

Automotive & Assembly Practice

How European consumers perceive electric vehicles

As the electric-vehicle market continues to grow in Europe, customer expectations are also evolving.

This article is a collaborative effort by Andreas Venus, Patrick Schaufuss, and Timo Möller, with Anna-Sophie Smith, Felix Rupalla, Jan Paulitschek, and Laura Solvie, representing views from the McKinsey Center for Future Mobility.



Electric vehicles (EVs) are no longer a niche business. They now account for 16 percent of new-car sales in Europe, up from under 1 percent in 2019. Despite the removal of purchase subsidies in certain markets, such as Germany at the end of 2023, sales have remained stable. Since the beginning of 2024, more than 875,000 new full battery electric vehicles (BEVs) have been sold across the continent.

As EV growth continues to unfold in Europe, automakers are developing more nuanced profiles of the average EV buyers they are targeting. Some buyers are innovators, or early adopters, who opted for EVs years ago and are now on their second or third purchase. Although this segment remains important, the EV customer base is also expanding to include more mainstream customers who have different [expectations for EVs](#).

To understand European consumers' views on EVs and key market trends, we recently polled 15,034

individuals in France, Germany, Italy, and Norway as part of our regular McKinsey Mobility Consumer Pulse Survey, which closely monitors consumer perceptions about the future of mobility in general (see sidebar, "About the survey," for more on our methodology). We combined insights from the survey with mobility research to analyze EV uptake patterns, identify major consumer concerns, explore perceptions of incumbents and new entrants, and investigate the used-EV market.

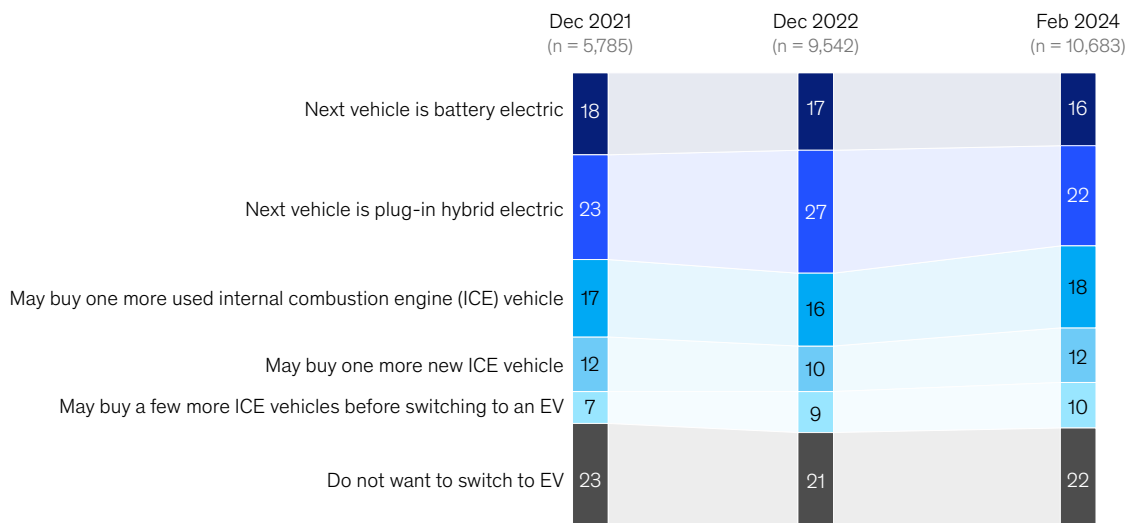
Electrification momentum continues across Europe

Electrification is attracting much consumer interest in Europe. Of the car buyers in our survey who have not yet purchased an EV, 38 percent say their next vehicle will be electric. A little less than half of these potential buyers plan to buy a BEV, with the rest opting for plug-in hybrid electric vehicles (PHEVs) (Exhibit 1).

Exhibit 1

Many car buyers in our latest survey are considering purchasing an electric vehicle.

Powertrain considerations for next vehicle purchase, % of European non-EV¹ owner respondents



¹Electric vehicle.
Source: McKinsey Mobility Consumer Pulse Surveys

About the survey

The 2024 McKinsey Mobility Consumer Pulse Survey was conducted online in February 2024. It involved 36,954 current mobility users across nine markets: Australia, Brazil, China, France, Germany, Italy, Japan, Norway, and the United States.

Intent to purchase an EV is slightly higher in the premium-brand segment, as well as among younger and more progressive urban customers, who tend to be environmentally conscious. But interest in EVs is now expanding beyond these groups, and the next wave of buyers may include more older consumers with comparatively lower budgets. In other words, more mainstream buyers could follow the first movers who initially adopted EVs. As the consumer base shifts, customer expectations for EVs will also evolve and manufacturers must be prepared to meet them.

The major concerns of EV buyers include battery range, costs, and charging infrastructure

While almost 80 percent of European car buyers in our survey expect to get an EV in the future, 22 percent remain skeptical about these vehicles. Our survey suggests that the main reasons

preventing skeptics from considering EVs involve high purchase prices, the inability to charge at home, and concern about real battery driving range—the actual driving range for a mix of trips and conditions, compared with a vehicle’s advertised cycle range based on the worldwide light-vehicle test procedure (WLTP).

Among prospective buyers who do not yet own a BEV, the main concerns about EVs are slightly different from those that the EV skeptics have, especially home charging access being less of a concern. High purchase prices topped the list (37 percent), followed by insufficient battery driving range (36 percent), and battery lifetime (35 percent) (Exhibit 2). Many respondents are also concerned about increases in electricity prices and availability of public charging infrastructure (28 percent for both). Overall, sustainability had a minor influence on purchase decisions.

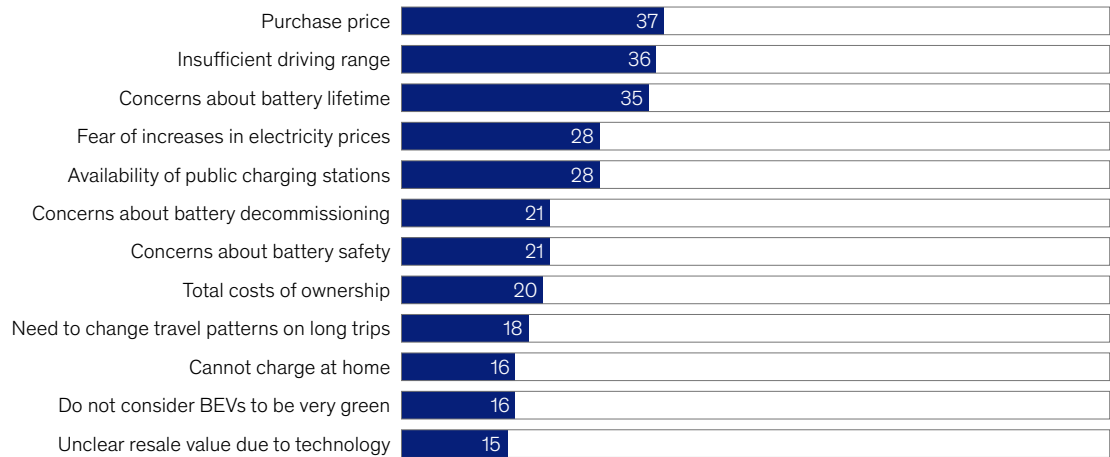
The survey findings suggest that a longer driving range could accelerate BEV adoption in Europe, since buyers in this region have high expectations for the real battery driving range. In our survey, consumers who would consider an EV but have not yet purchased one state that the driving range would need to be about 500 kilometers for them to switch from an internal combustion engine (ICE) vehicle to a fully electric BEV (Exhibit 3). Among current BEV owners, expectations for driving range are only slightly lower, at about 470 kilometers.

Intent to purchase an EV is slightly higher in the premium-brand segment, as well as among younger and more progressive urban customers, who tend to be environmentally conscious.

Exhibit 2

Top concerns about electric vehicles include price, driving range, and battery lifetime.

Concerns about battery electric vehicles (BEV), % of European non-BEV owner respondents (n = 1,743)



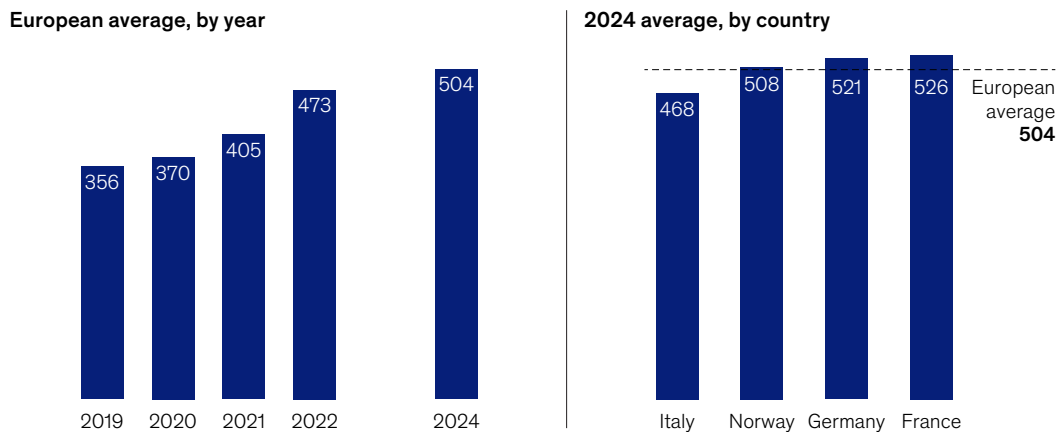
Source: McKinsey Mobility Consumer Pulse Survey, Feb 2–15, 2024

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Exhibit 3

Prospective buyers of electric vehicles have high expectations for driving range.

Average minimum driving-range expectation for battery electric vehicle,¹ kilometers



¹Averages calculated from respondents who would consider an electric vehicle but have not yet purchased one. 2019, n = 3,951; 2020, n = 4,743; 2021, n = 5,785; 2022, n = 9,542; 2024, n = 9,951. Italy, 2024, n = 3,105; Norway, 2024, n = 2,749; Germany, 2024, n = 2,457; France, 2024, n = 1,640. Source: McKinsey Mobility Consumer Pulse Surveys

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The survey findings suggest that a longer driving range could accelerate BEV adoption in Europe.

Almost all current BEV owners now have a shorter real driving range than they stated they would need before their vehicle purchase. In our survey, only 42 percent of existing BEV owners in Europe are satisfied or very satisfied with their car's real driving range; for those who would consider switching back to ICE vehicles, this percentage fell to 30 percent. What's more, most of the dissatisfied respondents indicate that they are likely to switch to an ICE vehicle, rather than search for an EV with a greater driving range.

Regarding charging infrastructure, consumers have concerns that go beyond public availability. More than 75 percent of prospective BEV buyers in our survey expect public charging times of under 30 minutes to take their remaining battery power from 20 to 80 percent.

Varied preferences for vehicle features and purchases

Our survey also looked at vehicle characteristics and purchase preferences that are unrelated to electrification, and it uncovered some important differences between potential EV buyers and those sticking with traditional ICE cars. First, EV buyers place higher importance on advanced-driver-assistance systems (ADAS) with increasing degrees of autonomy (for example hands-off driving assistance features at highway speed or fully autonomous parking pilots) and comprehensive in-car connectivity offerings. This preference is characteristic of younger, more tech-enthusied buyers, and many customers in this segment may prefer EVs because they view them as having

more innovative technology than traditional cars. Second, 25 percent of prospective EV buyers show high interest in buying their next car online. Interest was greatest in the premium segment (34 percent).

ICE buyers and traditional car adherents do share one characteristic, however. In both groups, 83 percent say that they would not buy an EV without taking a test drive, indicating that this step remains a critical part of the purchase journey.

The EV transition is fully under way

The EV transition in Europe is fully under way, and our survey findings highlight three trends that may influence future adoption rates:

- a willingness to switch back to traditional ICE vehicles in a small share of EV owners
- the emergence of several new market entrants, including Chinese auto brands and other foreign OEMs, offering a wide range of new models that are already attracting interest among European customers
- the tendency for new-EV car sales to scale more quickly than used-EV sales

A minority of current EV owners would consider switching back to ICE vehicles

While the overall outlook for electrification is positive, our survey reveals that 19 percent of current EV owners in Europe say they are likely or very likely to switch back to a traditional combustion engine at their next purchase because of their current EV

ownership experience (Exhibit 4). This is a reality check, but it must be considered in context. Globally, 29 percent of EV owners in our survey say they are very likely to switch back to an ICE vehicle at their next purchase, so Europeans are less likely to revert to traditional cars than people in other regions.

The reasons for switching back to an ICE vehicle are multilayered and somewhat interlinked. In our survey, the top issues relate to the following factors:

- **Total cost of ownership.** Today, 45 percent of European car owners are keeping their current vehicles for longer periods because of their financial situation. For EV owners, 40 percent indicate that they need to trade down with their next vehicle for the same reason. Survey respondents also express concern that selected subsidies for EVs are being reduced or eliminated in some European markets. Of the EV owners who are considering a switch back to ICE vehicles, 41 percent say that the cost of EV ownership is too high. (Their return to ICE vehicles could occur shortly, since they are closer to buying their next vehicle than other respondents, and 40 percent are planning to purchase a vehicle in 2024.) If they do, they

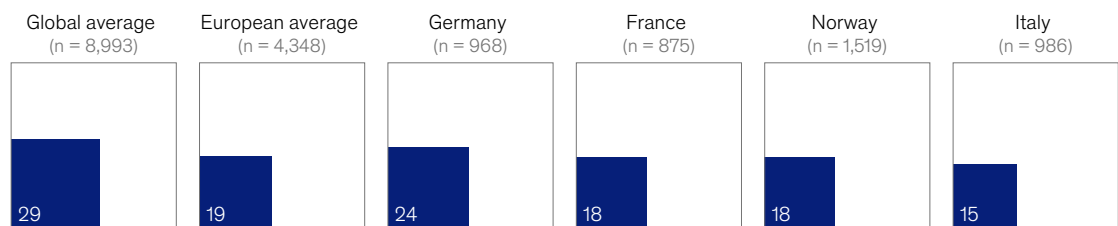
may find that the residual value of their current EV is lower than expected and that demand for used EVs is relatively low compared with that for traditional cars.

- **Underdeveloped public charging infrastructure.** In our survey, 40 percent of current BEV owners in Europe state that the number of public EV charge points is insufficient. Only about 10 percent of BEV owners feel that the current charging infrastructure is ready to meet future demand; an additional 50 percent feel that it can meet current needs but believe that there will not be enough public charging stations if more EVs hit the road.
- **Impact on long-distance travel.** In our survey, 29 percent of respondents say they are concerned about the impact of charging on longer-distance trips. In general, longer trips in a full battery EV require owners to change their travel patterns slightly, which may seem disruptive or stressful; some may have to begin planning their charging stops before a trip begins, especially on unknown routes. Some EV owners feel that searching for free and working charge points is disruptive,

Exhibit 4

Nineteen percent of European electric-vehicle owners say they are likely or very likely to switch back to a traditional combustion engine vehicle.

Share of current electric-vehicle owners reporting that they are likely or very likely to switch back to an internal combustion engine vehicle in the future, %



Source: McKinsey Mobility Consumer Pulse Survey, Feb 2–15, 2024

A quarter of prospective EV buyers show high interest in buying their next car online.

with 26 percent reporting that this makes travel more stressful. For millennials and owners with children, the need to find charge points, combined with potential alterations to long travel routes, may feel particularly burdensome. These groups may therefore be more likely to consider switching back to an ICE vehicle.

When asked what values they seek in a car, EV owners who consider switching back to ICE vehicles place more value on having practical vehicles that allow them greater independence when planning routes. These factors may outweigh the positive ecological benefits of EVs. In fact, only about half of those who consider switching back to ICE vehicles state that sustainability concerns are guiding their behavior, compared with well over 60 percent of EV owners who intend to stay with electric technology. EV owners who consider returning to traditional cars are also three times more likely to state that vehicle acceleration and driver performance did not meet expectations, compared with those who do not plan to switch back.

New BEV market entrants are attracting customer interest

New players are entering European EV markets. In the past three years alone, more than 35 new OEMs have started selling battery electric vehicles in Europe, and many more have announced market-entry plans. In total, OEMs have announced that over 400 new EV models will hit the [European market](#) over the next three years. Many new market entrants have established auto brands in Asia or North America, and several homegrown Chinese brands have also entered the market recently.

Prospective buyers are increasingly considering non-European brands, and our survey shows that EV owners are broadening their considered set of brands for purchase. European brands such as BMW, Mercedes-Benz, Renault, and Volkswagen are still the most popular, with 51 percent of EV owners stating that they are likely to purchase from them. Southeastern Asian brands such as Hyundai, KIA, and Toyota were in second place with 39 percent, followed by American brands such as Cadillac, Rivian, and Tesla (30 percent) and Chinese brands such as BYD, Li Auto, NIO, and Xpeng (27 percent).

The new entrants offer BEV models in various vehicle segments, and many cater to the average potential EV buyer's need for more real driving range and faster charging. Some of the new models also offer innovative car features, including those that enhance interior comfort, entertainment, and in-car digital experiences. If consumers view the new brands positively and adopt them, domestic auto brands could face challenges.

Customers' willingness to buy an emerging brand differs by country and segment (Exhibit 5). In the premium-brand segment, for instance, 33 percent of European respondents considering EVs state that they would be open to purchasing a [Chinese brand](#) in the future. Given the European Union's recent decision to impose tariffs on imported EVs from China, it is still uncertain how successful such new EV brands will be in Europe.

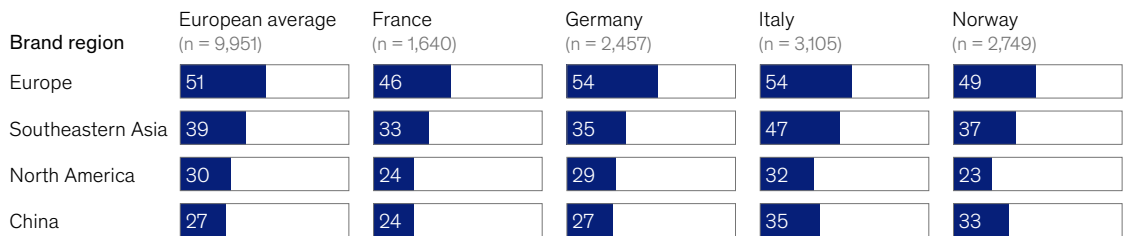
Insights on Chinese brands

Compared with American brands and other Asian brands, Chinese OEMs have relatively low name

Exhibit 5

Europeans are willing to consider electric-vehicle brands from multiple regions.

Share of prospective electric-vehicle (EV) buyers in Europe considering an EV brand for future purchase, by brand region, %



Source: McKinsey Mobility Consumer Pulse Survey, Feb 2–15, 2024

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recognition in Europe. In our survey, 55 to 80 percent of European respondents had never heard of them. Consumers who were more likely to know about Chinese brands included existing EV owners, younger people, and drivers of premium cars. We decided to investigate these brands more thoroughly by conducting interviews with more than 500 European customers during their visits to a car clinic earlier this year; we asked about ten Chinese EV models. This allowed us to gather qualitative feedback from potential EV buyers as they evaluated Chinese EV models. We also gained insights about their views on other brands in the process.

Both our survey and car clinic research suggest that European consumer perceptions of Chinese brands are often different from their perceptions of domestic brands. For instance, consumers view domestic brands with pride and consider them to be safe, well designed, high quality, comfortable, and trustworthy. Consumers also value the established dealer and service networks for domestic brands, as they provide convenient customer proximity. If customers are purchasing an EV for the first time, they might feel more confident going with a known brand from

an established domestic OEM, especially if they have experience with ICE vehicles from the same company.

In contrast, survey respondents tend to be skeptical about product quality and data security for new market entrant brands from China, although they do perceive them as offering good value for the money. The customers we interviewed at car clinics had similar concerns about Chinese brands, but after seeing the vehicles in person, they were also impressed by their innovative features and cutting-edge technologies, such as comfortable interiors, voice assistants' conversational intelligence, and high-end multimedia offerings with advanced sound and displays. As more European consumers get direct experience with Chinese brands, they could develop higher expectations for the in-vehicle experience, including comfortable seating and smart-vehicle features, in all cars. Those who purchase EVs may particularly appreciate in-vehicle technologies because they may often use them when their vehicles are charging.

Our survey also showed that consumers had specific price expectations for EVs, which could affect their adoption rates. With Chinese brands, for instance, consumers generally expect the purchase price to be lower than that of similar offerings from domestic brands. In our survey, about half of European respondents say that they would only consider purchasing a Chinese EV if its price was at least 15 percent below that of a similar domestic model. Roughly a quarter of European respondents say they would seek a price advantage of up to 10 percent, and only 25 percent would not require a price advantage.

Customer views of used electric vehicles

The used-car market is another piece in the chain for further sustained EV adoption throughout Europe. While EVs accounted for more than 15 percent of new-car sales in this region in 2023, they represented less than 2 percent of used-car sales.

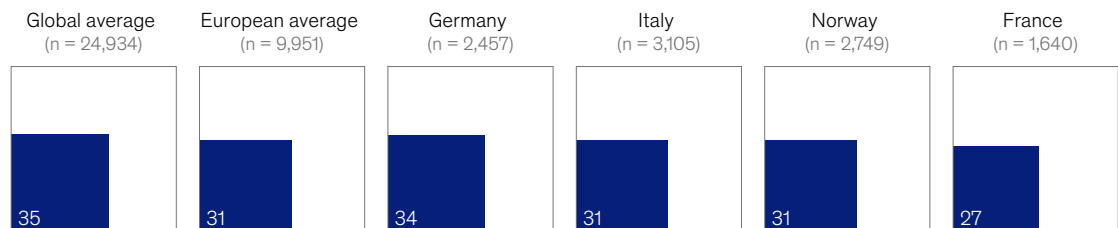
In our survey, 31 percent of prospective EV buyers say they are likely or very likely to consider a used EV for their next vehicle purchase—up from about 25 percent in December 2021 (Exhibit 6). For those customers still skeptical about EVs, the main concern—cited by 49 percent of respondents—was unclear battery degradation over a vehicle’s lifetime. Other concerns relate to high prices (33 percent), unclear maintenance and repair availability (26 percent), and fear of missing out on the latest EV technology (13 percent).

Many respondents also cite unclear resale value as an issue—an understandable finding, given how rapidly EV technology is evolving. In our survey, 20 percent of BEV owners say they are concerned about retail value, compared with only 10 percent of prospective buyers.

Exhibit 6

Nearly a third of European survey respondents, on average, would consider buying a used electric vehicle.

Share of prospective electric-vehicle (EV) buyers who report that they are likely or very likely to consider a used EV for their next vehicle purchase, %



Source: McKinsey Mobility Consumer Pulse Survey, Feb 2–15, 2024

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OEMs could help alleviate some consumer concerns by offering guarantees about battery degradations, vehicle checkup, or remote upgrades for digital services. Meanwhile, consumer fears about missing out on the [latest technology](#) may fall as the EV market matures. Both developments could accelerate EV adoption in the used-car market.

purchasing habits and expectations are changing in tandem. The overall EV outlook for Europe remains positive: consumers want a better customer experience and fewer hurdles to adoption, especially those related to public charging infrastructure readiness, real battery range, and purchase price. Addressing these issues could help take EV growth to new heights and accelerate electrification throughout Europe.

As Europe accelerates its efforts to decarbonize, and the auto industry transitions from combustion engines to electric powertrains, consumer

[Andreas Venus](#) is a senior partner in McKinsey's Berlin office; [Patrick Schaufuss](#) is a partner in the Munich office, where [Anna-Sophie Smith](#) is an asset leader, [Jan Paulitschek](#) is a research science specialist, and [Laura Solvie](#) is a consultant; [Timo Möller](#) is a partner in the Cologne office; and [Felix Rupalla](#) is a senior asset leader in the Stuttgart office.

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