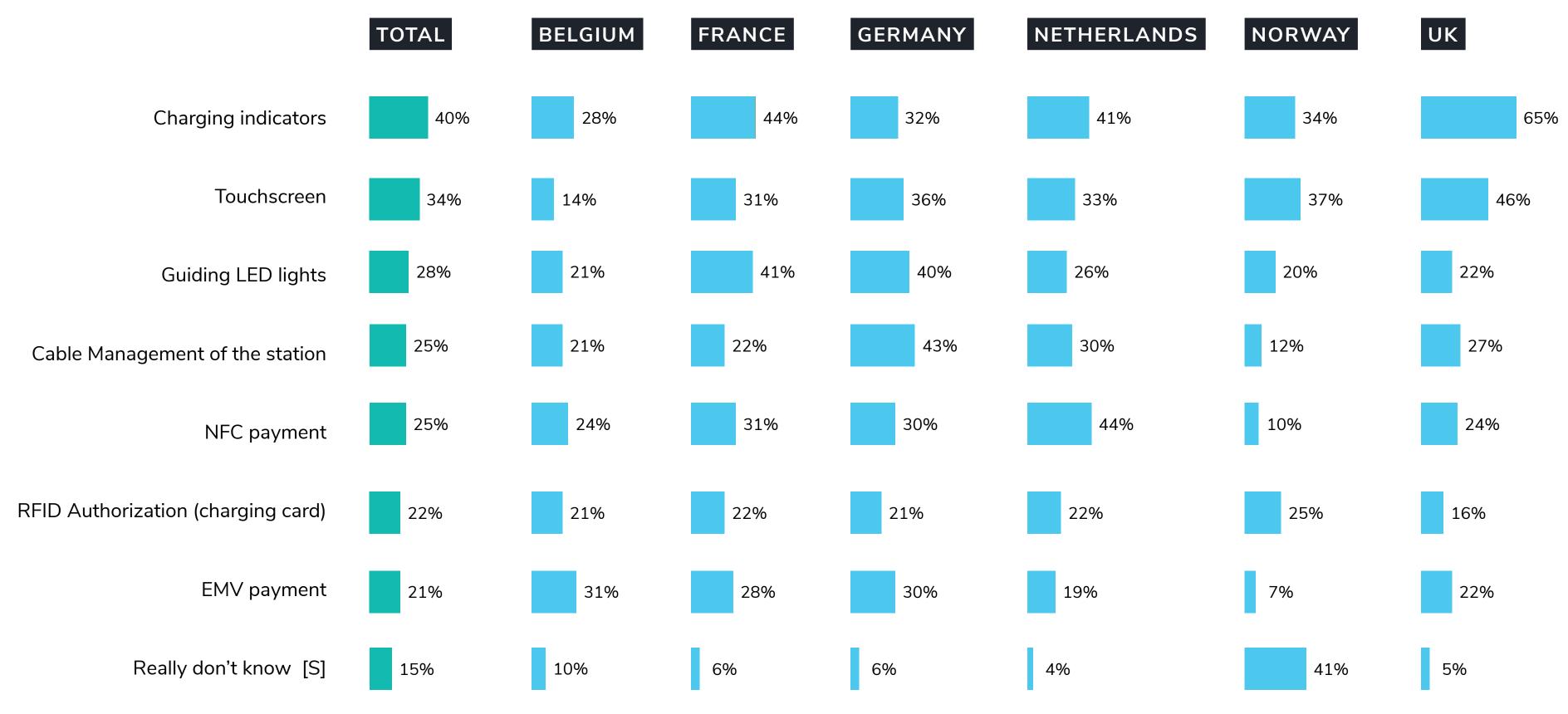
I am willing to pay more knowing my car will be charged faster at a public charging station

Potential EV drivers in France most often object to paying more knowing that their car will be charged faster at a public charging station.



EV drivers find charging indicators at a fast charging station most useful

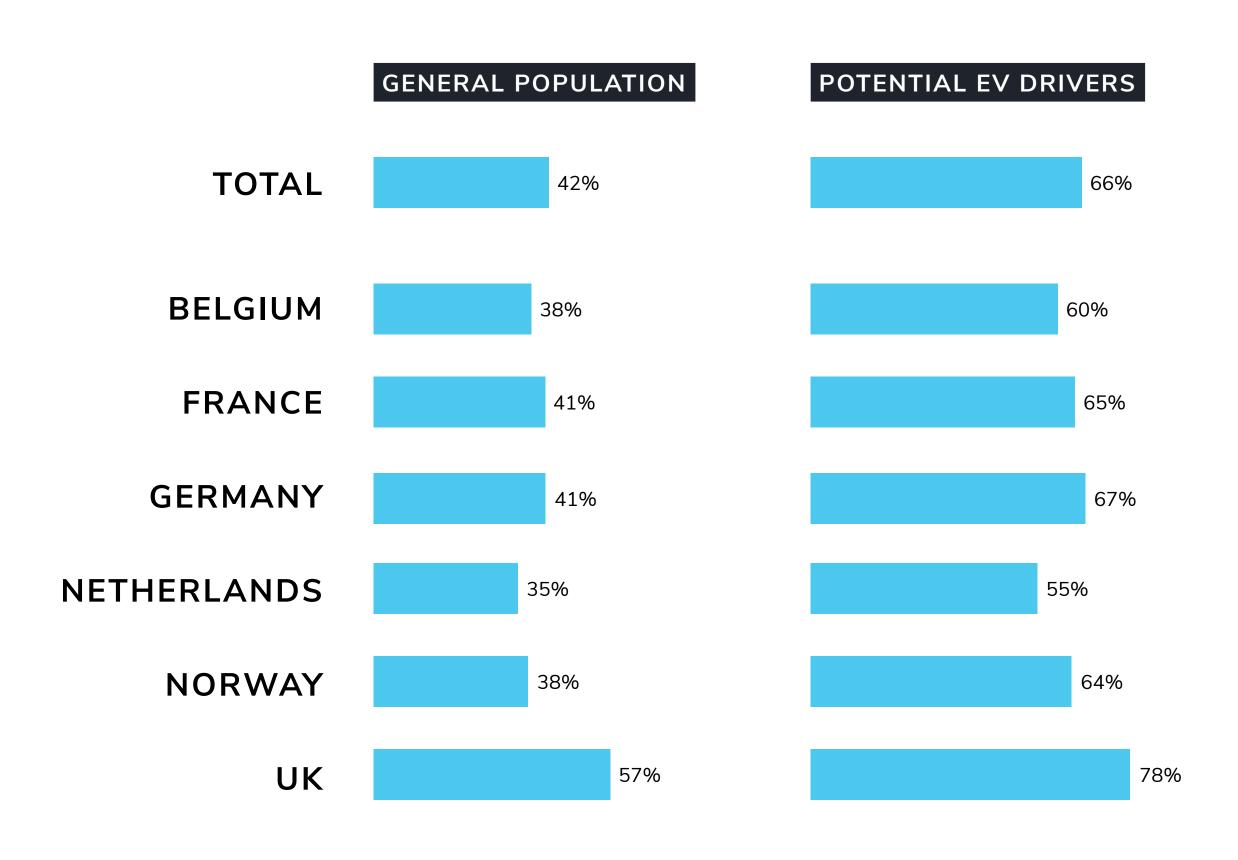
EV drivers (no full-hybrid)

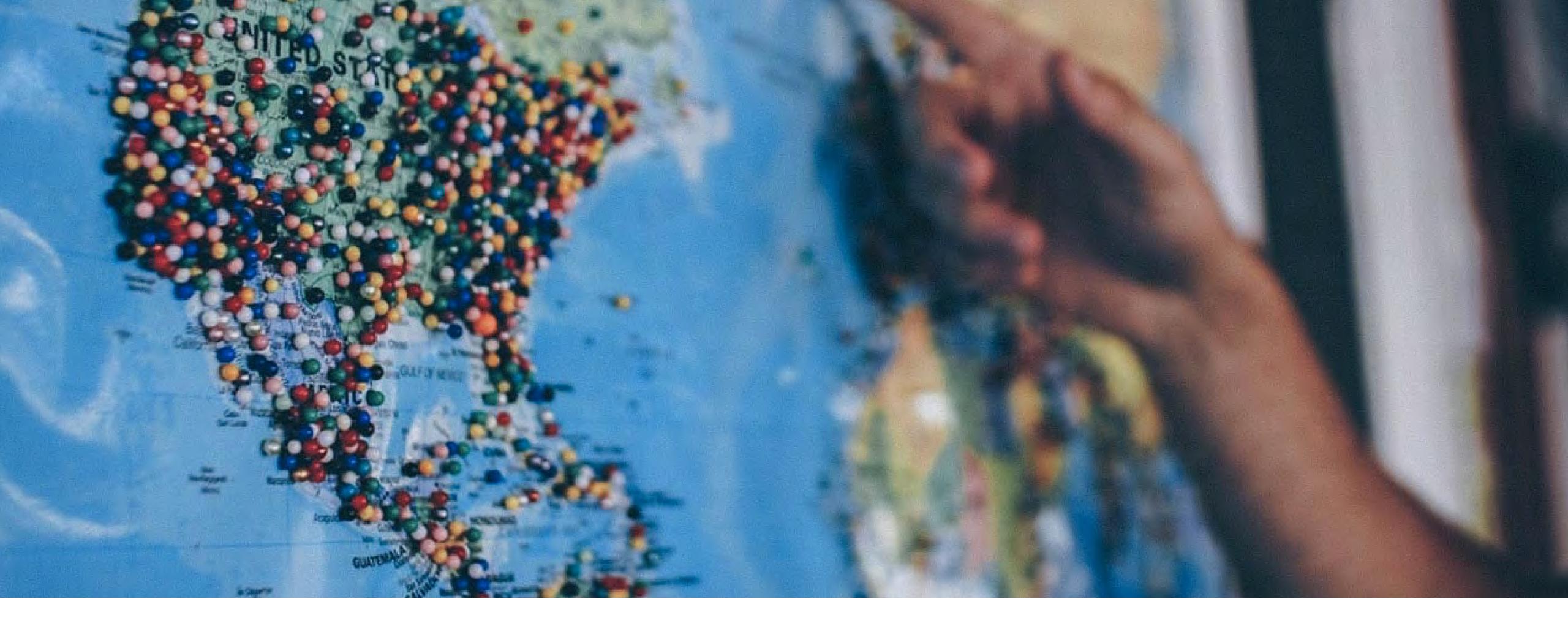


About 2 in 3 potential EV drivers say ultra-fast chargers would make them more inclined to switch to electric driving

The existence of more ultra-fast chargers would increase my willingness to buy an electric/plug-in hybrid car - % (strongly) agree

In the UK, ultra-fast chargers could have the largest impact, while potential EV drivers in the Netherlands are least willing to switch to electric driving because of ultra-fast charging possibilities.





Appendix

Need to know Additional information

The European Green Deal

The exact wording of the question on one's impression of the European Green Deal was as follows:

The European Commission wants to tackle climate and environmental-related challenges. Therefore, its aim is 'to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use" (source: European Commission, https://ec.europa.eu).

One of the sub-goals that contribute to this ducing its greenhouse gas main goal, is to have 1 million public charging in 2030 compared to 199 points placed in Europe until 2025 (at the moechoes the goal that the Empoints in Europe).

Now that you have read this, how would you describe your view about the 'European Green Deal'?

Norway

In the report, the results for Norway are displayed in the section on the European Green Deal. This is done since Norway, albeit not an EU member state, is strongly associated with the EU, for example through its membership of the European Economic Area. In addition, the Norwegian government has released official communication saying that the country, in response to the European Green Deal, aims at reducing its greenhouse gas emissions by 50% in 2030 compared to 1990 levels. This goal echoes the goal that the EU has set through the European Green Deal.



