Consumer Monitor 2023

EUROPEAN ALTERNATIVE FUELS OBSERVATORY

COUNTRY REPORT THE NETHERLANDS

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1. The 2023 Dutch EAFO consumer monitor: key findings & conclusions

The European Green Deal aims for a 90% reduction of greenhouse gas emissions for transport. Different policies are in place to achieve this goal, including standards on CO_2 vehicle emissions, public procurement rules, or the recently adopted Alternative Fuels Infrastructure Regulation (AFIR)[1, 2, 3]. Nevertheless, in 2019, the transport sector was responsible for around one-quarter of the EU's total CO_2 emissions, 60.6% of which were emitted by passenger cars. The passenger car is still the main transport mode and has continued to increase its share since the year 2000[4]. Replacing existing fleets with zero-emission vehicles is one of the key measures identified for this purpose. Important efforts have been made to promote electric cars, and therefore, identifying the main hurdles and needs of (potential) battery electric drivers can support the design and implementation of tailored strategies, policies and solutions to stimulate the demand for this type of vehicle.

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: battery costs have dropped by 90%, vehicle range has increased from 100-150 km up to 400+ km, and the recharging infrastructure network is expanding. Nevertheless, BEVs represent only 1.68% of the total passenger cars fleet in the EU, and the recharging infrastructure coverage is still limited in some countries and urban areas[5,6].

This report highlights the main findings of the 2023 EAFO Consumer Monitor survey and presents the results for the Netherlands. Taking these barriers and developments into account, the key findings of the 2023 EAFO consumer monitor are:

- One-third of the surveyed Dutch drivers are interested in BEVs, 30% are (very) familiar with these. 25% of these drivers are considering buying a BEV in a time frame of 0-5 years. The most important BEV advantage is

[1] https://eur-lex.europa.eu/resource.html?uri=cellar:5e601657-3b06-11eb-b27b-01aa75ed71a1.0001.02/DOC_1&format=PDF
[2] https://eur-lex.europa.eu/eli/dir/2019/1161/oj
[3] https://eur-lex.europa.eu/eli/reg/2023/1804/oj
[4] https://www.europarl.europa.eu/topics/en/article/20190313STO31218/co2-emissions-from-cars-facts-and-figures-infographics
[5] 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.
[6] https://alternative-fuels-observatory.ec.europa.eu/

that they are considered better for the climate (no tailpipe CO2 emissions).

- For Dutch drivers, the BEVs' cost is by far the main disadvantage of driving electric cars. The BEVs' price is also the number on challenge in the twelve surveyed countries. The Dutch participants are willing to pay 18,000 € (median value) for a BEV (used or new), whereas for 34% the purchase price paid was between 20,000 € and 39,999 €, 52% paid 40,000 € or more, and 3% did not know or did not want to indicate the purchase price.
- BEVs' range is also considered a limitation, even though it is not as important as its price. A minimum desired range between 300 km to 500 km was the choice of 38% of all Dutch drivers surveyed. 500 km and more would be the preference of 43%. On the other hand, 5% of the Dutch BEV drivers indicated a factory range until 200 km, 49% between 201 km and 400 km, 45% of 401 km or more, and 1% did not know the range of their vehicle. For 85% of the Dutch BEV drivers the factory range of their vehicle was usually or always enough.
- 94% of Dutch BEV drivers use their vehicles daily or several times a week. Their BEV is mostly new (76%) and privately owned (66%).
- Limited recharging public slow and private options are also considered a disadvantage. To a lesser extent, survey respondents indicated that having too few fast recharging points can also be a problem.
- 42% of the Dutch BEV drivers know what vehicle-to-grid (V2G) is and 75% are interested in buying a V2G-capable vehicle.

The EAFO Consumer Monitor 2023 results also provide further insights concerning the three main barriers identified and the measures that could support non-BEV and BEV drivers:

1. Non-BEV drivers are typically characterised as a 55+-year-old female, living in an attached house, with a middle income (2,000-3,999 €) and secondary education level. Dutch BEV drivers are represented by a 55+-year-old male, living in a detached house, with a high income (2,000-5,999 €) and a high education level.
2. 52% of the surveyed non-BEV Dutch drivers would consider buying a BEV in the short, medium, or long term. In contrast, 19% do not know if they would buy a BEV and 29% would not buy such a vehicle.
3. When both non-BEV and BEV Dutch drivers were asked about different governmental incentives to support electric driving, the exemption of road taxes was the incentive with the highest perceived impact.

4. For all surveyed Dutch drivers, the most relevant information to have a clear opinion about electric driving is the cost comparison with fossil fuel cars. Information about batteries and/or driving range was also considered important.

5. The second-hand and leasing options at an affordable price need to be further considered. 24% of the Dutch BEV drivers bought a second-hand BEV, while 18% responded that they lease a car (privately or for business purposes), for which 59% pay less than 500 € per month.

6. When comparing factory range to BEV range satisfaction, 81% of the BEV driver respondents whose vehicle has a factory range between 201 and 300 km indicated that this was usually or always enough. This was also the case for 82% of the respondents whose vehicle has a factory range between 301 and 400 km.

7. Dutch BEV drivers responded that the most used location to recharge is a recharging station or wallbox at home (used 54% of the time daily or several times a week). On a daily or weekly basis, public slow and fast recharging points are less often used (20% and 8% respectively).

8. For Dutch BEV drivers, important characteristics of a public recharging session are easy access and payment via a recharging subscription, short or no waiting time to access a recharging point, and a fully operational recharging station. Not having an integrated cable and the possibility to do something else while recharging were considered less important.

9. When surveyed BEV drivers were asked about the longest waiting time at a public recharging point, 32% never wait when this is occupied (they leave without recharging), while 38% waited for 15 minutes or less. Still, 27% waited between 15 minutes to 1 hour, and 3% waited for 1 hour or more.

10. Most Dutch BEV drivers know which recharging connector or plug is compatible with their car, know how much time it will take to fully recharge their vehicle and have a clear overview of the recharging points in their vicinity.

11. For Dutch BEV drivers, the main problems when travelling abroad are not having enough information about where to recharge while on the road and few recharging stations along the way. On the other hand, 54% found their experience when recharging abroad easy or very easy.

12. The most important criteria to eventually buy a V2G compatible BEV are being able to use the battery to power their home (e.g., for heating, appliances, etc.) and having a similar purchase price to their

current BEV. Solar panels are the most common Renewable Energy Device (RED) among BEV drivers.

The European Alternative Fuels Observatory (EAFO) supports the adoption of alternative fuels in EU transport. It provides key information for the development of relevant strategies and 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 policymakers and consumers, addressing a wide range of stakeholders including different government levels, vehicle manufacturers, other e-mobility industry companies, and automobile organisations, etc.

As part of the EAFO consumer section[7], and for the second year in a row, a survey was launched in October 2023 in twelve EU countries[8,9] 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. The EAFO Consumer Monitor focuses on electric road transport in particular passenger vehicles. It supports policymakers and other key stakeholders by identifying trends, needs and opportunities in the transition towards zero-emission mobility. Detailed information on the survey methodology is available in Annex I.

The EAFO Consumer Monitor survey was performed as follows:

- An online survey was conducted by a closed panel to have a representation of the general population including non-BEV and BEV drivers[10].
- To improve the relevance of the analysis of the BEV drivers alone, an identical online survey was openly disseminated through the EAFO partner AVERE and other external contributors, including FIA members ANWB in the Netherlands and Touring Belgium, the Ministries of Transport from Luxembourg and Lithuania, and the Swedish Energy Agency.

The total number of valid responses in the Netherlands is 2,221 respondents, of which 1,897 were filled out by non-BEV drivers and 324 by BEV drivers.

[7] https://alternative-fuels-observatory.ec.europa.eu/consumer-portal

[8] The twelve countries surveyed were: Belgium, Denmark, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Slovenia, Spain, and Sweden.

[9] The results for BEV drivers in Lithuania, Luxembourg and Spain are not representative due to the small sample size (29, 38, and 37 BEV drivers respectively). Nevertheless, these are included to indicate trends in BEV driving, mobility behaviour and the recharging infrastructure.

[10] For this report, non-BEV drivers are identified as those driving a vehicle having an internal combustion engine (diesel, petrol, CNG or LPG, hybrid or plug-in hybrid car). BEV drivers refer to those driving a vehicle with no internal combustion engine and with the battery of the electric motor being recharged by the means.

Following Section 1 on key findings and conclusions, Section 2 presents the surveyed Dutch participants' attitude, interest, and the information that could support BEV (potential) drivers. Section 3 focuses only on BEV drivers providing an insight into the Dutch BEV drivers' e-mobility and recharging behaviour. Section 4 provides an overview of the results using key indicators for the twelve countries surveyed and the EU aggregated results. Finally, section 5 includes a summary of the 2023 situation in the Netherlands in terms of passenger BEVs and recharging infrastructure based on the most recent data from EAFO.

2. Consumer monitoring results: general population views on driving full-electric vehicles

This section presents the results of the merged datasets of the surveyed Dutch non-BEV and BEV drivers: 2,221 valid responses from BEV (324) and non-BEV drivers (1,897). It focuses on their attitude, interests and policy measures that could support them to further drive BEV cars.

2.1. Socio-demographics

Based on the survey results, the Dutch BEV driver is represented by a 55+-year-old male, living in a detached house, with a high income and a high education level. The main differences when compared to Dutch non-BEV drivers' representation are the percentage of female drivers, the age group, the household income and education level, and the housing type.

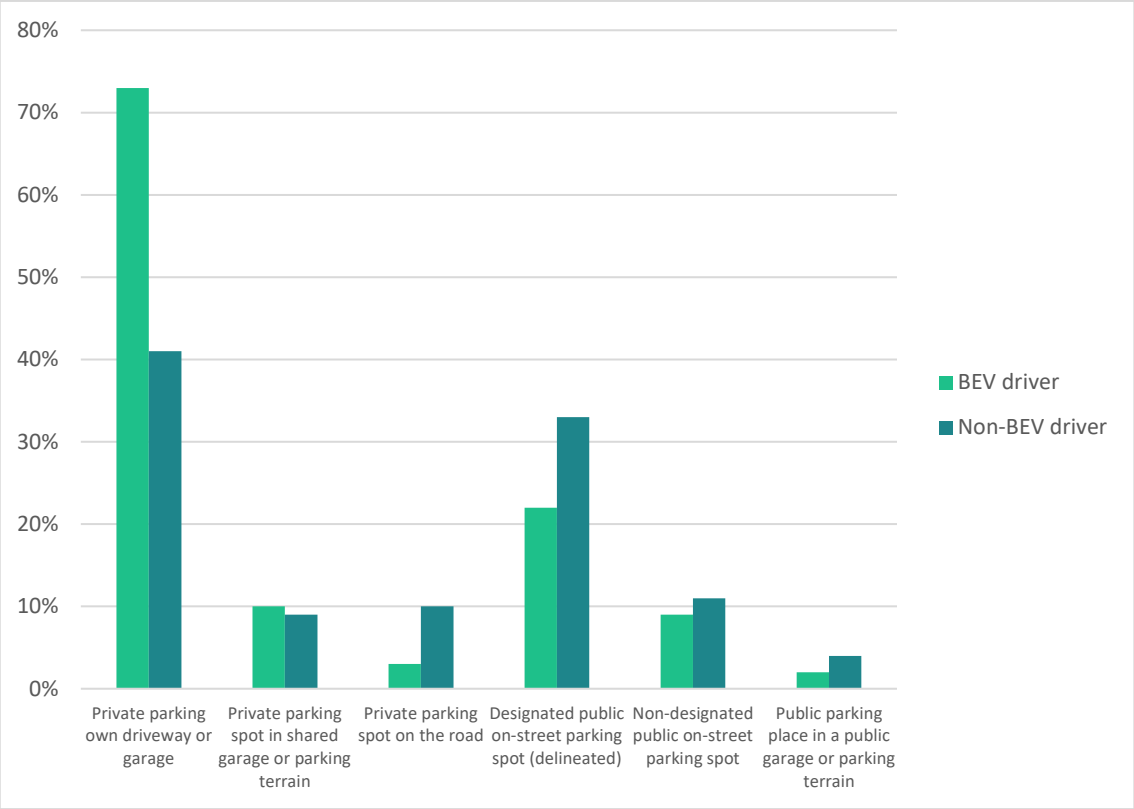
Table 1 – Socio-demographic results from the survey.

		BEV Driver	Non-BEV driver
Gender	Female	21%	54%
	Male	79%	46%
Age	-35	8%	19%
	35-55	30%	33%
	55+	62%	48%
Income	< 800 €	1%	4%
	800-1,999 €	4%	22%
	2,000-3,999 €	34%	44%
	4,000-5,999 €	33%	24%
	≥ 6,000 €	28%	6%
Education	None		
	Primary education	2%	9%
	Secondary education	26%	51%
	University or other higher education (e.g., college, polytechnic, academy, etc.)	72%	39%
Housing	Apartment/studio	14%	25%
	Attached house	22%	42%
	Semi-detached house	21%	17%
	Detached house	39%	14%
	Others	4%	2%

Source: EAFO Consumer Monitor and Survey 2023.

Although most BEV drivers surveyed live in a detached house, 14% live in an apartment or studio. Both Dutch BEV and non-BEV drivers indicated that they can park at a private parking on their driveway or garage.

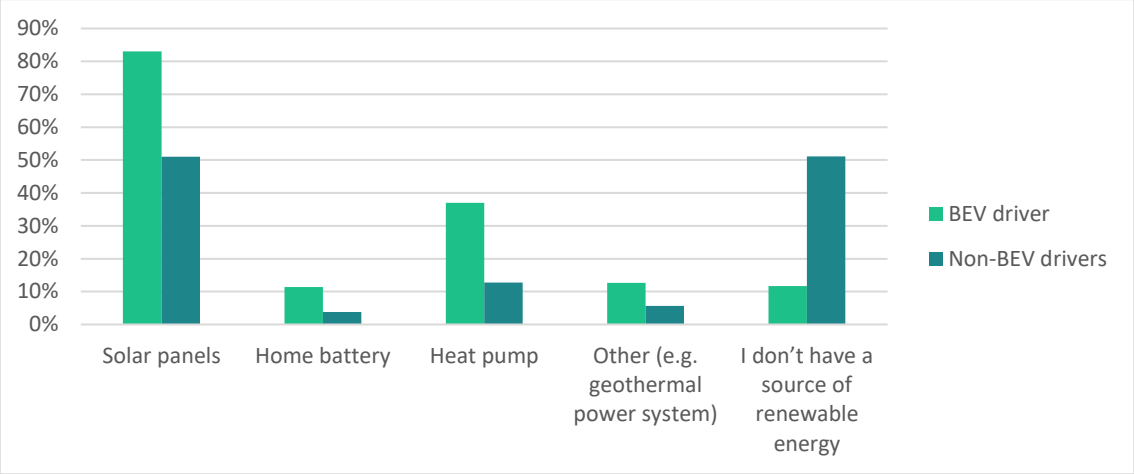
1. Dutch drivers identified parking options (multiple answers were possible).



Source: EAFO Consumer Monitor and Survey 2023.

There are also differences between Dutch surveyed participants when it comes to Renewable Energy Devices (RED), as more BEV drivers reported having a source of renewable energy.

2. Figure: Dutch drivers' Renewable Energy Devices (RED) possession (multiple answers were possible).



Source: EAFO Consumer Monitor and Survey 2023.

2.2. Attitude and motivation towards battery electric vehicles

One-third (30%) of the respondents in the Netherlands specified that they are (very) familiar with or interested in battery electric driving. The main advantage of BEVs is that these are considered better for the climate (no tailpipe CO2 emissions).

2. Table: Opinion and views on battery electric vehicles.

	Results
(Very) familiar with BEV driving (non-BEV drivers)	30%
Interest in BEVs (non-BEV drivers)	30%
Top three advantages BEVs (all surveyed drivers)	Better for the climate (no tailpipe CO_2 emissions), better for human health (no tailpipe pollutant emissions), driving characteristics (quiet, comfortable, fast, etc.)

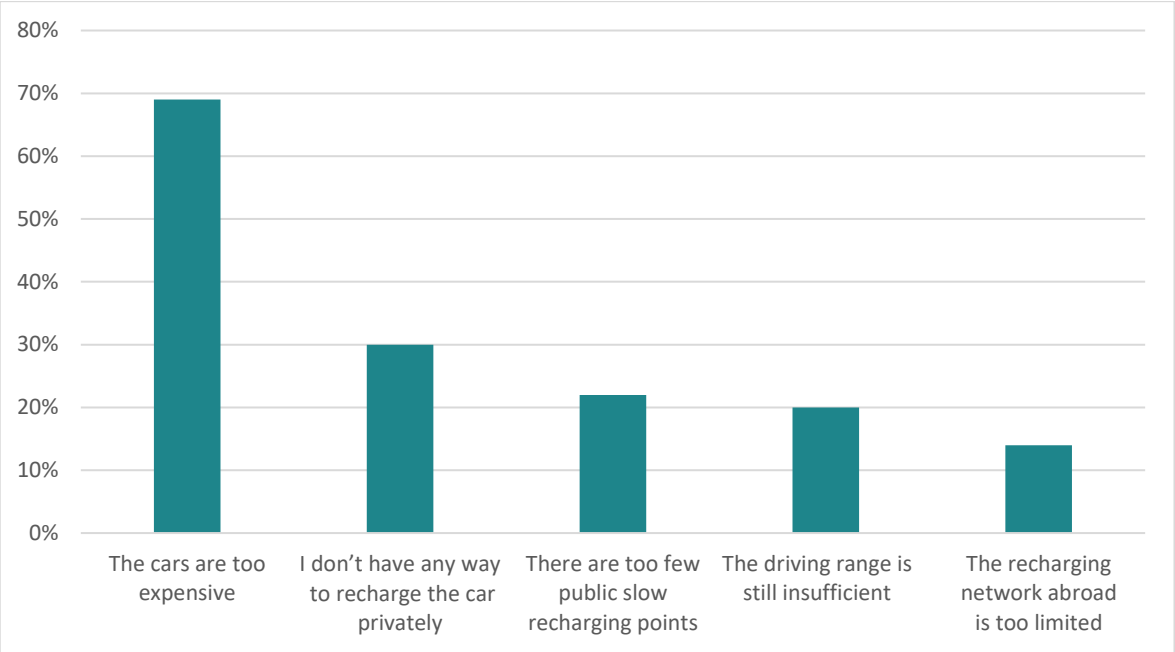
Source: EAFO Consumer Monitor and Survey 2023.

2.3. Main barriers and opportunities to adopt battery electric vehicles

Dutch surveyed participants were asked to choose the most relevant disadvantages of driving battery-electric vehicles. As previously reported, these include the price of BEVs, limited recharging options (either private or public),

and BEVs' range. Dutch participants also indicated that the limited recharging network abroad is a problem.

3. Figure: Dutch drivers' top 5 identified disadvantages of battery electric vehicles (multiple answers possible).

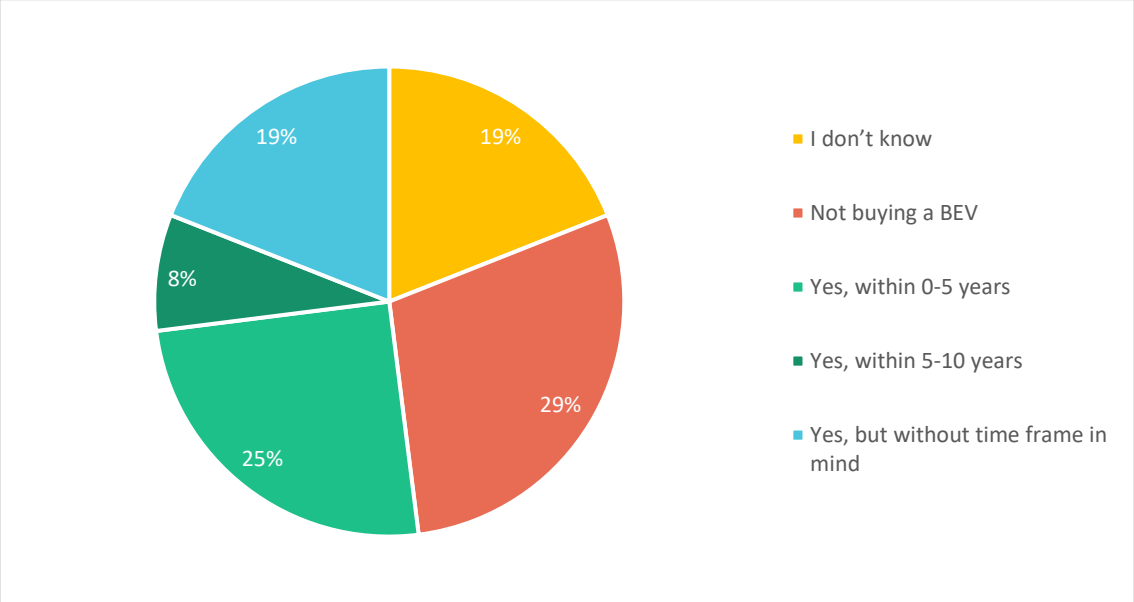


Source: EAFO Consumer Monitor and Survey 2023.

2.4. Time frame to buy a battery electric vehicle

29% of the Dutch non-BEV driver respondents do not consider buying a battery electric vehicle. 25% expect to do so in a time frame of 0-5 years.

4. Figure: Dutch non-BEV drivers' time frame to buy a battery electric vehicle.



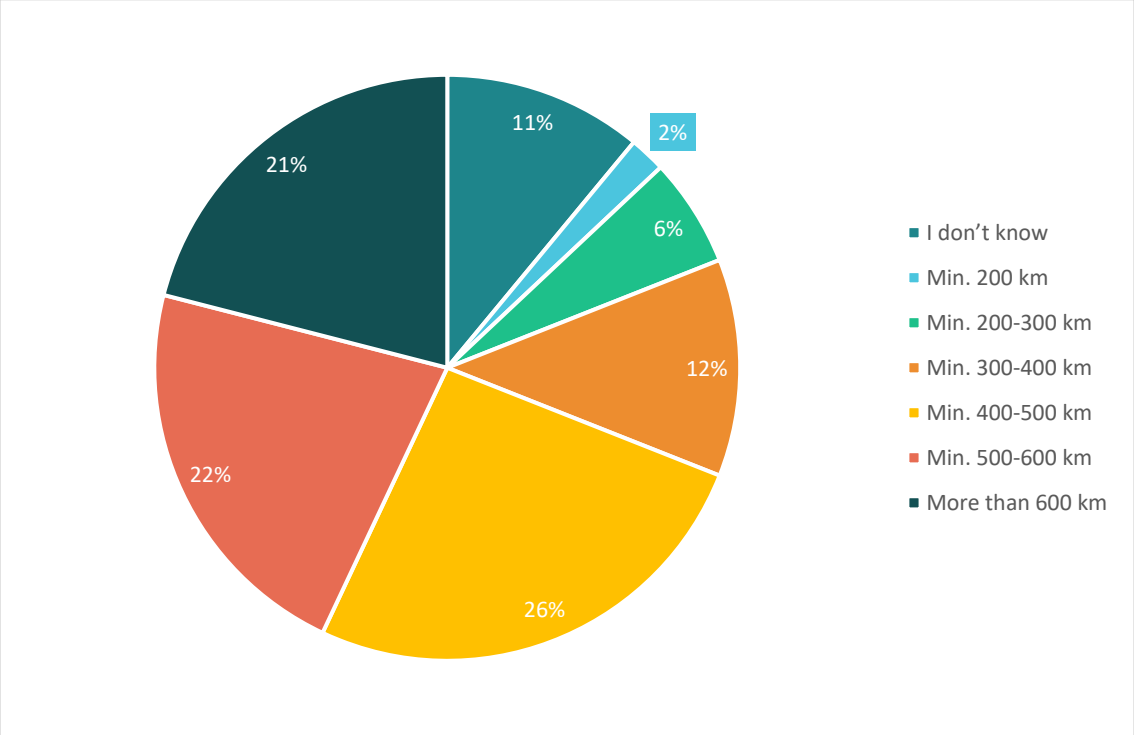
Source: EAFO Consumer Monitor and Survey 2023.

2.5. Willingness to pay and desired range of a battery electric vehicle

The median price that all Dutch respondents are willing to pay for a new or used Internal Combustion Engine Vehicle (ICEV) is 10,000 € while for a new or used BEV is 18,000 €.

In the EAFO consumer monitor survey, desired range was described as the number of kilometres that can be driven with a full battery without recharging. A minimum desired range between 300 km to 500 km was the choice of 38% of all Dutch drivers surveyed.

5. Figure: Dutch drivers' desired driving range of a battery electric vehicle.



Source: EAFO Consumer Monitor and Survey 2023.

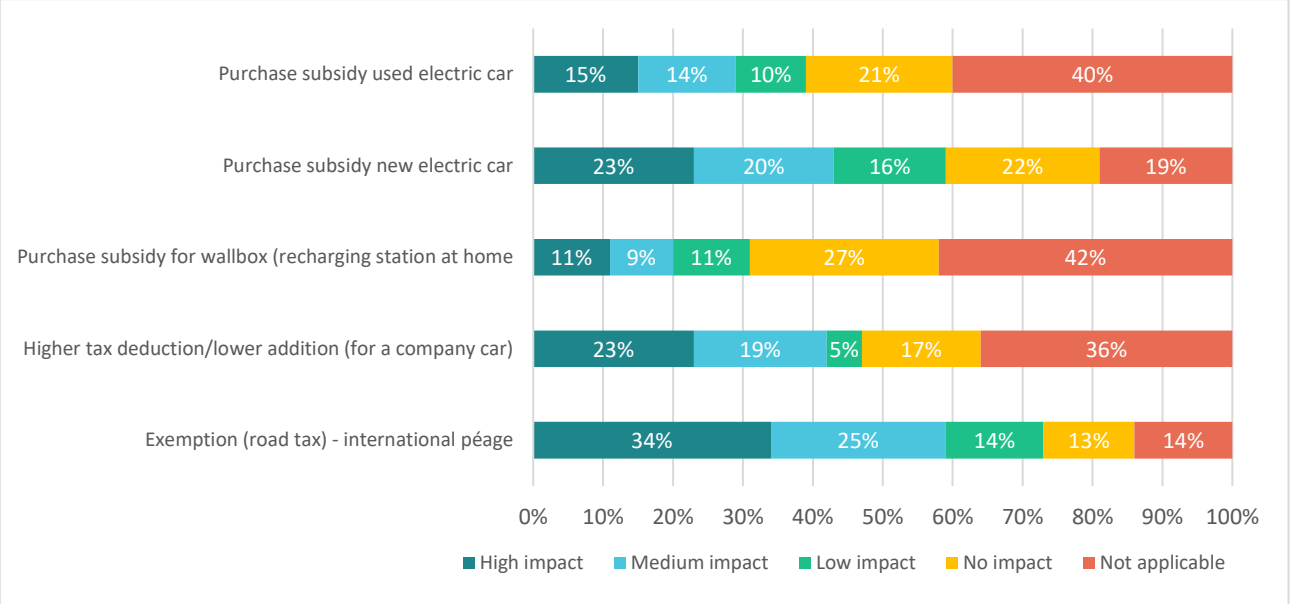
The current BEV market consists of a considerable amount and variety of models (115 individual models, and 286 model variations) with a range between 300 and +600 km (models' variance in March 2024 according to the EAFO). On the other hand, there are only thirteen BEV models available with a purchase price between 20,000 € to 35,000 € (representing 5% of the total BEV models in the market). These have an average range of 217 km (min 135 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).

2.6. Support and governmental incentives to drive a battery electric vehicle

Dutch drivers were asked about what they would value the most to have a clearer opinion about electric driving. Cost comparison with fossil fuel cars and more information about batteries and/or driving range were the most relevant support measures.

In addition, they also indicated the impact of different governmental incentives on the decision to drive an electric vehicle. Road tax exemption is the incentive with the highest perceived impact.

6. Figure: Perceived impact of governmental incentives on Dutch drivers' decision to drive a full-battery electric vehicle.



Source: EAFO Consumer Monitor and Survey 2023.

The Dutch government offers purchase subsidies for new and used EVs, with 2,950 € allocated for new electric cars and 2,000 € for used ones. These subsidies are subject to an annual cap, and as of January 10th, 2023, applications are open for vehicles contracted on or after January 1st, 2023. In a separate question, 19% of the surveyed Dutch mentioned that they are not aware of any subsidies for electric driving.

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

This section focuses on BEV Dutch drivers (324 valid responses). The results of the EAFO 2023 survey give an insight into the mobility behaviour of the Dutch BEV drivers. Results on recharging behaviour are also presented.

3.1. Mobility behaviour and vehicle ownership

94% of the Dutch BEV drivers surveyed use their vehicle several times a week or daily. Most BEVs (when it is the main household vehicle) are new privately owned cars.

3. Mobility behaviour and vehicle ownership.

	Results
< 1 year to 3 years as BEV driver	49%
3 years to 5 years or longer as BEV driver	50%
Time frame BEV driver unknown	1%
km driven per year (median)	15,000
km driven per day (median)	76
BEV drivers using their vehicle daily to several times a week	94%
Main activity when driving their BEV	For leisure activities (e.g. visiting family and friends, attending cultural activities, day trips)
BEV ownership (BEV as main car)	
Leased BEV (business)	4%
Leased BEV (private)	14%
BEV company car (if employee)	16%
Privately owned BEV	66%
New vs. second-hand BEVs (BEV as main car)	
New BEV	76%

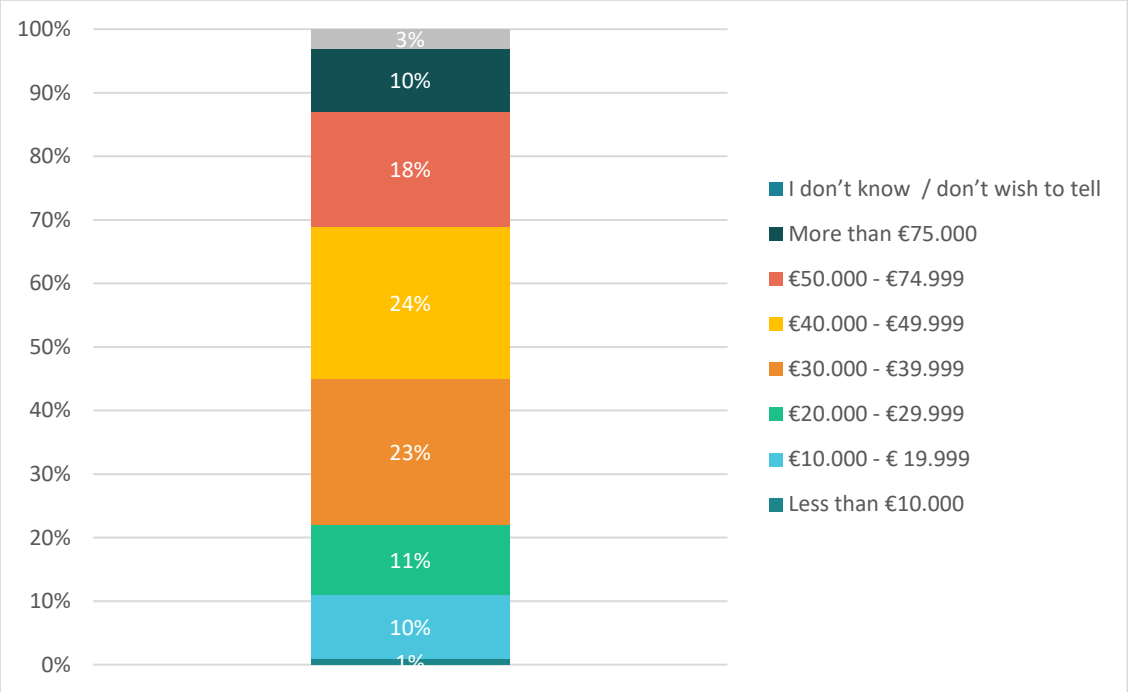
	Results
Second-hand BEV	24%

Source: EAFO Consumer Monitor and Survey 2023.

3.2. Purchase and lease price paid by BEV drivers

Surveyed BEV Dutch drivers indicated the purchase price paid when their BEV is the main vehicle, for 34% this was between 20,000 € and 39,999 €. 1% paid less than 10,000 €, 10% paid between 10,000 € and 19,999 €, 52% paid 40,000 € or more, and 3% did not know or did not want to indicate the purchase price.

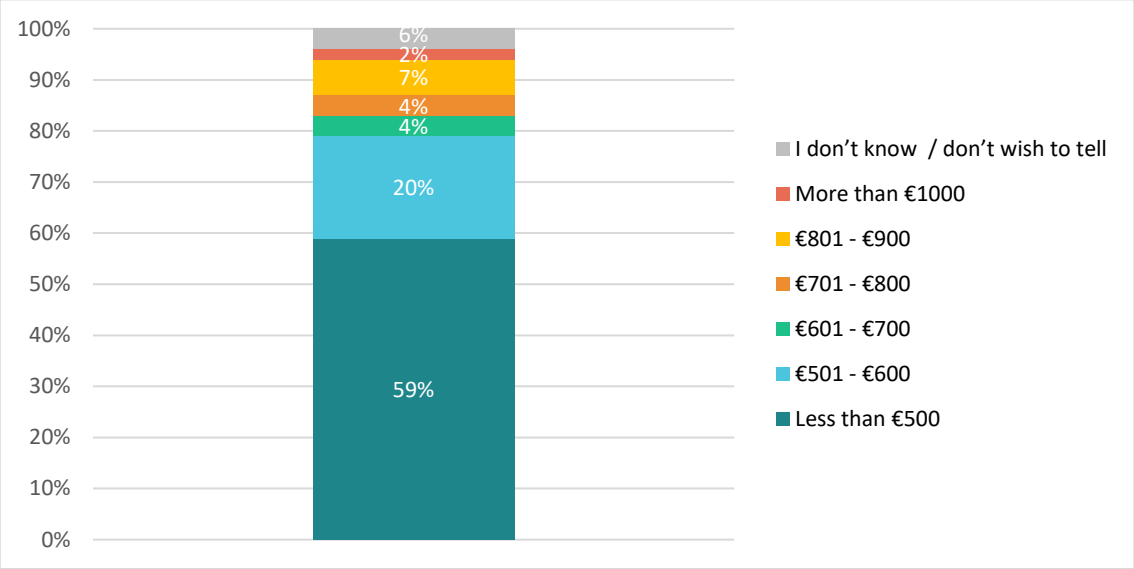
7. Figure: Dutch BEV drivers' purchase price for their battery electric vehicle.



Source: EAFO Consumer Monitor and Survey 2023.

On the other hand, 18% of the Dutch BEV driver participants responded that their first car was leased (privately or for business purposes). 59% pay less than 500 € per month, while 42% pay more than 501 €.

8. Figure: Dutch BEV drivers' lease price for their battery electric vehicle.

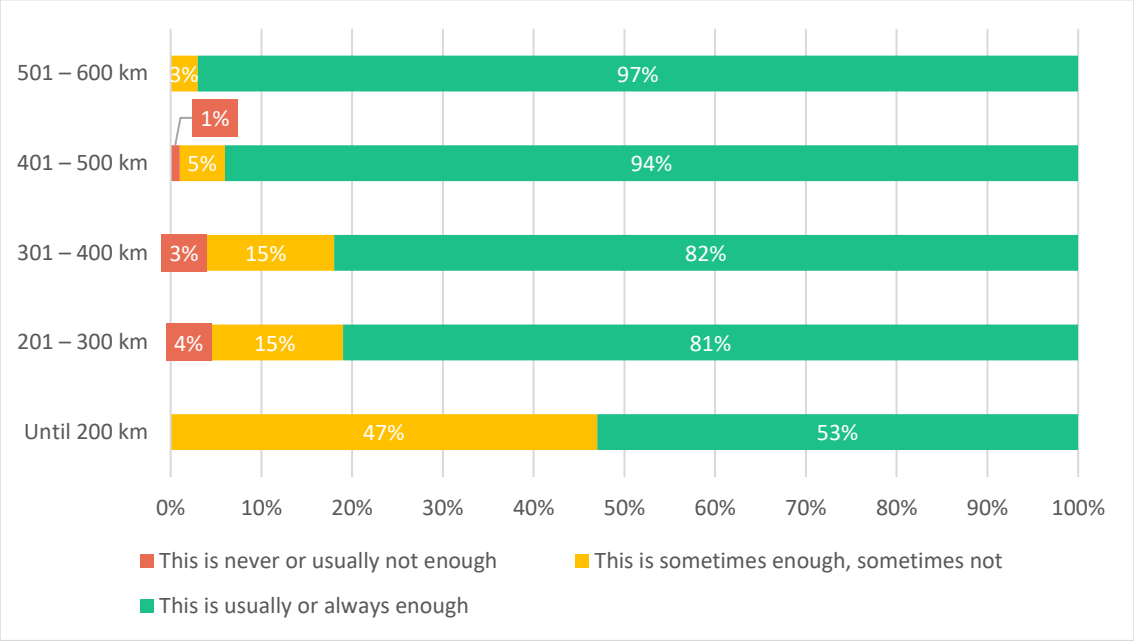


Source: EAFO Consumer Monitor and Survey 2023.

3.3. Factory range and range satisfaction of full-electric cars used by BEV drivers

Factory range refers to the kilometres a new BEV can drive with the available vehicle battery after running a World Harmonised Light Vehicle Test Procedure (WLTP) test cycle. 5% of the Dutch BEV drivers indicated a factory range until 200 km, 49% between 201 km and 400 km, 45% of 401 km or more, and 1% did not know the range of their vehicle. The factory range of the first car was usually or always enough for 85% of the surveyed Dutch BEV drivers. When comparing factory range to BEV range satisfaction, 81% of the BEV driver respondents stated that a factory range between 201 and 300 km was usually or always enough. This was also the case for 82% of the BEV drivers of a car with a factory range between 301 and 400 km.

9. Figure: Factory range and range satisfaction according to Dutch BEV drivers.

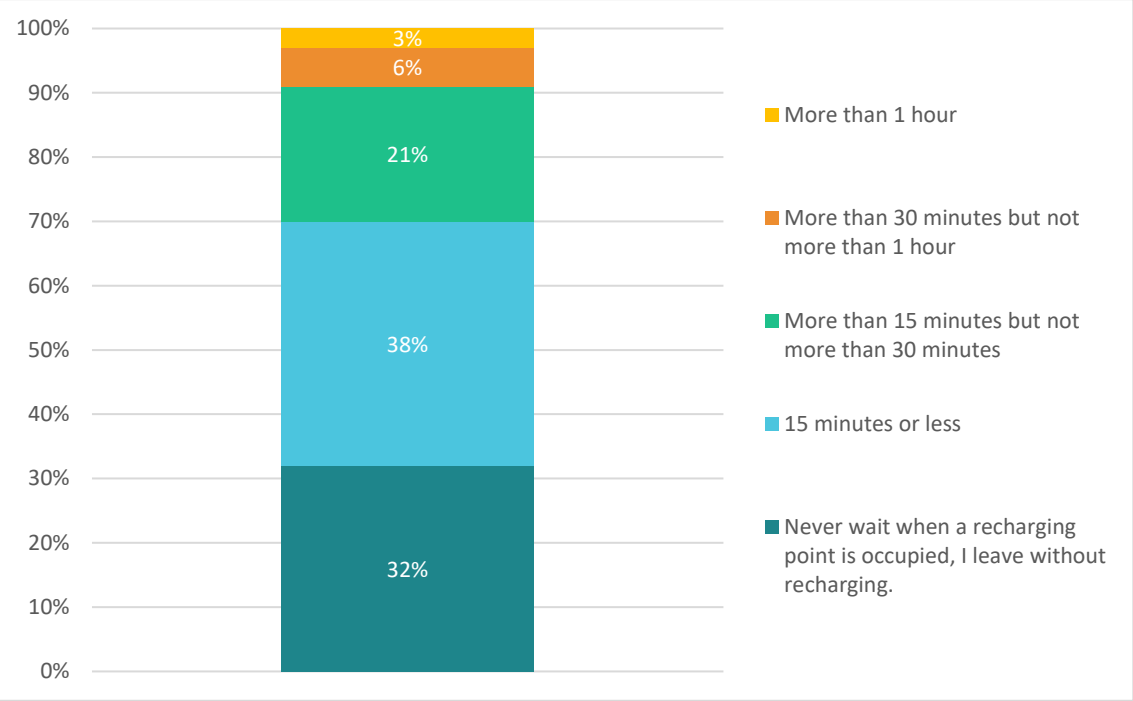


Source: EAFO Consumer Monitor and Survey 2023.

3.4. BEV drivers recharging according to battery level and waiting time at public recharging points

Surveyed BEV Dutch drivers were asked what the longest waiting time was to use a public recharging point. 32% never wait when this is occupied (they leave without recharging), while 38% waited for 15 minutes or less. Still, 27% waited between 15 minutes to 1 hour. Furthermore, 54% responded that they recharge their BEV when the battery level reaches a certain threshold.

10. Figure: Dutch BEV drivers' waiting times when using a public recharging point.

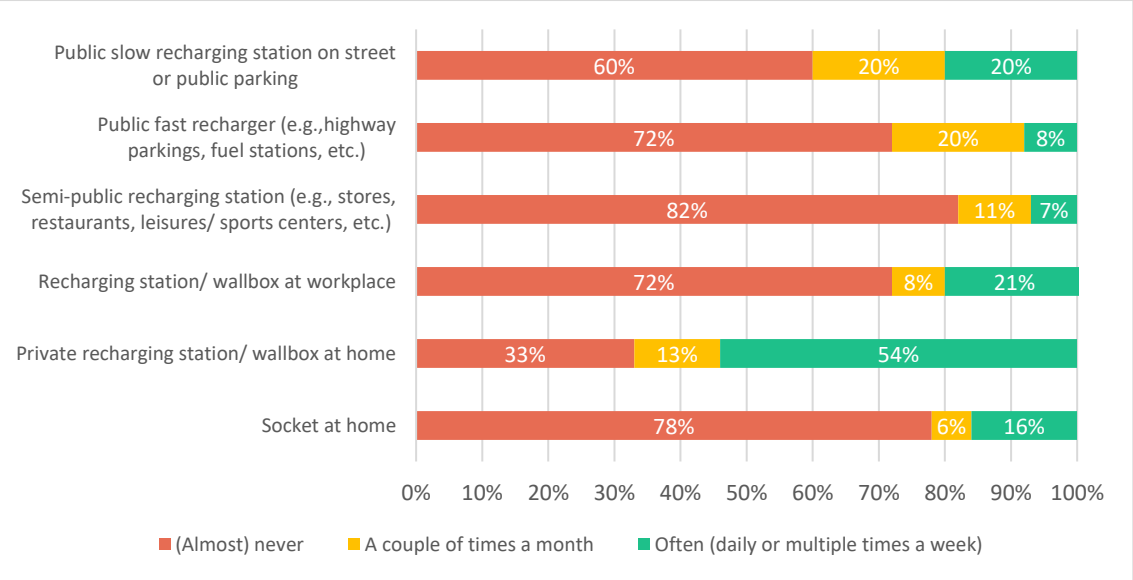


Source: EAFO Consumer Monitor and Survey 2023.

3.5. Recharging location and frequency of use by BEV drivers

For BEV Dutch drivers a private recharging station or wallbox at home is the most frequently used location (54%). Public slow recharging stations on the street or public parking and public fast recharging stations are not that often used (20% and 8% respectively).

11. Figure: Recharging location and frequency use by Dutch BEV drivers.

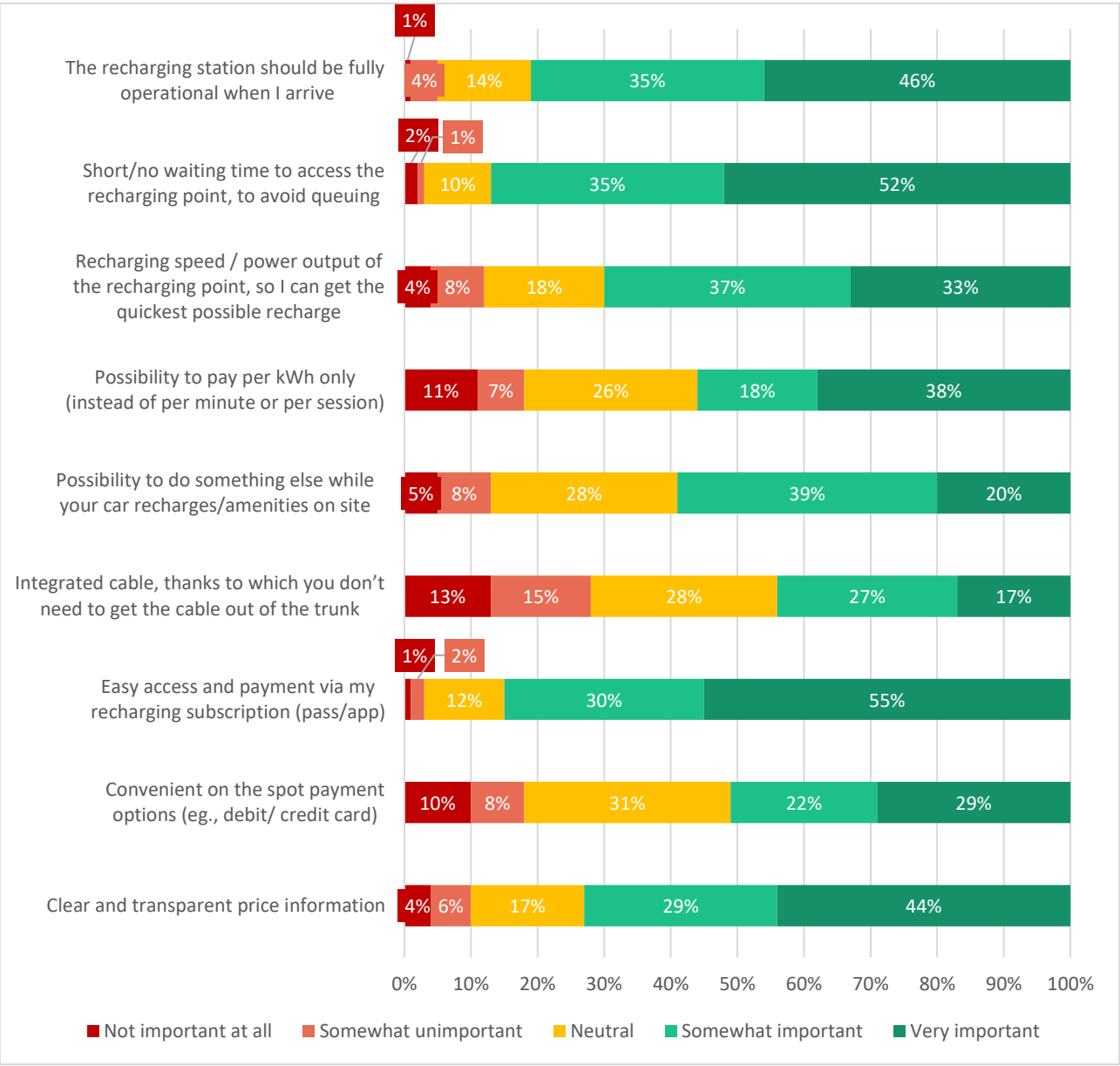


Source: EAFO Consumer Monitor and Survey 2023.

3.6. Important characteristics of a public recharging session for BEV drivers

Dutch BEV driver respondents were asked to indicate the most important characteristics of a public recharging session. Short or no waiting time to access a recharging point, easy access and payment via a recharging subscription, and a fully operational recharging station when arriving were considered the most important ones. Not having an integrated cable and the possibility to do something else while recharging were considered less important.

12. Figure: Important characteristics for Dutch BEV drivers of a public recharging session.



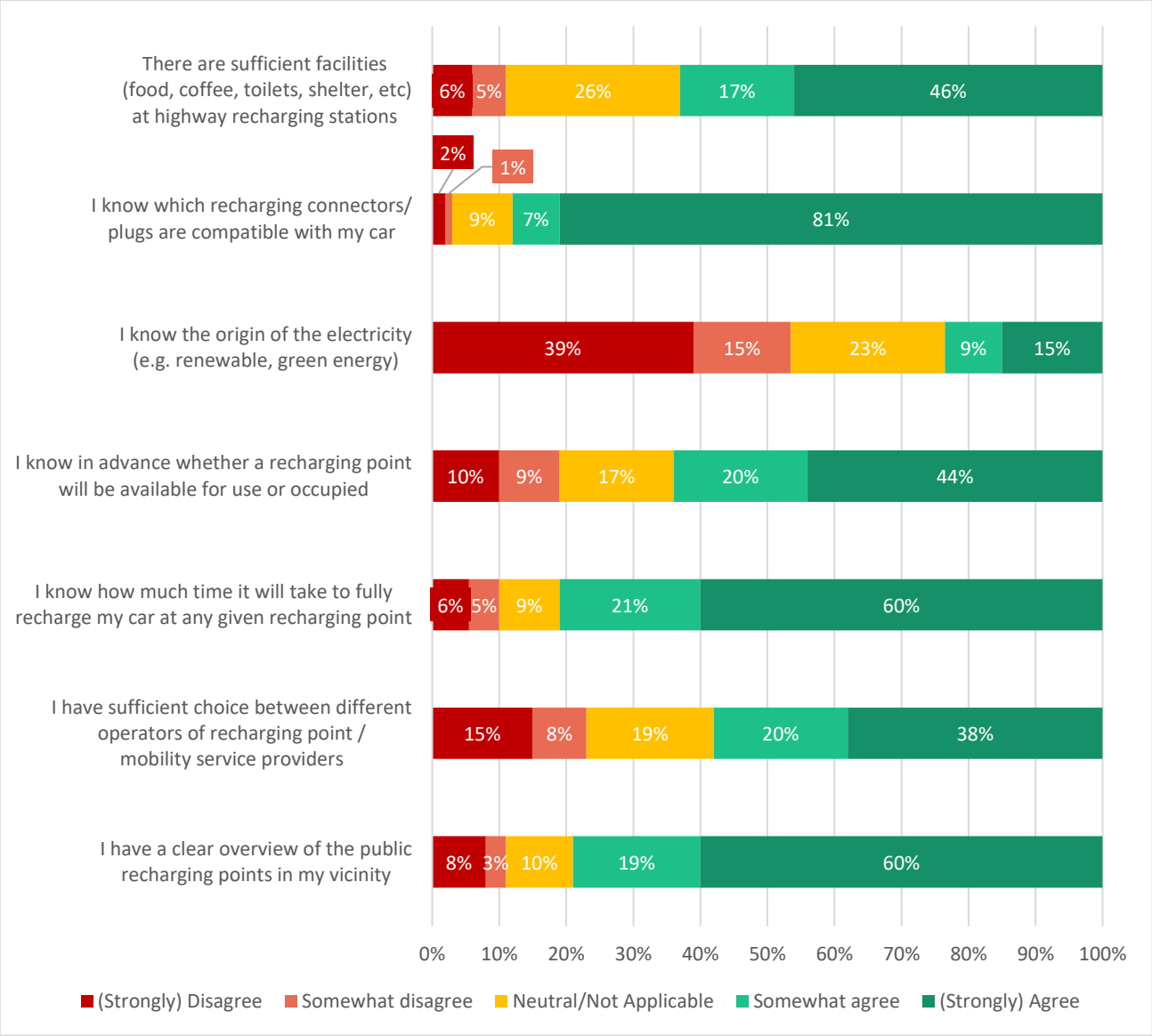
Source: EAFO Consumer Monitor and Survey 2023.

3.7. BEV drivers' opinion and payment options at public recharging points

Most BEV drivers know which recharging connector or plug is compatible with their car. More importantly, they know how much time it will take to fully recharge their vehicle and have a clear overview of the recharging points in their vicinity. On the other hand, they do not always know the origin of the electricity at public recharging points, and they also indicated that they do not

have a sufficient choice between different recharging point operators or mobility service providers.

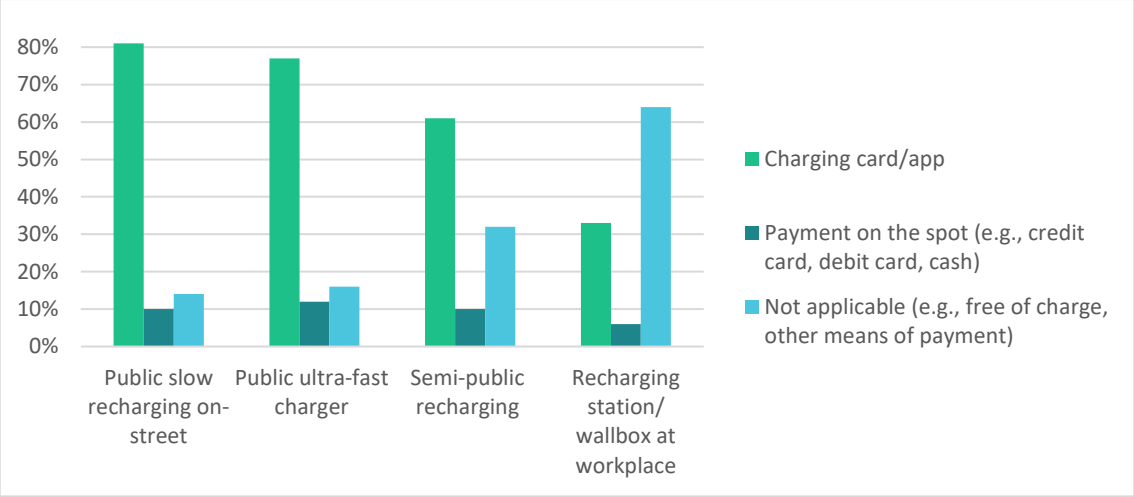
13. Figure: Public recharging points opinions of Dutch BEV drivers.



Source: EAFO Consumer Monitor and Survey 2023.

In all public and semi-public recharging stations, a charging card or app is the most used payment option.

14. Figure: Payment options used at recharging station by Dutch BEV drivers.

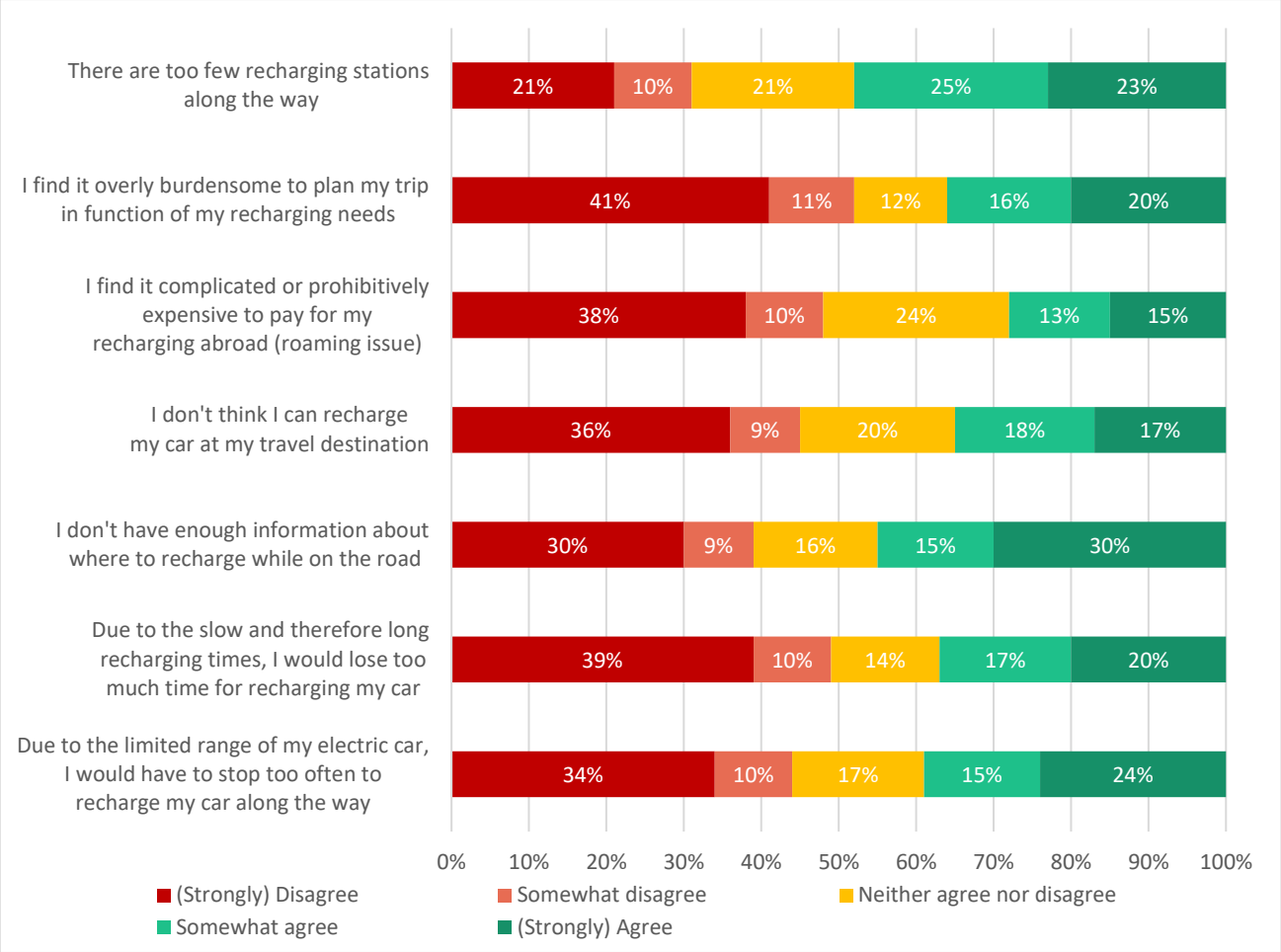


Source: EAFO Consumer Monitor and Survey 2023.

3.8. Main problems encountered by BEV drivers when travelling abroad

51% of the Dutch BEV drivers responded that they have travelled multiple times abroad with their BEV. 15% have travelled once, and 34% have never used their BEV to travel abroad. When they were asked to indicate the main problems encountered when travelling abroad, not having enough information about where to recharge while on the road and few recharging stations along the way were the main issues identified.

15. Figure: Dutch BEV drivers' opinions regarding travelling abroad with a BEV.



Source: EAFO Consumer Monitor and Survey 2023.

Nevertheless, when looking at their recharging experience when travelling abroad, 54% specified that it was (very) easy, while 17% considered it as (very) difficult.

4. Table: BEV drivers experience when recharging abroad.

	Results
Very easy	22%
Easy	32%
Not easy, but not difficult either	22%
Difficult	13%
Very difficult	4%
Not applicable (did not recharge my car abroad)	7%

Source: EAFO Consumer Monitor and Survey 2023.

3.9. Future trends: BEV drivers' awareness and interest in vehicle-to-grid capable vehicles

Vehicle-to-grid (V2G) refers to the interaction between Electric Vehicles and the power grid. The basic idea of V2G is to use EV batteries as intermediate storage facilities for providing services to the electric power system when BEV14s are parked. For example, giving energy back to the grid when the car is not in use. Dutch BEV drivers were asked if they were aware of this technology. 38% of the Dutch BEV drivers had never heard of it, while 42% indicated being aware and having knowledge about this.

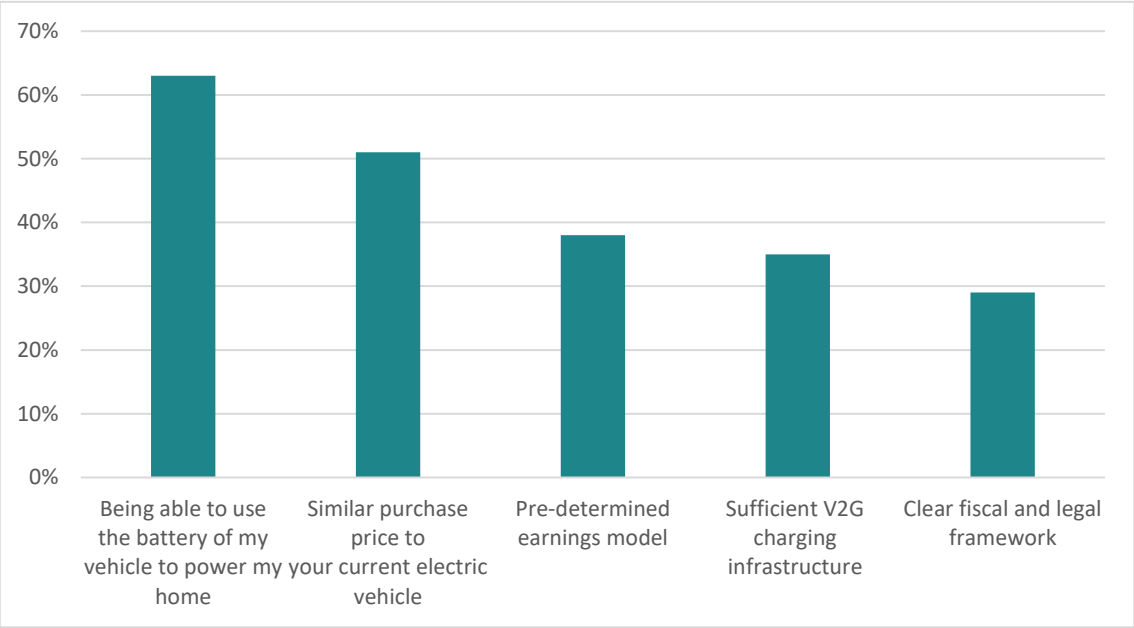
5. Table: BEV drivers V2G awareness

	Results
No, never heard of it	38%
Yes, heard of it, but know nothing/just a little bit about it	20%
Yes, heard of it and know quite a bit/a lot about it	42%

Source: EAFO Consumer Monitor and Survey 2023.

Moreover, 75% of Dutch BEV drivers stated that they are interested in buying a vehicle car with the V2G functionality. The most important criteria to eventually buy such a vehicle are being able to use the battery of the V2G capable BEV to power their home (e.g., for heating, appliances, etc.), and having a similar purchase price to their current BEV car.

16. Figure: Dutch BEV drivers' willingness to buy a V2G-capable BEV (multiple answers were possible).



Source: EAFO Consumer Monitor and Survey 2023.

4. Surveyed countries and EU aggregated results & incentives overview[11]

The number one BEV driving disadvantage identified in all cases is the purchase price of the vehicle.

Dutch non-BEV and BEV drivers were the only ones in the surveyed countries who identified a road tax exemption as the main government incentive to buy a BEV. The proportion of BEVs as company cars is the second highest in the Netherlands. In terms of recharging infrastructure, 38% of the Dutch BEV drivers indicated they are only willing to wait a maximum of 15 minutes or less when using a recharging point, the second highest percentage among the surveyed BEV drivers.

[11] The results for BEV drivers in Lithuania, Luxembourg and Spain are not representative due to the small sample size (29, 38, and 37 BEV drivers respectively). Nevertheless, these are included to indicate trends in BEV driving, mobility behaviour and the recharging infrastructure.

6. Table: Barriers and opportunities BEV driving

Country	Main disadvantage	% BEV potential drivers (time frame considering buying a BEV)	High impact government incentive to drive BEV	Existing financial incentive (end 2023) 9
Belgium	BEVs are too expensive	44%	Subsidy buying a new EV	Flanders to offer 5,000 € EV grants in 2024 (no subsidies in 2023), reduced annually till 2027. Zero-emission vehicles get tax exemptions, with BEVs 100% company tax deductible till 2026. BIK (benefit-in-kind) rates are CO_2-based, and Brussels offers LEZ replacement subsidies for commercial vehicles and plans to ban diesel by 2030.
Denmark		62%		Denmark offers no direct purchase subsidies for EVs but provides significant tax incentives (more than 10k € in contrast to ICE cars). BEVs enjoy a full exemption from registration taxes, and PHEVs benefit from reduced rates. The country supports public and private EV recharging infrastructure through financial subsidies, tax exemptions, and mandatory installation regulations in new buildings.
France		46%		France offers up to 7,000 € ecological bonus for EVs and 6,000 € for trade-ins, with tax benefits like 50% registration fee exemption for EVs and BIK (benefit-in-kind) reductions for company EVs until December 2024.
Germany		55%		Germany ended its EV subsidies in December 2023, with manufacturer discounts until Mar 2024. Tax benefits for EV company cars continue, and EVs remain exempt from the annual circulation tax until 2025. The focus has shifted to vehicles with proven climate benefits, with a 130 € billion investments in sustainable mobility.
Hungary		67%		Hungary offers a 79 € million subsidies for company BEVs from February 2024 (no subsidy in 2023), with grants up to 10,500 € based on vehicle price and battery capacity. Green plate vehicles enjoy numerous tax exemptions including registration, vehicle, and transfer taxes. Additional benefits include corporate tax credits for energy efficiency, deductible costs for electric charging stations, and free municipal parking for green plate vehicles.
Italy		65%		Current incentives go up to a maximum of 5,000 € with respect to emission class and if you scrap an old polluting car. New incentives (from mid-2024) will go up to a maximum of 13,750 € with respect to income (<30k €) and for BEVs: however, incentives are active, even if lower, for other emission classes, including ICE. Benefits include a five-year tax exemption, reduced VAT for people with disabilities, and incentives for charging installation. Lombardy provides regional subsidies, enhancing support for a cleaner vehicle transition.
Lithuania		*55%*	*Subsidy buying a used EV*	In 2024, Lithuania offers up to 4,000 € for new BEVs, 2,500 € for used EVs, and tax incentives, since the 1st of January 2023, VAT deductions apply on EV purchases up to 50,000 €.

Country	Main disadvantage	% BEV potential drivers (time frame considering buying a BEV)	High impact government incentive to drive BEV	Existing financial incentive (end 2023) 9
Luxembourg		*51%*	*Subsidy buying a new EV*	Purchase subsidy of 8,000 € for new BEVs and FCEVs (Fuel Cell Electric Vehicle) with less than 7 seats and under 18 kWh/100 km consumption; 3,000 € if above this threshold. Up to 1,000 € for electric motorcycles and quadricycles, covering up to 50% of the cost, extended until March 2024. The government halved administrative tax for BEVs, and applied CO_2-based tax incentives, aiming for 49% new EVs by 2030.
Netherlands		52%	Road tax exemptions	Dutch EV incentives include purchase subsidies (2,950 € new, 2,000 € used), and tax emptions until 2024 on BPM (Belasting van personenauto's en motorrijwielen or tax on private motor vehicle and motorcycle charged once for each car registered) and MRB (Motorrijtuigenbelasting, a vehicle tax based on fuel, emissions and weight, paid monthly or quarterly from the date of car registration on the name of the owner). Entrepreneurs enjoy additional tax benefits, although the MIA/Vamil scheme is being phased out. Energy tax for recharging stations is reduced, indirectly lowering costs.
Slovenia		43%	Subsidy buying a new EV	Slovenia offers up to 6,500 € subsidy for new EVs under 35,000 € retail price, for individuals, and various subsidies for legal entities on new EVs up to 65,000 € retail price. Zero benefit-in-kind for company cars, VAT deductions on EV purchases up to 80,000 €, and subsidized Eco Fund loans promote EV adoption.
Spain		*70%*		Spain's MOVES programs offer significant EV subsidies, with up to 7,000 € for new BEVs under conditions like vehicle scrappage. MOVES III extends till July 2024 with a 400-800 € million budgets. Incentives include major tax reductions, VAT exemptions, and enhanced recharging point installation aids, promoting broader EV adoption across the nation. These benefits are complemented by local exemptions from road taxes and special privileges like toll and parking exemptions for electric vehicles.
Sweden		62%		No purchase subsidies for personal EVs post-November 2022, but a new 'climate premium' for light electric trucks from February 2024 (30% of cost difference, capped at 4,300 €. Ongoing support includes minimal road tax (SEK 360 or 31 €), tax benefits for electric company cars, and funding for electric vehicle supply equipment projects.
EU 12 countries		57%		Financial support through grants and loans.

7. Table: BEV cars' ownership model & new/second-hand market

Ownership model & new/used BEV	Belgium	Denmark	France	Germany	Hungary	Italy	Luxembourg	Lithuania	Netherlands	Slovenia	Spain	Sweden	EU-12 countries
Leased BEV (business)	7%	0%	2%	5%	13%	4%	*0%*	*0%*	4%	1%	*0%*	6%	4%
Leased BEV (private)	5%	4%	31%	22%	6%	10%	*16%*	*7%*	14%	15%	*14%*	25%	16%
BEV company car (if employee)	39%	1%	5%	12%	11%	2%	*6%*	*7%*	16%	13%	*3%*	16%	11%
Privately owned BEV	49%	95%	62%	61%	70%	84%	*78%*	*86%*	66%	71%	*83%*	53%	69%
New BEV	79%	73%	77%	86%	51%	89%	*84%*	*26%*	76%	75%	*92%*	67%	74%
Second-hand BEV	21%	27%	23%	14%	49%	11%	*16%*	*74%*	24%	25%	*8%*	33%	26%

8. Table: Recharging behaviour of BEV drivers

Country	Waiting time 15 min or less	BEV drivers recharging 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 recharging points	Most used payment option fast public recharging points
Belgium	31%	46%	23%	16%	Short or no waiting time to access a recharging point	Charging card or app	Charging card or app
Denmark	26%	47%	42%	32%	Fully operational recharging station at arrival		Payment on the spot
France	42%	44%	15%	8%	Clear and transparent price information		Charging card or app
Germany	26%	64%	12%	7%	Fully operational recharging station at arrival		
Hungary	28%	67%	9%	6%	Fully operational recharging station at arrival		
Italy	15%	51%	33%	18%	Fully operational recharging station at arrival		
Lithuania	*10%*	*45%*	*17%*	*10%*	*Fully operational recharging station at arrival*		
Luxembourg	*24%*	*42%*	*11%*	*8%*	*Fully operational recharging station at arrival*		

Country	Waiting time 15 min or less	BEV drivers recharging 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 recharging points	Most used payment option fast public recharging points
Netherlands	38%	54%	20%	8%	Short or no waiting time to access a recharging point		
Slovenia	31%	52%	11%	5%	Fully operational recharging station at arrival		
Spain	*16%*	*70%*	*57%*	*46%*	*Short or no waiting time to access a recharging point*		
Sweden	40%	38%	15%	9%	Fully operational recharging station at arrival		
EU 12 countries	32%	51%	18%	10%	Fully operational recharging station at arrival		

5. BEVs and recharging infrastructure in The Netherlands

The Dutch 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, Netherlands).

In the Netherlands, electric vehicle (EV) owners enjoy a range of tax incentives aimed at promoting cleaner transportation. Private individuals benefit from exemptions on the 'Bijzondere Verbruiksbelasting van Personenauto's' (BPM) which is a tax based on CO2 emissions, making EVs exempt until at least 2024. Additionally, 'Motorrijtuigenbelasting' (MRB), also known as road tax, is not applicable to fully electric vehicles during this period. For those considering private leasing, these exemptions can make EVs financially attractive. Moreover, the government offers purchase subsidies for new and used EVs, with 2,950 € allocated for new electric cars and 2,000 € for used ones. These subsidies are subject to an annual cap, and as of January 10th, 2023, applications are open for vehicles contracted on or after January 1st, 2023.

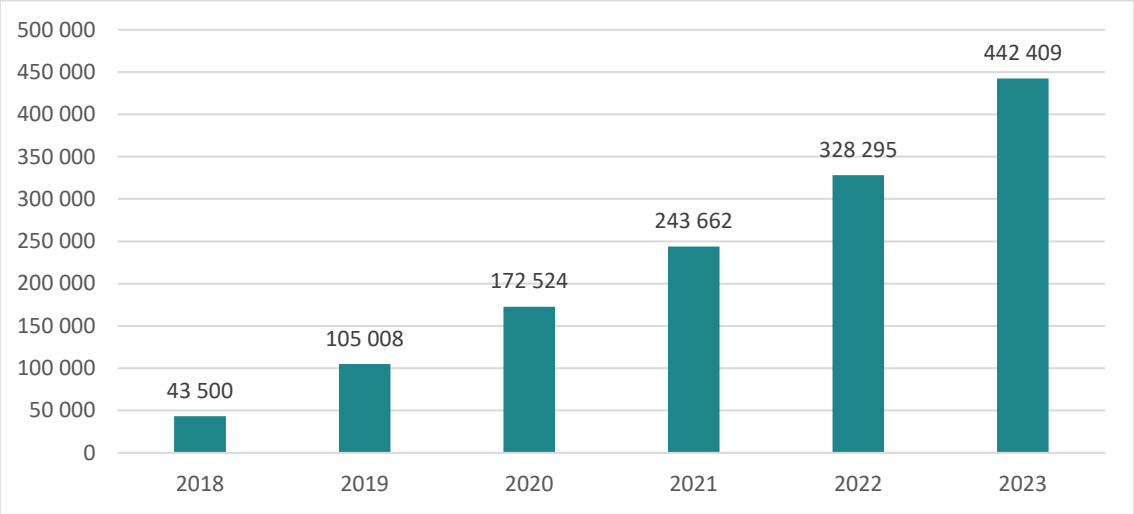
Business drivers and entrepreneurs also benefit from lower 'additional tax' rates for the private use of business electric cars, although these rates are scheduled to align with those for combustion engine cars by 2026. The MIA (Milieu-investeringsaftrek) and VAMIL (Willekeurige afschrijving milieu-investeringen), tax incentives encouraging environmental investments, no longer apply to electric passenger cars from 2022 but remain available for hydrogen vehicles and electric vans, recognising the commonality of electric cars.

The government has also implemented a reduction in energy tax for recharging stations until at least 2024. This reduction is about 8.5 cents per kW/h, translating into a saving of roughly 4.25 € per 50 kWh charge. This measure is designed to lower the operational costs for recharging station owners, thereby encouraging the installation of more stations, increasing availability, and potentially reducing recharging prices for EV drivers.[12]

For the year 2023, there were 442,409 BEVs, representing 4.9% of the total passenger vehicles fleet in the Netherlands.

[12] ANWB (2024) Source: https://www.anwb.nl/auto/elektrisch-rijden/alle-fiscale-voordelen-voor-elektrische-autos-op-een-rij

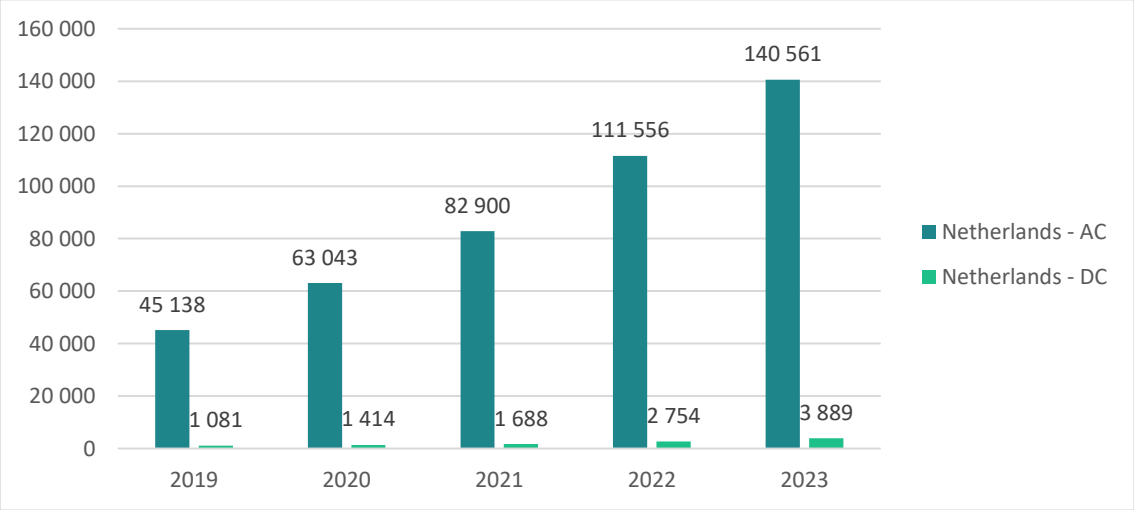
17. Figure: Evolution of the total BEV passenger vehicles in The Netherlands.



Source: EAFO portal.

Moreover, the public recharging infrastructure network has considerably grown in the last few years. According to the EAFO portal, by the end of 2023, there were 140,561 (AC) slow public recharging points, and 3,892 (DC) fast public ones.

18. Figure: Evolution of alternating and direct current (AC or slow and DC or fast) recharging points in The Netherlands.



Source: EAFO portal.

6. Annex I: Consumer monitoring methodology & approach

For the 2023 launch of the EAFO consumer monitor survey, twelve countries[13] were selected. The survey was conducted using a panel on the general population of each of the surveyed countries. To improve the analysis of BEV drivers, a purposeful sample was collected through AVERE and external contributors, including FIA members ANWB in the Netherlands, Touring Belgium, the Ministries of Transport from Luxembourg and Lithuania, and the Swedish Energy Agency. The same survey was used for both the panel and the BEV sample.

The survey campaign was launched at the end of October 2023. For the panel in the Netherlands, the aim was to reach 2,000 responses. The survey was open for one month. As BEV drivers are difficult to reach, their survey campaign was closed at the beginning of February 2024 in all surveyed countries.

The datasets were subjected to validation tests, including:

- Respondents should have completed the survey by the end and should have agreed to the terms and conditions of the survey.
- Respondents who specified not owning a driver's license were excluded.
- Respondents who filled out the survey in one-third (or less) of the time median for all respondents were excluded from the survey, as it was deemed impossible to fill out the survey thoroughly and in its entirety in such a short time.
- 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) were excluded from the results.
- Respondents who came up with nonsensical patterns of answers to open questions were excluded.

The validation of all the datasets was finalised in mid-February 2024. To improve the relevance of the analysis of the BEV drivers alone, the survey conducted on BEV drivers (from AVERE and other external contributors) was combined with the survey conducted on the general population. The respondents were considered BEV drivers when their first, second or third car was a BEV. A total of 2,221 responses were considered valid for both the panel and the AVERE and external contributors' datasets. Out of these, there were 1,897 non-BEV and 324 BEV drivers.

[13] The twelve countries surveyed were: Belgium, Denmark, France, Germany, Hungary, Italy, Lithuania, Luxembourg, Netherlands, Slovenia, Spain, and Sweden.

The validated and combined datasets of all surveyed countries were used for a EU aggregated report.

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