



European  
Commission

# Consumer Monitor 2022

EUROPEAN ALTERNATIVE FUELS OBSERVATORY



COUNTRY REPORT:  
GERMANY



Mobility and  
Transport

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## European Alternative Fuels Observatory

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# 1.

## The EAFO EU consumer monitor: key findings & conclusions

Through different European policies, the energy and transportation sectors are compelled to intensify the adoption of renewable energy sources and hasten the electrification of various transport modes. In particular, the recently approved Alternative Fuels Infrastructure Regulation (AFIR), sets a framework for an EU-wide approach for the deployment of refuelling and recharging infrastructure, including road transport electrification<sup>1</sup>.

The European Alternative Fuels Observatory (EAFO) supports the EU transport electrification policies by providing information on the evolution of alternative fuel vehicles and recharging/refuelling infrastructure at the EU level and per country. The EAFO also includes a dedicated section for policy makers and consumers, addressing a wide range of stakeholders including different government levels, vehicle manufacturers and other e-mobility industry companies, automobile organisations, etc.

As part of the EAFO consumer section<sup>2</sup>, a survey was launched in September 2022 in ten EU countries<sup>3</sup> to better understand consumers' intentions to adopt battery electric vehicles (BEVs), their e-mobility and recharging behaviour, and the challenges they perceive or encounter in this sense. Detailed information on the survey methodology is available in annex I. Please note that the 2022 'elektrisch rijden monitor'<sup>5</sup> (Electric driving monitor) of the Dutch partner ANWB was used as an example. Moreover, there were two channels used to distribute the EAFO Consumer Monitor survey:

- A panel to have a representation of the general population including non-BEV and BEV drivers.
- The EAFO partner AVERE reached BEV drivers with a broad dissemination of the survey.

This report highlights the main findings of the 2022 EAFO Consumer Monitor survey focusing on passenger BEV cars, and presents the results for **Germany** in two main parts:

**Part 1 presents the surveyed German's attitude, interest, and information that could support BEV (potential) drivers. It is based on the results of the German general population surveyed through the panel, which include 1,648 valid responses from BEV (57) and non-BEV drivers (1,591).**

**Part 2 focuses only on BEV drivers, from both datasets by merging the panel and the AVERE dataset, with 94 valid responses in total. This gives an insight into the German BEV driver's e-mobility and recharging behaviour.**

The report is complemented with a comparison of the results using key indicators for the ten countries surveyed and the EU aggregated results. Finally, this report includes an overview of the 2022 situation in Germany in terms of passenger BEVs and recharging infrastructure using the EAFO's latest numbers.

For more than a decade, three main barriers have been identified regarding the mass up-take of passenger battery electric vehicles (BEVs): purchase price, driving range and availability of recharging infrastructure. There have been significant advances in this sense: battery costs have dropped by 90%, vehicle range has increased from 100-150 km up to 400+ km, there is an important growth in new BEVs registrations, and the recharging infrastructure network is expanding. Nevertheless, BEVs represent only 1.23% of the total passenger cars fleet in the EU, and the recharging infrastructure coverage is still limited in some countries and urban areas<sup>4,5</sup>.

1 <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX%3A52021PC0559>

2 <https://alternative-fuels-observatory.ec.europa.eu/consumer-portal>

3 [ANWB Elektrisch Rijden Monitor 2022. Rapportage consumenten perspectief elektrisch rijden](#)

4 [Van Mierlo, J., Berecibar, M., El Baghdadi, M., De Cauwer, C., Messagie, M., Coosemans, T., Jacobs, V. A., & Hegazy, O. \(2021\). Beyond the State of the Art of Electric Vehicles: A Fact-Based Paper of the Current and Prospective Electric Vehicle Technologies. World Electric Vehicle Journal, 12\(1\), 1-26. \[20\]](#)

5 <https://alternative-fuels-observatory.ec.europa.eu/>

• The ten countries surveyed were: Austria, Belgium, Denmark, France, Germany, Hungary, Italy, Netherlands, Slovenia, and Spain

Taking these barriers and developments into account, **the key findings of the 2022 EAFO consumer monitor are:**

- a. Focusing only on BEV driver respondents, the German BEV driver is currently represented as a 35-55-year-old male, living in a detached house and with a relatively high income who has a university or higher education diploma.
- b. A minority of German participants are interested or familiar with BEVs, with 27% considering buying a BEV in a time frame of 0-5 years. 47% have a positive attitude towards BEVs, and as in the other EU surveyed countries, the most important BEVs advantage is that these are better for the climate. Germans also consider that BEVs are economical to use and identified this as an advantage.
- c. In the ten surveyed countries the number one BEVs disadvantage is their price. The German participants are willing to pay 30,000 € for a BEV and 30% of the BEV drivers paid a purchase price between 20,000 € and 40,000 €.
- d. BEVs' insufficient range is also considered a limitation. A minimum desired range between 300 km to 500 km was the choice of 40% of all German drivers surveyed. 500 km and more would be the preference of 41%.
- e. 33% of the surveyed Germans indicated that they are not aware of any subsidies for electric vehicle driving despite the financial support measures applied by the German government. Information on batteries and/or driving range was considered the most relevant to support electric driving.
- f. 92% of German BEV drivers use their vehicles daily or several times a week. Their BEV is mostly new (79%) and privately owned (65%).
- g. As in the other nine countries surveyed the most important characteristic of a public recharging session is the recharging speed. For the BEV German drivers payments through a charging card or app are also important. The latter is the number one payment option in public recharging stations within the ten EU countries. On the other hand, only 18% of BEV respondents do not always take the battery level into account when recharging.
- h. Limited recharging private or public options are also considered a disadvantage. The German BEV driver's frequency of use of public slow and fast recharging points is rather low when compared to the other EU countries surveyed (11% and 14% respectively). Moreover, 36% of German BEV drivers recharge often at home.

Thanks to these results, the following **conclusions could be made about the three main barriers identified:**

1. **BEV costs and desired range:** In March 2023 there were only twelve BEVs models available with a purchase price between 20,000 € - 35,000 €. These twelve models represent 5% of the total BEVs models in the market. The driving range barrier could be linked to a lack of affordable new BEVs with a range of 300 km or more<sup>6</sup>.
  2. **BEV costs:** Information beyond the BEV purchase price, including the existing models' km range, the Total Cost of Ownership<sup>7</sup>, and the available financial support could help potential BEV drivers to have a clearer opinion on electric driving.
  3. **BEV costs:** the second-hand and leasing options at an affordable price need to be further considered. 21% of the German BEV drivers bought a second-hand BEV, while 26% indicated that they lease a car for which the majority (81%) pay less than 500 € per month.
1. **BEV range insufficiency:** The BEV factory range was enough for 87% of the German BEV drivers. 46% indicated a factory range of 200-400 km. Range satisfaction can be related to the km driven per day (100 km), and the main activity for which the BEV is used (leisure & other activities like doctor's appointments). Moreover, for holidays or trips beyond 500 km, the German BEV drivers considered problems related to 'charge anxiety' more relevant than 'BEVs' range anxiety'.
  2. **Public recharging network:** German BEV drivers do not have a clear overview of the public recharging points in their vicinity, nor of how long it will take to fully recharge their BEV. In this sense, information on the recharging network was also one of the support measures that (potential) German BEV drivers would welcome.

Finally, the EAFO 2022 Consumer Monitor survey results also show the need to address those groups less represented among BEV drivers in Germany (and in other EU countries) such as females, households having a lower income, or lower education level.

6 <https://alternative-fuels-observatory.ec.europa.eu/consumer-portal/available-electric-vehicle-models>

7 <https://alternative-fuels-observatory.ec.europa.eu/consumer-portal/calculator>

## 2. Consumer monitoring results: general population views on driving battery electric vehicles in Germany

This section presents the **results of the German general population surveyed through the panel: 1,648 valid responses from BEV (57) and non-BEV drivers (1,591)**. It focuses on their attitude, interest and information that could support them to further drive BEV cars.

### Socio-demographics general population

Based on the survey results, the **German BEV driver** is represented as a 33-55-year-old male, living in a detached house, with a monthly income between 2,000 € and 3,999 € who has a university or higher education diploma. The main differences when compared to German non-BEV drivers are the percentage of female drivers and that non-BEV drivers are part of an older age group living in an apartment or studio.

Although most BEV drivers live in a detached house, 20% live in an apartment or studio, which could influence their recharging location options if they do not have access to a parking spot with a charging station/wallbox.

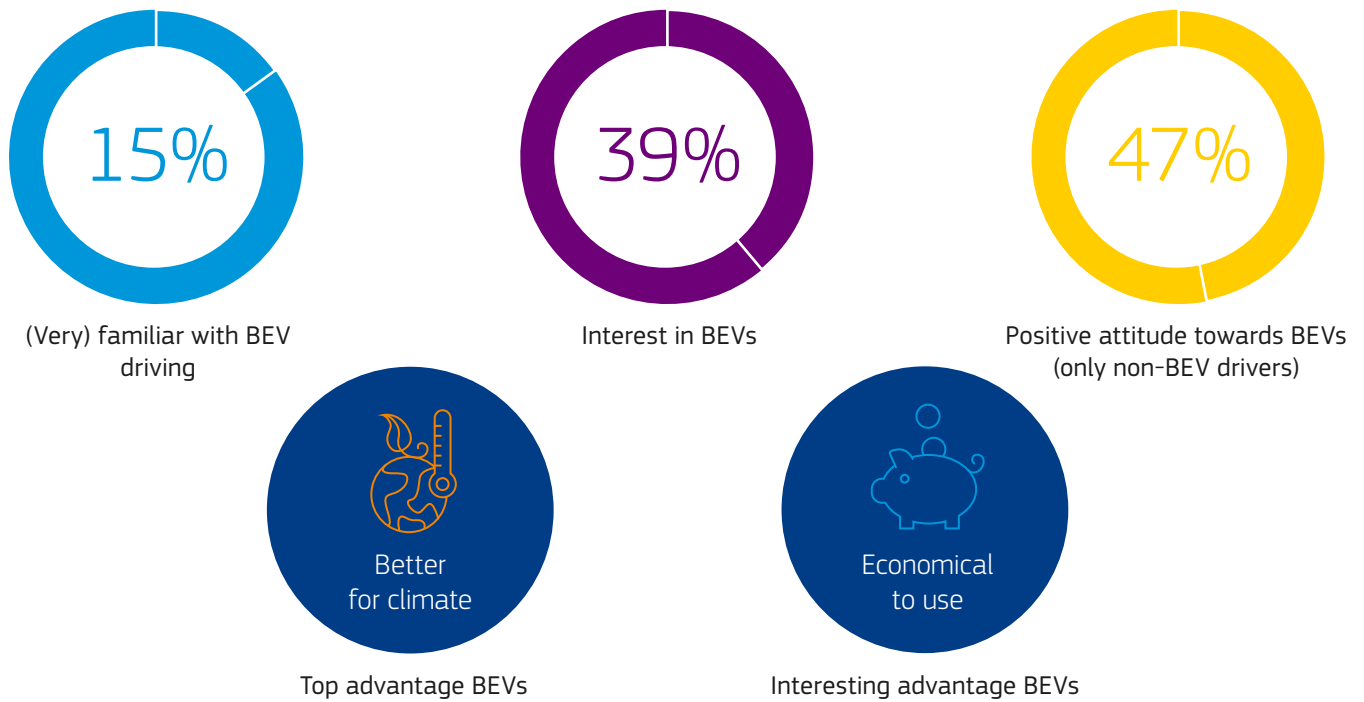
**Table 1: Socio-demographic results from the survey for the general population**

	BEV driver	Non-BEV driver
<b>Gender</b>		
Female	43%	51%
Male	57%	49%
Other	0%	0%
<b>Age group</b>		
-35	25%	24%
35-55	39%	35%
55+	36%	41%
<b>Net income</b>		
< 800 €	2%	4%
800-1999 €	13%	26%
2000-3999 €	39%	45%
4000-5999 €	33%	19%
≥ 6000 €	21%	6%
<b>Education</b>		
Early childhood-primary education	4%	9%
Secondary education	47%	63%
University or other higher education (e.g., college, polytechnic, academy)	49%	29%
<b>Accommodation</b>		
Apartment/studio	20%	45%
Semi-detached house	9%	10%
Attached house	7%	11%
Detached house	64%	33%
Other	0%	1%

## Attitude and motivation towards battery electric vehicles in Germany

A minority of respondents in **Germany** indicated that they are (very) familiar with battery electric driving, although 39% are interested in this. 47% have a positive attitude towards BEVs. As in the case of the other nine countries surveyed, the main advantage of BEV is that these are better for the climate (no tailpipe emissions). Moreover, German drivers also consider BEVs economical use as an advantage.

**Table 2: General population opinion and views on battery electric vehicles**

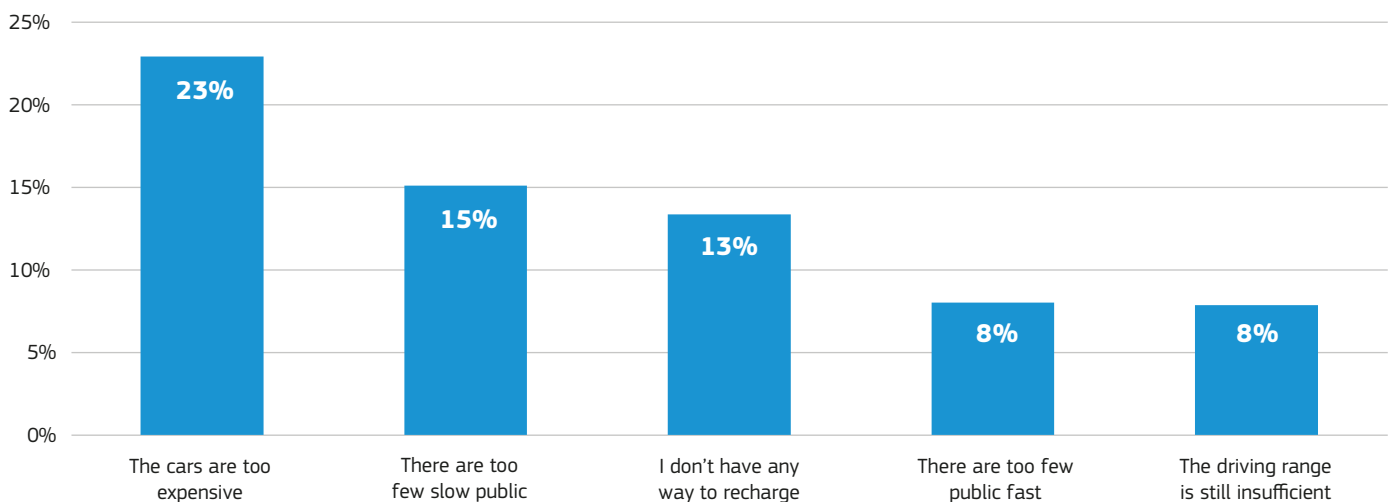


## Main barriers and opportunities to adopt battery electric vehicles

### Disadvantages of driving battery electric vehicles in Germany

**German** survey participants were asked to choose the most relevant disadvantages of driving battery electric vehicles. As previously reported, these include the BEVs price, limited recharging options either private or public, and BEVs range.

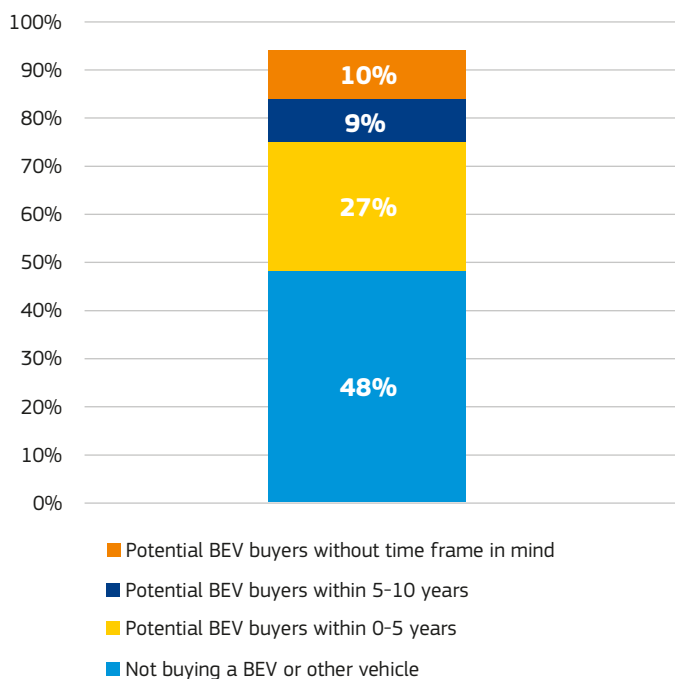
**Figure 1: German drivers' top five identified disadvantages of battery electric vehicles**



## Time frame to buy a battery electric vehicle in Germany

48% of the **German** respondents do not consider buying a battery electric vehicle. 27% would do so in a time frame of 0-5 years.

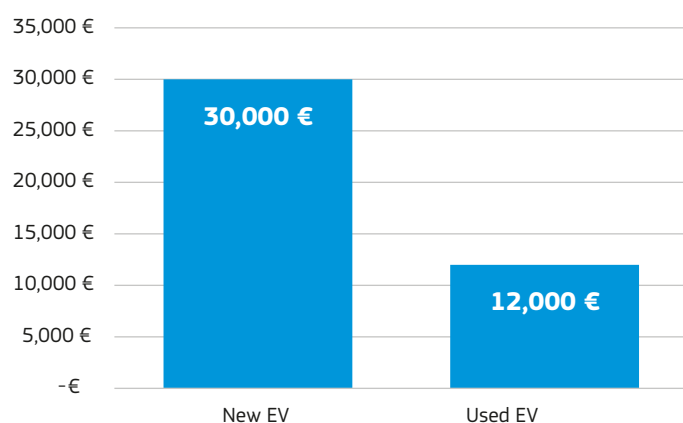
**Figure 2: German drivers' time frame to buy a battery electric vehicle**



## Willingness to pay and desired range of a battery electric vehicle in Germany

The median price that all **German** respondents are willing to pay for a used BEV is 40% of the price of a new car. When looking at only the BEV drivers (merged datasets) for 30% of them the purchase price paid is between 20,000 € and 40,000 €.

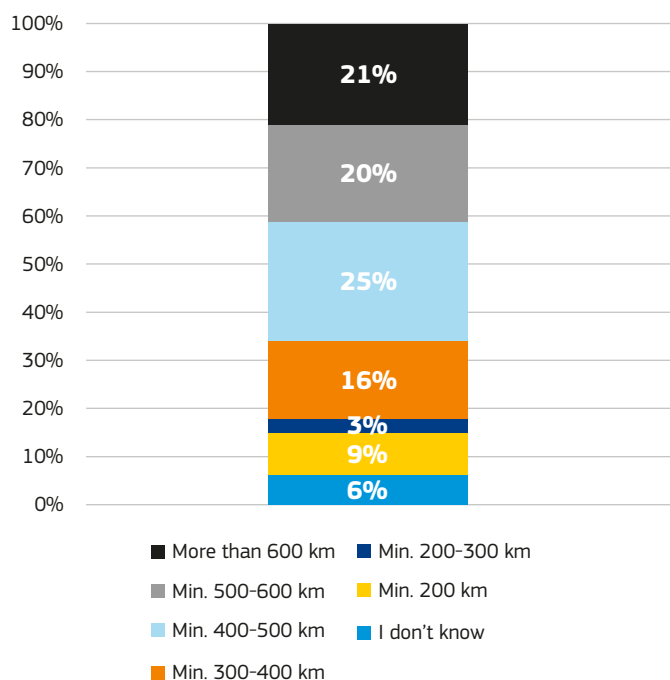
**Figure 3: German drivers' willingness to pay for a new & used battery electric vehicle**



## Desired range battery electric vehicle in Germany

In the 2022 survey desired range was described as the number of km that can be driven with a full battery without recharging. A minimum desired range between 300 km and 500 km was the prefer a range of 500 km and more.

**Figure 4: German drivers desired range of a battery electric vehicle**



The current BEV market consists of a considerable amount and variety of models (178) with a range between 300 and +600 km (models' variance in March 2023 according to the EAFO). On the other hand, there are only twelve BEVs models available with a purchase price between 20,000 € - 35,000 € (representing 5% of the total BEVs models in the market). These have an average range of 193 km (min 95 km, max 300 km), and include mostly cars in the A and B segments (supermini, e.g., city cars), with a couple of models in the C segment (compact, e.g., small family cars)<sup>8</sup>.

In Germany, BEVs are granted purchase subsidies, and tax ownership and CO<sub>2</sub> exemption are applicable<sup>9</sup>.

Interestingly, 33% of the surveyed Germans indicated that they are not aware of any subsidies for electric driving and that they still will value more information on batteries and/or driving range to have a clearer opinion about electric driving.

<sup>8</sup> <https://alternative-fuels-observatory.ec.europa.eu/consumer-portal/available-electric-vehicle-models>

<sup>9</sup> <https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/Germany/incentives-legislations>



### 3. Consumer monitoring results: Mobility and recharging behaviour of battery electric drivers in Germany

This section focuses on **BEV German drivers (only) from both datasets (the merged panel and AVERE dataset, with 94 valid responses in total)**. The results of the EAFO 2022 survey give an insight into who the German BEV driver is, the mobility behaviour, purchase cost and range expectation towards BEVs. Results on recharging behaviour are also presented.

#### Socio-demographic indicators for the BEV driver in Germany

The table below shows the main socio-economic indicators of the BEV respondents. Based on the survey results and when looking at a bigger sample of **German BEV drivers (only)**, they are represented by a 33-55-year-old male, living in a detached house, and with a monthly income between 2,000 € and 3,999 € who has a university or other higher education diploma.

**Table 3: Socio-demographic results from the survey for the BEV German driver**

<b>Gender</b>	
Female	37%
Male	63%
Other	0%
<b>Age groups</b>	
-35	19%
35-55	47%
55+	34%
<b>Net income</b>	
< 800 €	2%
800-1999 €	5%
2000-3999 €	36%
4000-5999 €	25%
≥ 6000 €	33%
<b>Education</b>	
Early childhood-primary education	3%
Secondary education	40%
University or other higher education (e.g., college, polytechnic, academy)	57%
<b>Accommodation</b>	
Apartment/studio	22%
Semi-detached house	10%
Detached house	60%
Attached house	8%
Other	0%

## Mobility behaviour and vehicle ownership of battery electric drivers in Germany

Most **German BEV drivers** surveyed use their vehicle several times a week or daily. Most BEVs are new privately owned cars, driven by 'recent' BEV drivers.

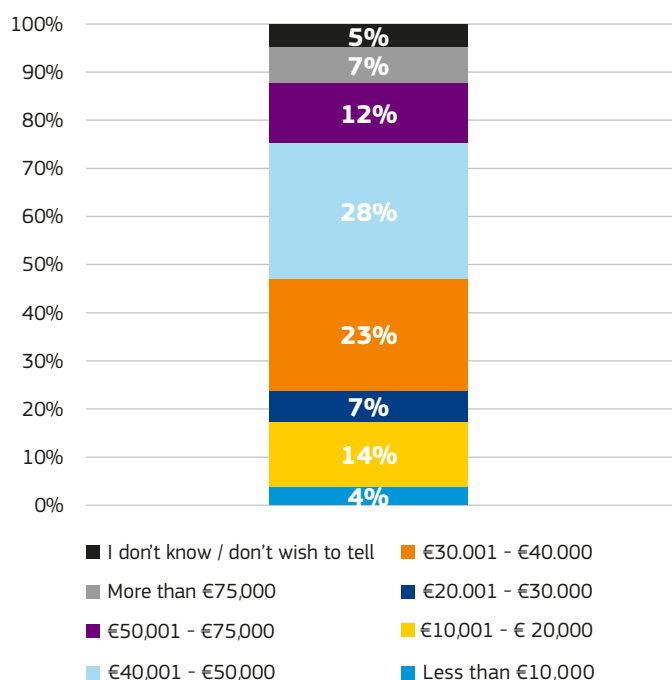
**Table 4: BEV driver behaviour and vehicle ownership**

<1 year to 3 years as BEV driver	80%
3 years to 5 years or longer as a BEV driver	20%
Average km driven a year	14,902
Average km driven a day	100
BEV drivers using their vehicle daily to several times a week	92%
Main activity when driving their BEV	Leisure & other (e.g., doctors' appointment)
<b>BEV ownership</b>	
Leased BEV	26%
BEV company car (if employee)	9%
Privately owned BEV	65%
<b>New vs., second-hand BEVs</b>	
New BEV	79%
Second-hand BEV	21%

## Purchase and lease price paid by BEV drivers in Germany

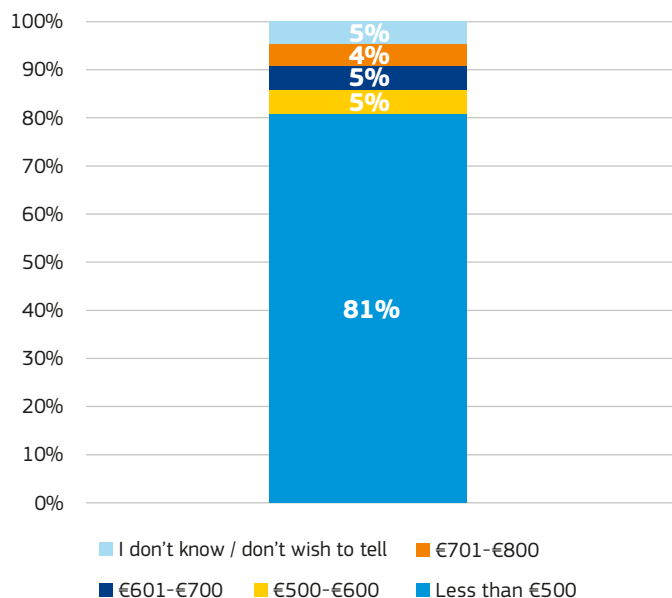
30% of the **BEV German drivers** surveyed indicated that the purchase price paid for a BEV is between 20,000 € and 40,000 €. 40% of the BEV drivers paid between 40,000 € and 75,000 € for their BEV. 14% paid between 10,000 € and 20,000 €.

**Figure 5: German BEV drivers' purchase price for their battery electric vehicle**



On the other hand, most of the **German BEV driver** participants that responded that their first car is leased (privately or for business purposes) pay less than 500 € per month. This could be an interesting alternative to purchasing a vehicle, although this applies to 26% of the German full electric car drivers surveyed.

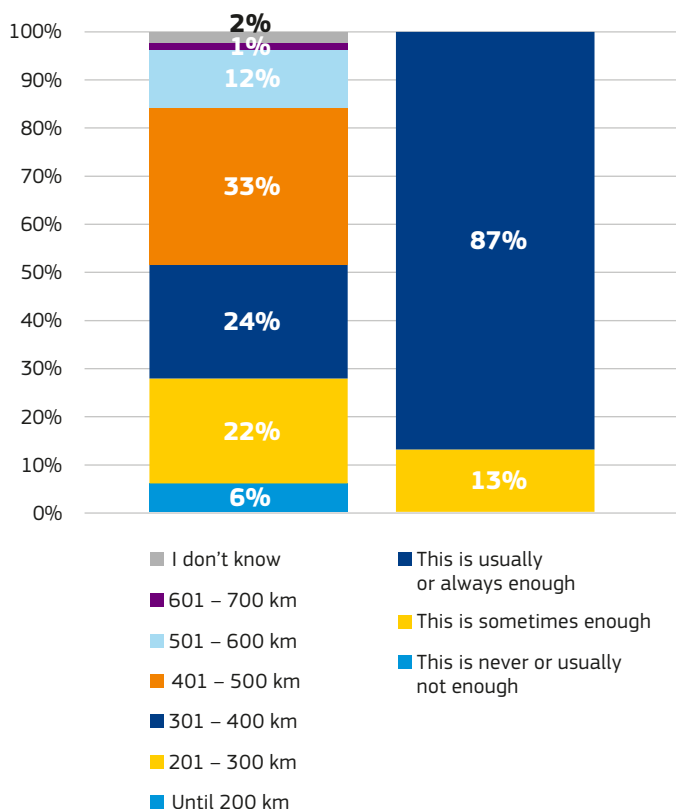
**Figure 6: German BEV drivers lease price for their battery electric vehicle**



## Factory range and range satisfaction of fully electric cars used by BEV drivers in Germany

Factory range refers to the km a new BEV can drive with the available vehicle battery after running a World Harmonised Light Vehicle Test Procedure (WLTP) test cycle. 46% of the **German BEV drivers** indicated a factory range of 200-400 km.

**Figure 7: Factory range and range satisfaction according to German BEV drivers**



It is noteworthy that a majority of German drivers who drive battery electric vehicles reported that the original range of their vehicles was sufficient when asked about it.

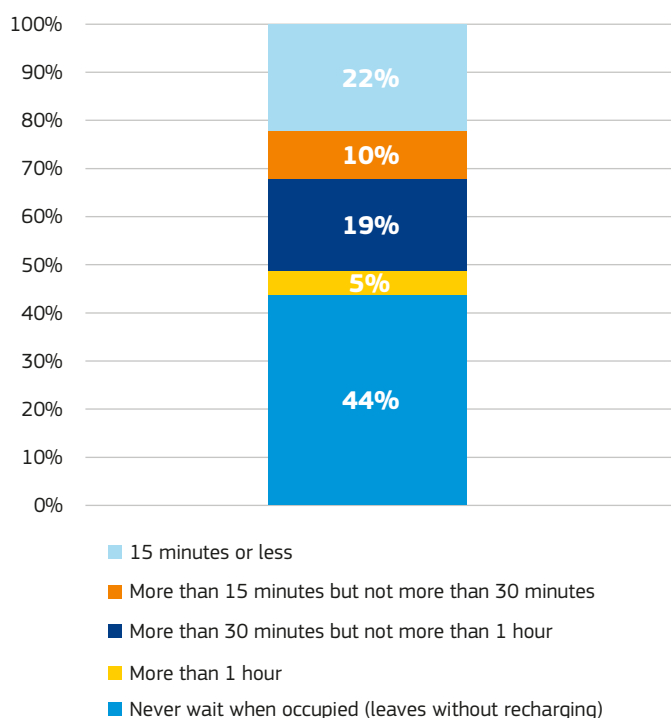
In addition, range satisfaction can be related to the km driven per day (100 km), and the main activity for which the BEV is used (leisure and other activities, e.g., doctor appointments).

## Recharging behaviour of battery electric drivers in Germany

### Recharging according to battery level and waiting time at public recharging points of German BEV drivers

**Surveyed BEV German drivers** were asked what the longest waiting time was to use a public recharging point. 44% never wait when this is occupied (they leave without recharging), while 22% waited for 15 minutes or less. Still, 29% waited between 15 minutes to 1 hour. Furthermore, 18% of respondents do not always take the battery level into account when recharging.

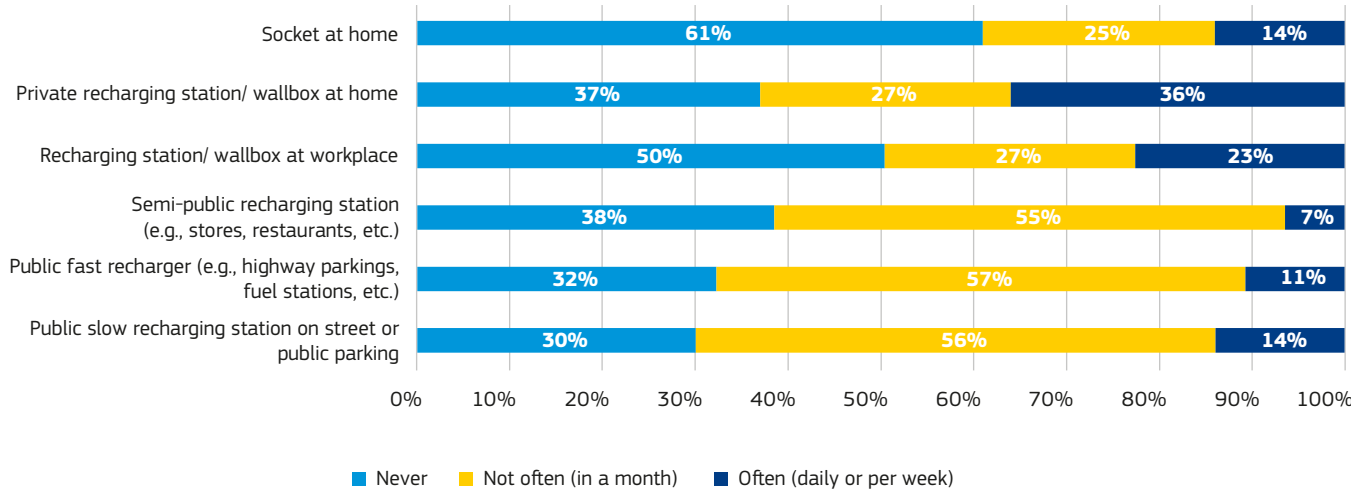
**Figure 8: German drivers waiting times when using a public recharging point**



## Recharging location and frequency of use by BEV German drivers

For **BEV German drivers**, a private recharging station or wallbox at home is the most frequently used location. Public slow recharging stations on the street or public parking and public fast recharging stations are not that often used (14% and 11% respectively).

**Figure 9: Recharging location and frequency used by German BEV drivers**



## Important characteristics of a public recharging session for BEV German drivers

**German BEV driver respondents** were asked to indicate the most important characteristics of a public recharging session. The recharging speed for a quick session was the most important. Next to this, characteristics related to payment options were considered relevant, with a subscription pass/app being chosen above the possibility to pay per kWh per session.

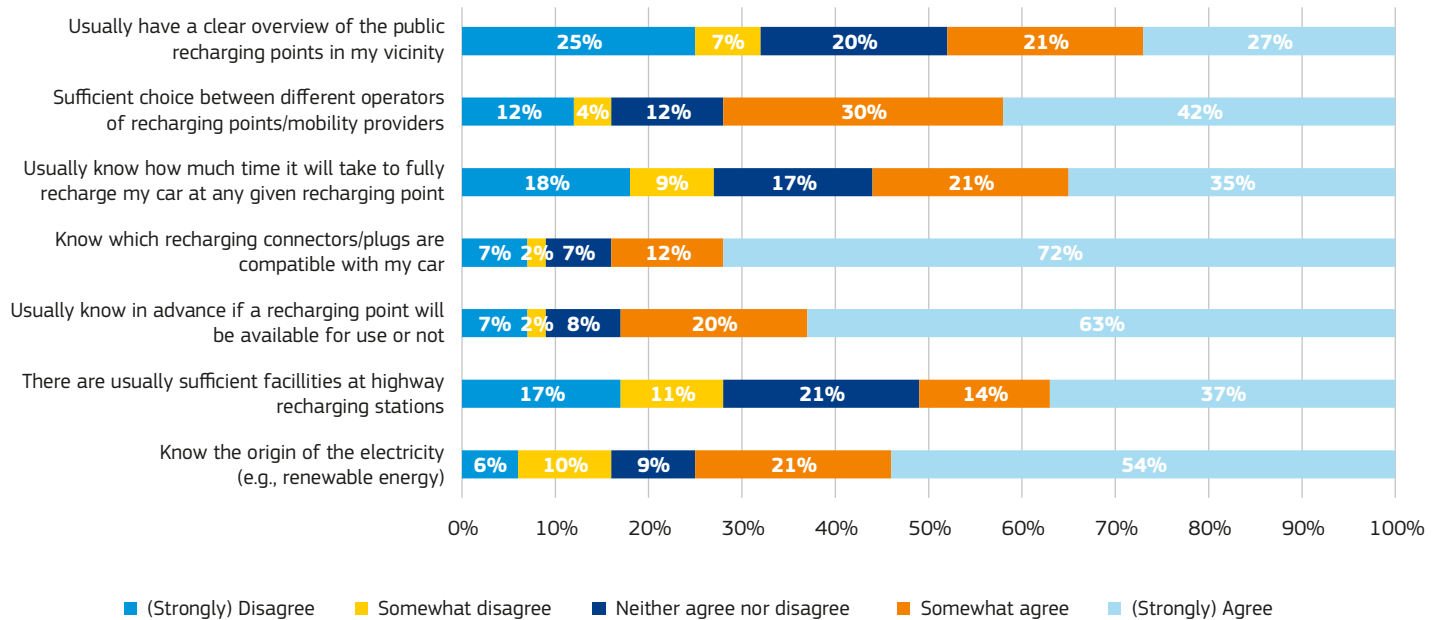
**Table 5: Important characteristics of a public recharging session**

<b>Recharging speed/power output of the recharging point, so I can get the quick-est possible recharge</b>	<b>1</b>
<b>Easy access and payment via my recharging subscription (pass/app)</b>	<b>2</b>
<b>Convenient on-the-spot payment options (i.e., debit/ credit card)</b>	<b>3</b>
<b>Possibility to pay per kWh only (instead of per minute or per session)</b>	<b>3</b>
<b>Possibility to do something else while your car recharges/amenities on site (food, coffee, toilets, etc)</b>	<b>4</b>
<b>Clear and transparent price information, so I know how much I will be charged for my recharging session</b>	<b>5</b>
<b>Short/no waiting time to access the recharging point, to avoid queuing</b>	<b>6</b>
<b>Integrated cable, so there is no need to get the cable out of the trunk</b>	<b>7</b>

## BEV German drivers' opinion and payment options at public recharging points

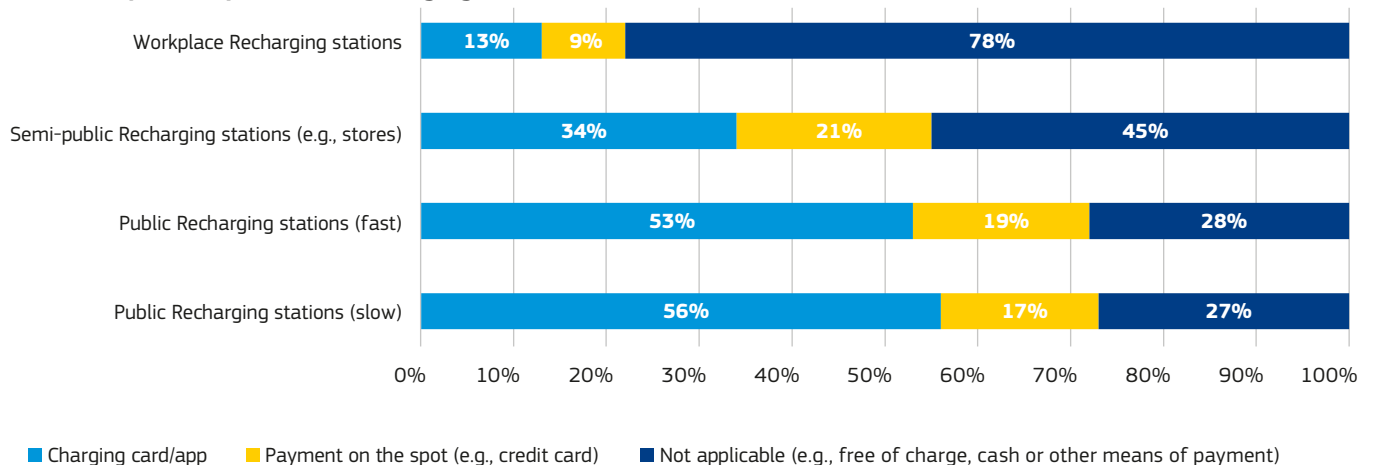
Most **German BEV drivers** know which recharging connector is compatible with their car, know in advance if a recharging point is available, and know the origin of the electricity at the public recharging point. On the other hand, they do not have a clear overview of the public recharging points in their vicinity, they do not agree that there are usually sufficient facilities at highway recharging stations, nor how long it will take to fully recharge their BEV. In this sense, information on the recharging network was also one of the support measures that potential German BEV drivers would welcome.

**Figure 10: Public recharging points opinions of German BEV drivers**



In the case of public recharging stations (both slow and fast), a charging card/app is the first option used. Workplace recharging stations mostly use other type of payments (e.g., free of charge, cash, etc.), while for semi-public recharging stations, both cards/apps and other means of payments are an option.

**Figure 11: Payment options at recharging stations**



## Main problems encountered by German BEV drivers when travelling abroad

Holidays or other trips beyond 500 km were also an important activity for 60% of the **German BEV drivers**. Nevertheless, when they were asked to rank the main problems they encountered when travelling abroad, the range limitations of their BEV only came in fifth place.

**Table 6: Problems encountered when travelling abroad**

<b>There are too few recharging stations along the way</b>	<b>1</b>
<b>I don't think I can recharge my car at my travel destination</b>	<b>2</b>
<b>I don't have enough information about where to recharge while on the road</b>	<b>3</b>
<b>Due to the slow and therefore long recharging times, I would lose too much time for recharging my car</b>	4
<b>Due to the limited range of my electric car, I would have to stop too often to recharge my car along the way</b>	5
<b>I find it overly burdensome to plan my trip in function of my recharging needs</b>	6
<b>I find it complicated or prohibitively expensive to pay for my recharging abroad (roaming issue)</b>	7

## 4.

## Comparative results Germany vs other EU countries

The number one BEV driving disadvantage identified in all cases is the purchase price of the cars. German drivers have the highest percentage of awareness of subsidies for electric driving. Moreover, the most important characteristic of a public recharging session in the ten EU countries surveyed is recharging speed, with a charging card or app being the most used payment option at public recharging points. Only 18% of German BEV drivers recharge their cars without considering the battery level, the lowest percentage among the ten countries surveyed.

**Table 7: Barriers and opportunities BEV driving (general population)**

Country	Main disadvantage	% BEV potential drivers	Not aware of subsidies for electric driving	Existing financial incentive (end 2022) <sup>10</sup>
Austria	BEVs are too expensive	48%	34%	VAT deduction and exemption from tax for BEVs. No CO <sub>2</sub> tax. Purchase subsidies.
Belgium		47%	54%	Limited or exemption from registration and ownership taxes at the regional level. Federal deduction of investments for companies. Limited or exemption on road taxes.
Denmark		56%	49%	Registration tax reductions. Company car tax deduction. Taxes on ownership are based on CO <sub>2</sub> emissions.
France		40%	35%	Registration tax exemption. BEVs, FCEVs (fuel cell electric vehicles), and PHEVs (Plug-in Hybrid Electric Vehicles -with a range of > 50km) are exempt from the mass-based malus. Purchase subsidies. Exemption from CO <sub>2</sub> -based tax components.
Germany		53%	33%	Motor vehicles tax exemption. Company car tax deduction. Tax exemption for charging at the workplace. Exemption from the annual circulation tax for CO <sub>2</sub> emission. Purchase subsidies.
Hungary		66%	44%	Tax-exempt from registration, ownership, company car tax and property transfer tax.
Italy		63%	45%	Ownership tax exemption for a period of five years after registration. Afterwards reduced rate (compared to petrol cars). Company car tax discount. Purchase subsidy.
Netherlands		49%	41%	No purchase & motor vehicle taxes. Minimum rate (16%) for company car tax. Purchase subsidy.
Slovenia		39%	47%	Purchase subsidy & long-term loans at subsidised rates. The minimum additional tax rate on acquisition.
Spain		67%	44%	Ownership tax reduction of 75% for BEVs in main cities. Purchase subsidies. BEVs are fully exempt from paying the car registration tax. Exemption from 'special tax' for CO <sub>2</sub> emissions.
EU 10 countries		53%	31%	Financial support through grants and loans.

<sup>10</sup> For more detailed overview, please refer to the "Incentives & legislation" page on the country report pages of [EAFO](#)

**Table 8: Mobility & ownership car BEV driver (merged datasets)**

Country	3 years to 5 years or longer as BEV driver	BEV drivers using vehicle daily / several times a week	Leased BEV (business or private)	BEV company car (if employee)	Privately owned BEV	New BEV	Second-hand BEV
Austria	42%	95%	29%	11%	60%	73%	27%
Belgium	11%	90%	17%	28%	55%	60%	40%
Denmark	15%	90%	3%	3%	94%	50%	50%
France	46%	99%	20%	3%	77%	77%	23%
Germany	20%	92%	26%	9%	65%	79%	21%
Hungary	47%	99%	16%	9%	75%	49%	51%
Italy	28%	91%	16%	13%	71%	87%	13%
Netherlands	28%	97%	21%	16%	63%	70%	30%
Slovenia	45%	93%	61%	8%	31%	60%	40%
Spain	63%	97%	4%	12%	84%	77%	23%
EU 10 countries	38%	97%	22%	8%	70%	67%	33%

**Table 9: Recharging behaviour BEV drivers (merged datasets)**

Country	Waiting time 15 min or less at recharging point	Never waits for recharging point (leaves without recharging)	BEV drivers recharging often without/ not always considering battery level	% time using slow public recharging point daily/ per week	% time using fast public recharging point daily/ per week	Most important characteristic public recharging session	Most used payment option at slow & fast public recharging point
Austria	32%	46%	32%	9%	5%	Recharging speed to get the quickest possible recharge	Charging card or app
Belgium	25%	41%	64%	24%	9%		
Denmark	21%	14%	34%	47%	28%		
France	21%	31%	38%	18%	9%		
Germany	22%	44%	18%	14%	10%		
Hungary	22%	37%	21%	11%	8%		
Italy	17%	30%	45%	53%	22%		
Netherlands	30%	32%	31%	29%	16%		
Slovenia	20%	36%	43%	35%	13%		
Spain	21%	42%	31%	28%	14%		
EU 10 countries	25%	37%	30%	21%	10%		



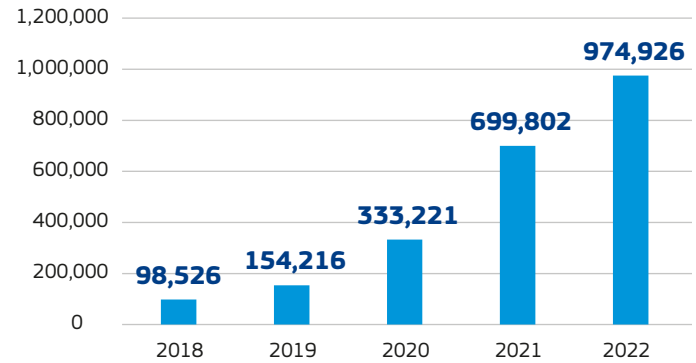
## 5. Germany in the European context

Germany has a population of 82,000,325 inhabitants<sup>11</sup>, with 78% of them living in urban areas. The German government has developed policies that promote climate-friendly, sustainable, and energy-efficient mobility<sup>12</sup>. Different actions are taken in this sense, including road transport electrification.

The German government has implemented different incentives, including tax benefits, VAT exemptions and subsidies to support the uptake of electric vehicles and recharging infrastructure (an overview of these can be found in [EAFO incentives & legislation, Germany](#)).

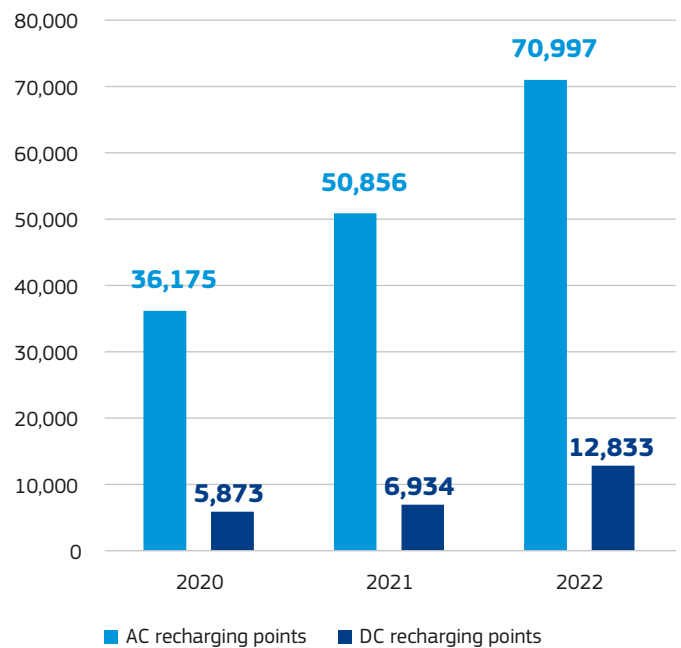
The EAFO portal shows that at the end of 2022, there were 974,926 battery electric vehicle cars in the country, with 464,292 of them registered that year. This means that 2.0% of the total passenger vehicles are now fully electric.

**Figure 12: Evolution of BEV cars in Germany (EAFO portal)**



Moreover, the public recharging infrastructure network has grown in the last couple of years. According to the EAFO portal, by the end of 2022, there were 70,997 (AC) slow public charging points, and 12,833 (DC) fast public ones<sup>13</sup>.

**Figure 13: Evolution of recharging points in Germany (EAFO portal)**



11 <https://alternative-fuels-observatory.ec.europa.eu/transport-mode/road/Germany>

12 [https://www.bmu.de/fileadmin/Daten\\_BMU/Pool/Broschueren/klimaschutzplan\\_2050\\_en\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Pool/Broschueren/klimaschutzplan_2050_en_bf.pdf)

13 The EAFO and the 2022 consumer monitor use the AFIR definition of recharging points. More information can be found at [Recharging systems | European Alternative Fuels Observatory \(europa.eu\)](#)

# Annex I: Consumer monitoring methodology & approach

For the 2022 launch of the EAFO consumer monitor survey, ten countries<sup>14</sup> were selected as the representative first scope to further promote the EAFO consumer monitor towards all EU-27 countries. Furthermore, the results of the ten countries surveyed are the basis for an EU aggregated report.

The survey was conducted using a panel on the general population of each of the selected countries. In parallel, the same survey was addressed to BEV drivers of each country via the EAFO partner AVERE. Both surveys were launched at the beginning of September 2022.

**For the panel, the aim was to reach 2,000 responses per country.**

The survey was open for 1 month. For the survey launched through AVERE, the threshold was to reach 100 respondents per country. To achieve this, the survey was closed at the beginning of December 2022.

The datasets were subjected to validation tests, including:

- Respondents should have completed the survey until the end and should have agreed to the terms and conditions of the survey.
- Respondents who filled out the survey in less than three minutes are excluded from the survey, as it was deemed impossible to fill out the survey thoroughly and in its entirety in under three minutes.
- Respondents who indicated unusually high values to open questions with continuous variables (kilometres driven in a day, kilometres driven in a year, purchase price of a BEV and purchase price of an Internal Combustion Engine Vehicle -ICEV) were excluded from the results.
- Respondents who indicated not owning a driver's licence were excluded.
- Respondents who came up with nonsensical patterns of answers to open questions were excluded.

The validation of the datasets was finalised in mid-October. For the AVERE dataset, the validation was carried out in early January 2023. A total of 1,648 responses were considered valid for the general population. Out of these, there were 1,591 non-BEV and 57 BEV drivers (3.5% of the total responses). For the AVERE data set, there were 37 valid responses from BEV drivers. The total number of BEV German drivers surveyed from both datasets is 94.

To compare and later weigh the results per education level, the respondent's answers were standardised and converted to the International Standard Classification of Education (ISCED) notation<sup>14</sup>. Moreover, respondents were considered BEV drivers when their first, second or third car is a BEV. The results of the survey were weighted according to education levels, age group and gender of the population, respective to each country. The survey weights were computed using the post-stratification and conditional variance estimation techniques. The resulting weights were trimmed between 0.3 and 3. The weighting process allows to make claims about the target population, instead of the survey sample alone. Because of the weighting process, all results are presented as a percentage of the total.

To improve the relevance of the analysis of the BEV drivers alone, the survey conducted on BEV drivers (from AVERE) was combined with the survey conducted on the general population. As previously mentioned, the total BEV responses after combining both data sets are 94. As a result of the choice to combine the datasets, the proportion of BEV drivers in the analysis is not representative of the population proportion. However, claims can be made about the BEV-driving population.

<sup>14</sup> [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International\\_Standard\\_Classification\\_of\\_Education\\_\(ISCED\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=International_Standard_Classification_of_Education_(ISCED))

\* The ten countries surveyed were: Austria, Belgium, Denmark, France, Germany, Hungary, Italy, Netherlands, Slovenia, and Spain

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