

How leasing companies can become a key driver of affordable electric cars in the EU

Electrifying the used car market



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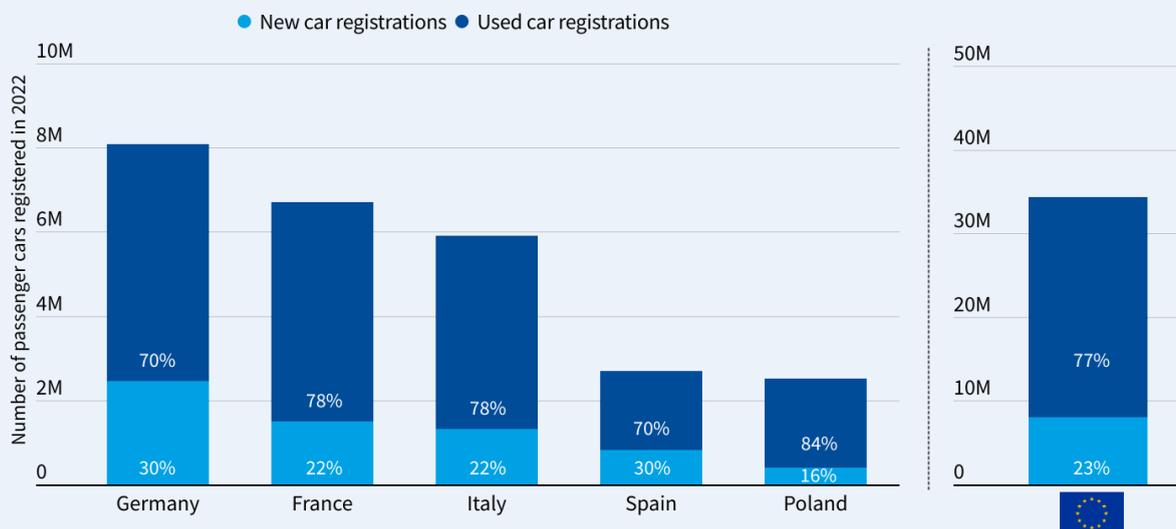
November 2023

Summary

At the beginning of next year the European Commission (EC) will come forward with a 2040 climate target to further accelerate emission savings in the European Union (EU). This new target cannot be met without reducing CO₂ emissions from road transport - which accounts for more than a quarter of total EU emissions. One of the most effective ways to reduce transport emissions is to switch from internal combustion engine (ICE) cars to battery electric vehicles (BEVs).

Whilst new car registrations are often the focal point of analyses, the second hand car market deserves more attention. **Today, almost eight out of ten EU citizens buy their car on the used car market.** This market is a key segment for low- and middle-income households. If the EU wants to be successful in accelerating the switch to zero-emission transport and ensure that electric cars become accessible and affordable to all EU citizens, electrification of the used car market is key.

Today, almost 80% of car registrations happen in the 2nd hand market



Source: Faconauto, UNRAE, KBA, SMMT, PZPM, Bain & Company, Dataforce

Notes: Figures for the EU refer to the countries shown in the graph + countries with available data

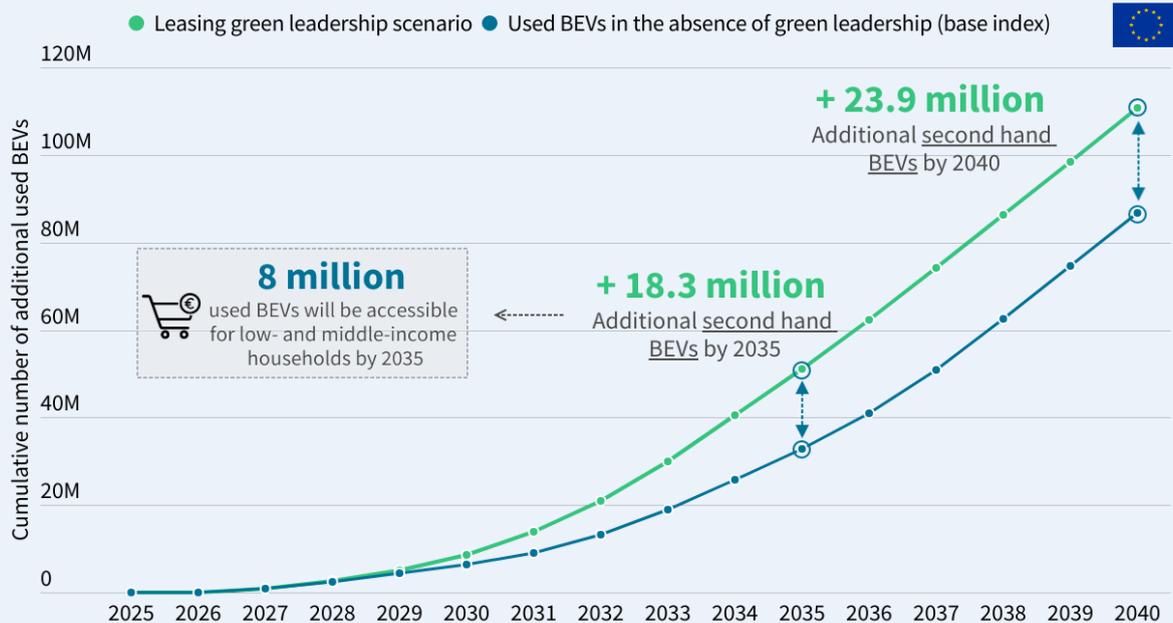
The leasing channel can accelerate the uptake of second hand electric cars

Leasing companies are well positioned to drive this transition. They own fleets of millions of cars that have an ownership period of three to four years before entering the used market. The faster leasing companies switch to electric, the earlier the used car market will electrify.

However, leasing companies are not leading this transition: their uptake of BEVs is merely in line with the market and none of the top leasing companies has set a target to phase out fossil fuel cars. This despite making huge profits, meaning they have the financial power to invest in the green transition. Moreover, recent T&E research has shown that leasing firms - especially in France - are steering their clients towards fossil cars instead of BEVs.

The following analysis shows that a faster electrification of the EU leasing sector (biggest leasing companies go 100% electric 2028, the whole sector 2030) could bring an additional 18 million BEVs onto the used car market by 2035. This would be an increase of more than 50% compared to a business as usual scenario. Eight million of these additional used BEVs will cost below 10,000 euros, which is the average price middle-income households spend on a used car.

Faster electrification of the leasing sector could add 18 million more battery electric vehicles on the used car market by 2035



Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

Leasing companies hold the key in accelerating the electrification of the used car market and making BEVs affordable to many more households. But due to their lack of green leadership, Europe is currently missing out on this big opportunity. **In order to change this and untap the full potential, leasing companies themselves as well as policymakers should change their policies.** That is why T&E is calling for the following:

- **Leasing companies** should become true green leaders and commit to phasing out fossil cars latest by 2028.
- **Policymakers at a national level** should reform company car taxation increasing taxes for fossil cars and plug-in hybrids.
- **Policymakers at the EU level** should set binding electrification targets for corporate fleets, 100% by 2030 at the very latest.

1. Introduction

The European Union (EU) has set the goal of achieving climate neutrality by 2050, i.e. producing no more greenhouse gas emissions than it can offset. To achieve this, CO₂ emissions from road transport - which accounts for more than a quarter of the EU's total emissions¹ - need to be reduced. Looking beyond 2030, the European Commission will soon present a new sector-wide 2040 target to align the still high emissions with its ultimate goal of reaching climate neutrality by the middle of this century.²

One of the most effective ways to reduce transport emissions is to switch from internal combustion engine cars (ICEs) to zero-emission vehicles. Here battery electric vehicles (BEVs) have emerged as the winning technology. Although an important step has been taken with the 2035 ICE phase-out, these measures are not enough to meet the 2040 and 2050 targets.² More action is needed to accelerate emissions savings in the transport sector.

The used car market, although it receives less attention than new cars, is extremely important to accelerate the switch to BEVs, as almost 8 out of 10 people buy their car on the used car market. There is also a growing debate regarding the just transition and whether everyone can afford the switch to electromobility. Focusing more on the used car market, where prices are lower, can help to the transition to e-mobility in a socially fair way.

Leasing companies - which are owned by banks or carmakers - are a crucial stakeholder in making this happen. Today leasing accounts for over half of new car registrations³. The largest leasing companies own a fleet of millions of cars. This means that they play a key role in defining the pace of the EU's transition to a zero-emission transport system. Due to their large fleet size but also their short ownership period (three to four years) they have a crucial impact on the type of cars entering the used car market. But a recent T&E study has revealed that these leasing companies are not acting as the green leaders they claim to be. They are simply following the market in the uptake of electric cars.⁴ At the same time research has shown that they are promoting false green solutions.⁵

This briefing analyses **the contribution leasing companies can make in increasing the supply of BEVs onto the used car market**. [Section 2](#) presents an overview of the used car market and its importance for EU households. [Section 3](#) explains why battery electric cars are the best option for households when purchasing a used car and [section 4](#) highlights the importance of the leasing sector in supplying these used BEVs to the market. [Section 5](#) models the effects if leasing companies would go faster on electrification and commit to phasing out fossil cars and only lease BEVs as of 2028. [Section 6](#) concludes discussing the policy recommendations based on this analysis.

¹ Calculated based on the UNFCCC 2022 data release - (26.4%)

² European Scientific Advisory Board on Climate Change (2023) ([link](#))

³ Autovista (2023). Remarketing Expert Track. FleetEurope. ([link](#))

⁴ T&E (2023). Stuck in the fossil age: Are car leasing companies in the EU green leaders or greenwashing? ([link](#))

⁵ T&E (2023). Are leasing companies advising clients to go electric? ([link](#))

2. The importance of the used car market

In the EU, the used car market is more than just a secondary component of the automotive industry; it is an essential segment that contributes significantly to economic growth, environmental sustainability, and social accessibility. Its importance is perhaps most profoundly felt by low- and middle-income families, for whom this market represents an affordable gateway to personal mobility.

2.1. The used car market is more than three times larger than the new car market in terms of registrations

Today, almost eight out of ten EU citizens buy their car on the used car market (see Figure 1). Over the last decade, the used car market in the EU has consistently accounted for a significant share of total annual car registrations. This trend has been particularly pronounced during economic downturns, when consumers prioritise affordability.

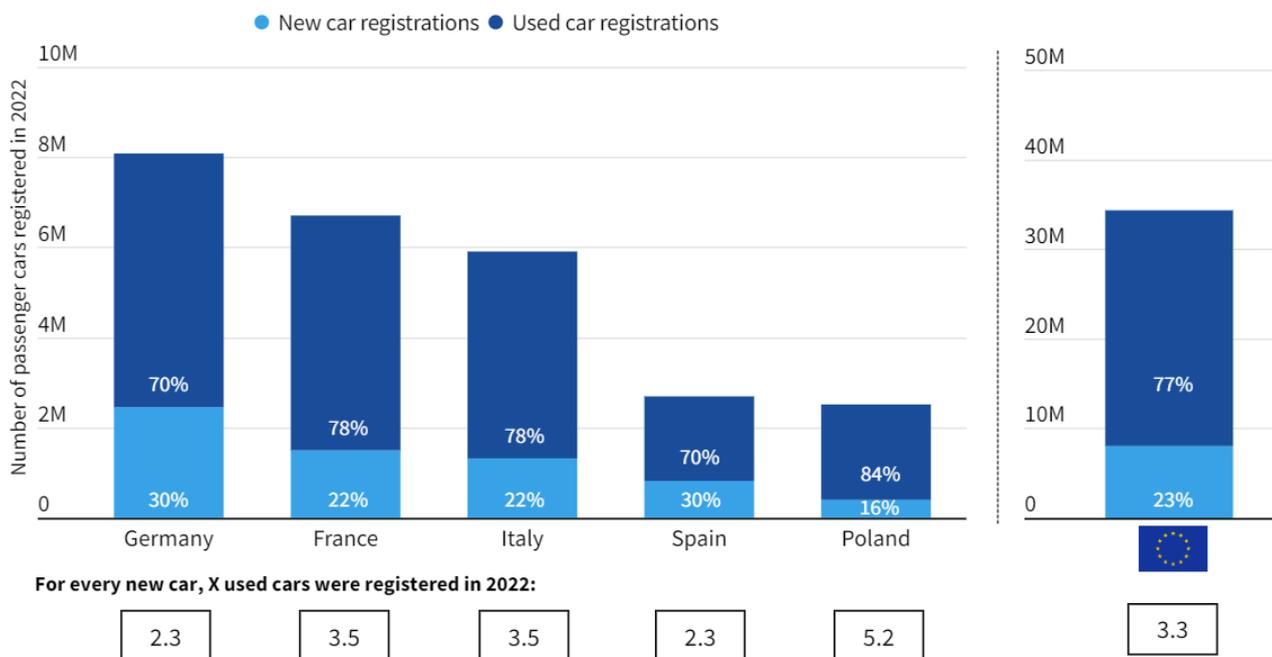


Figure 1: The used car market is larger than the new car market in terms of registrations

Source: Faconauto, UNRAE, KBA, SMMT, PZPM, Bain & Company, Dataforce

Notes: Figures for the EU refer to the countries shown in the graph + countries with available data

Across the EU's major markets, the used car segment accounts for more than two-thirds of registrations. Countries such as France, Italy, and Poland sit above the average with used car registrations accounting for around 80% of total registrations in 2022. Put differently, for every new car registered, 5.2 used cars were registered in Poland, and 3.5 in France and Italy.

2.2. Low- and middle- income households almost exclusively buy used cars

The used car market is particularly important for low- and middle-income households. For these households, affordability is often a major concern when purchasing a car. New cars come with a high price tag, making them too expensive for many car buyers. The used car market helps in this regard, offering a diverse range of vehicles with lower - particularly upfront - cost.

Cars lose most of their value during the first ownership period i.e. already 20% to 35% in their first year alone⁶, and this depreciation continues in subsequent years (around 10-15% per year on average). Used cars, on the other hand, have already undergone this initial depreciation. As a consequence, families have access to cars at more affordable prices.

Due to the lower price tag, households with the lowest incomes (quintile 1) exclusively buy used cars. For the middle/low-income groups (quintile 2), this share drops slightly to 96% and for the middle-income group to 75% (quintile 3). The used car share of higher income groups is smaller but also still very significant (67% and 62%), confirming the importance of the used car market for EU citizens overall (see Figure 2).

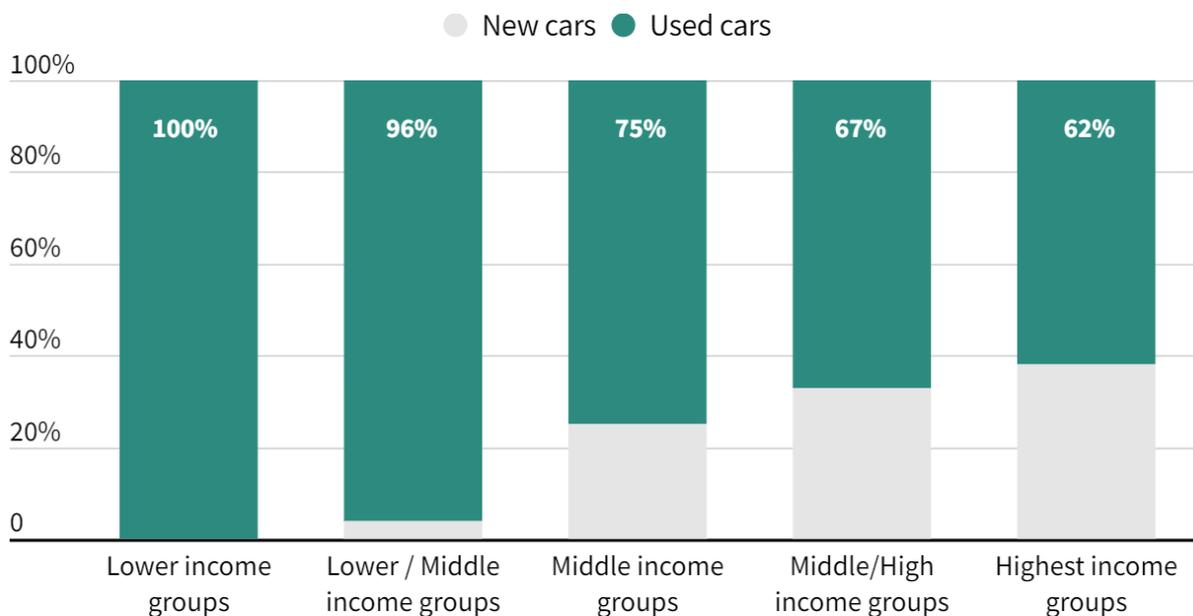


Figure 2: The car purchase channel of the lower income groups is the used market

Source: CE Delft (2016): LDV CO₂ legislation and the 2nd hand vehicle market

Notes: EU-27 data. Low income groups refer to quintile 1, low/middle income to quintile 2, middle income groups to quintile 3, middle/high income groups to quintile 4 and highest income groups to quintile 5

Conclusion: On average, almost eight out of ten EU citizens buy their car on the used car market. Low- and middle- income households almost exclusively buy used cars.

⁶ T&E analysis based on Autovista Residual Value Intelligence tool and Wollenhaupt and Jones (2022)

3. Used BEVs are the low-cost option

When people buy a used car they can choose between different powertrains (i.e. combustion engines, battery electric vehicles, ...). In this process, affordability is a major concern. This section explains the reasons why a used BEV stands out as the low-cost option for households (see Figure 3).

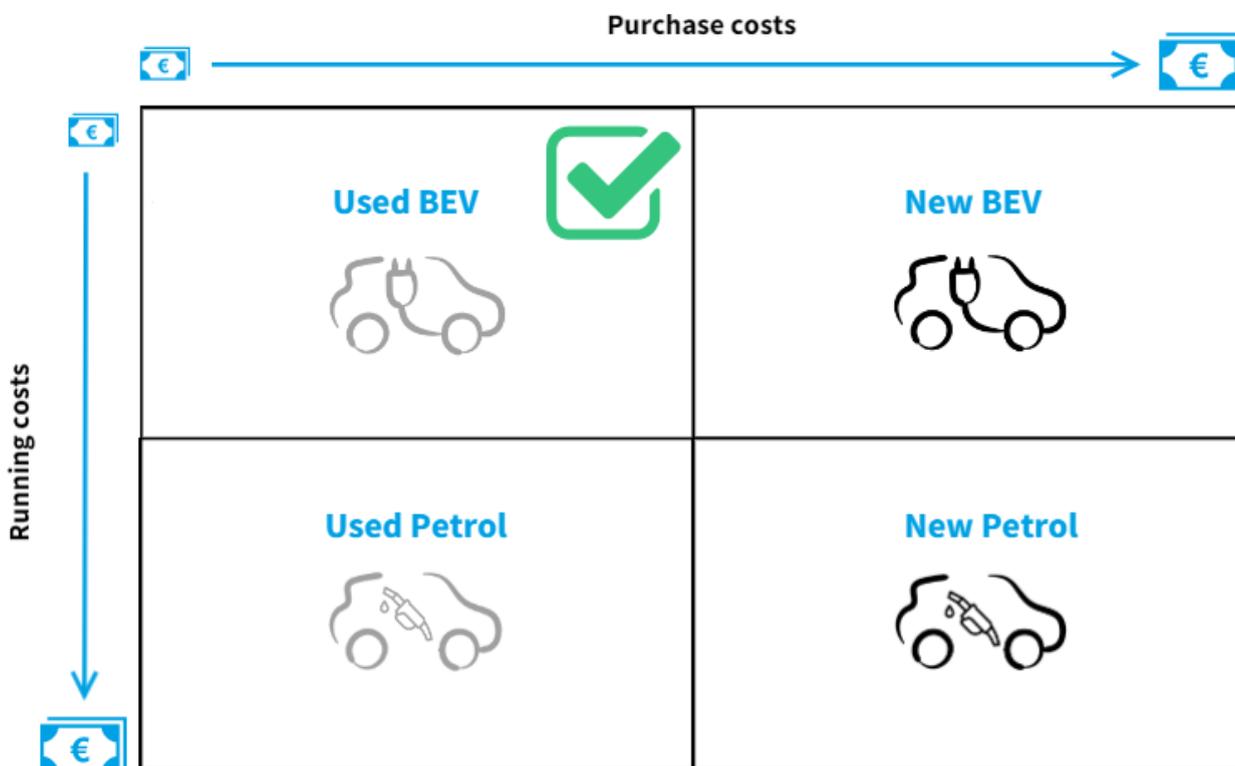


Figure 3: Best used powertrain option in relation to purchase cost and operating cost

Source: Author's illustration

Studies have consistently found that used BEVs have a significant lower total cost of ownership (TCO) compared to a used petrol car. In fact, **compared to a petrol, a medium BEV bought new in 2020 will save in total more than €8,000 for its second and third owners** combined.⁷ Country results vary depending on market conditions and incentives for battery electric cars. The results for Germany and France are above average, providing greater savings for the owners of used BEVs. Italy's results are close to the European average (see Table 1).

⁷ BEUC (2021). Electric cars: calculating the total cost of ownership for consumers (technical report) ([link](#))

Table 1: Second and third owner TCO savings between petrol ICEs and BEVs - medium car

Country	Second owner	Third owner	Second & Third
Germany 	+ 4,400€	+ 7,700€	+ 12,100€
France 	+ 4,800€	+ 8,300€	+ 13,100€
Italy 	+ 2,500€	+ 6,000€	+ 8,500€
Spain 	+ 9,000€	-	+ 9,000€*
EU** 	+ 2,500€	+ 5,900€	+ 8,400€

Source: BEUC (2021) - different reports

Notes: Country results are based on a medium BEV bought new in 2020. * Results for Spain are only for 2nd owners. ** EU numbers based on Belgium, Cyprus, France, Germany, Italy, Lithuania, Slovenia, Spain, Portugal

There are several reasons that explain these results:

- Lower initial purchase price:** The prices of new BEVs - which are on average still higher than their petrol counterpart - are usually one of the main barriers for purchasing a BEV, and at the same time they increase the TCO substantially. New cars, including BEVs, experience their most significant depreciation in the first years, typically they lose around 20%-35% the first year.⁸ One of the main advantages of buying a used BEV is that it has already gone through this phase, making them more affordable.
- Lower operating costs:** BEVs have fewer moving parts and require less maintenance than traditional internal combustion engine vehicles (40% to 50% less maintenance than a petrol car⁹). In addition, energy costs are more favourable for BEVs, making them an economically prudent choice over time.
- Favourable taxation and government incentives:** Many countries are incentivising the adoption of electric vehicles through tax breaks, tax exemptions or purchase subsidies. These policies often aim to reduce the total cost of ownership of zero-emission vehicles by making them fiscally cheaper. In fact, the fiscal cost of a medium BEV over 10 years for individuals is, on average, 4,600 euros lower than that of petrol.¹⁰ Some countries, such as the Netherlands, also have purchase subsidies for second-hand electric vehicles.¹¹

⁸ T&E analysis based on Autovista Residual Value Intelligence tool
Wollenhaupt and Jones (2022): Car Depreciation: How Much Value Will Your New Car Lose? ([link](#))

⁹ CR (2020). Electric vehicle cost ownership ([link](#))
FleetsNew (2023). Do electric vehicles really cost less than ICE cars to maintain? ([link](#))

¹⁰ T&E (2022). The Good Tax Guide. A comparison of car taxation in Europe ([link](#))

¹¹ Government of the Netherlands ([link](#))

- **Battery degradation and longer lifespan:** BEV technology is continuously improving, and batteries are becoming more durable and long-lasting. In contrast to some concerns that have been raised, the battery degradation of BEVs is much lower than expected, resulting in no additional costs compared to an internal combustion engine vehicle. Based on real-world data, there is an average degradation of battery capacity by only 2.3% per year.¹² This means that even used BEVs can offer several years of reliable service to middle-income families before any major battery-related expenses may arise. BEVs such as the Nissan Leaf have been on the market for over a decade, yet almost all of the batteries are still in the cars.¹³
- **Improving charging infrastructure:** As the charging infrastructure for electric vehicles continues to expand and becomes more convenient and accessible, concerns about range and charging availability for used BEV owners are further reduced. The development of public charging infrastructure in Europe is on track and is largely matching the accelerating uptake of EVs.¹⁴
- **Environmental benefits:** The environmental benefits of driving an electric vehicle can lead to indirect cost savings. Some cities offer free parking or reduced tolls for electric vehicles, which can help used car owners to save money over time. In addition, CO₂ emissions have a negative effect on the value of a passenger car on the used market i.e. among vehicles aged 0 to 5 years, reducing CO₂ emissions by 1 gram per kilometre equates to a €5 value. For cars within the 5 to 10-year age range, this value climbs to €30, and for those exceeding 10 years, it further grows to €42.¹⁵

Conclusion: A used BEV stands out as the low cost ownership option for households, saving €8,000 compared to a petrol for its second and third owner.

¹² GEOTAB (2022). Electric vehicle battery degradation tool ([link](#))

¹³ Reid, C. (2022). Electric car batteries lasting longer than predicted delays recycling programs. Forbes ([link](#))

¹⁴ T&E (2022). 'Charging' for phase-out. Why public chargers won't be a block on EU's combustion car phase-out ([link](#))

¹⁵ Vanherle, K. and Vergeer, R. (2016). Data gathering and analysis to improve the understanding of 2nd hand car and LDV markets and implications for the cost effectiveness and social equity of LDV CO₂ regulations. DG Climate Action ([link](#))

4. The leasing channel is key to accelerate the uptake of second-hand BEVs

As discussed in the previous sections, used cars account for a large share of new car registrations (77%). Moreover when purchasing a used car, BEVs are the best economic solution for many households in Europe. This section will analyse the role that leasing companies play in supplying BEVs to the used car market.

4.1. The secret giants of the automotive sector

Today the majority of new car acquisitions occur through leasing companies, which either own the car and offer it for lease at a monthly rate (known as *service leasing*) or the lessee obtains the use of the vehicle by making fixed monthly payments over a predetermined period (referred to as *financial leasing*). The leasing sector currently has more than 50% market share¹⁶ of new car purchases, and this is forecasted to increase to 70% by 2030 (see Figure 4).

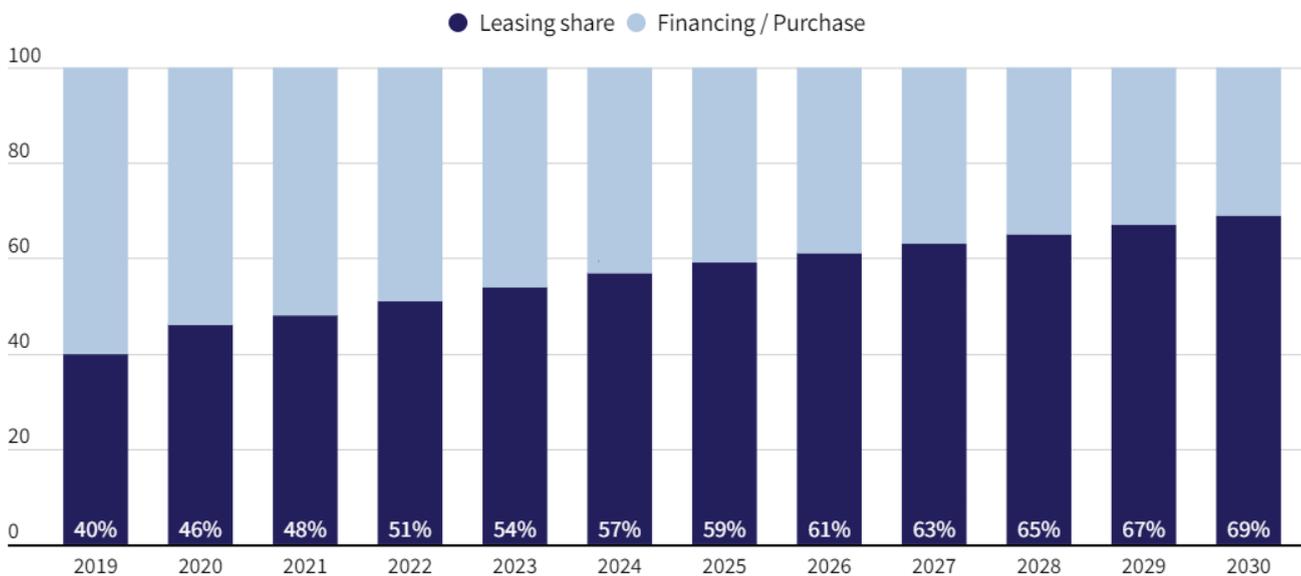


Figure 4: The share of leasing in new car registrations will continue to increase

Source: Autovista Group 2023

Leasing companies are not only large, but also extremely profitable. Although some companies do not make their financial data public, the results of all those that do are impressive, with profit margins of 12-50% for the largest European leasing companies and 48% for the leasing sector as a whole.¹⁷ The profit margins of European car manufacturers, although they have increased in recent years, are in most cases about 10 times lower (2%-17%).¹⁸

¹⁶ Autovista (2023). Remarketing Expert Track. FleetEurope ([link](#)). These numbers are in line with Leaseurope, personal communication, 20 September 2023.

¹⁷ Leaseurope reports profitability of 48% across a sample of its members. Leaseurope (2023). ([link](#))

¹⁸ Transport & Environment (2023). Small and profitable. ([link](#))

4.2. With a short ownership period, leasing companies are the main suppliers of the used car market

The huge size of car leasing companies is evident, yet even these figures underestimate their true impact on the used car market. This is due to the nature of car leasing and the rapid turnover of cars in the fleets of leasing companies. At the end of a typical three to four year leasing period, leased cars undergo remarketing where they are sold on the used car market. Private owners tend to keep their vehicles for around ten years (see Figure 5). Assuming a 3-4 year ownership period, every year an estimated 4.6 million cars enter the used car market coming from the leasing segment.¹⁹

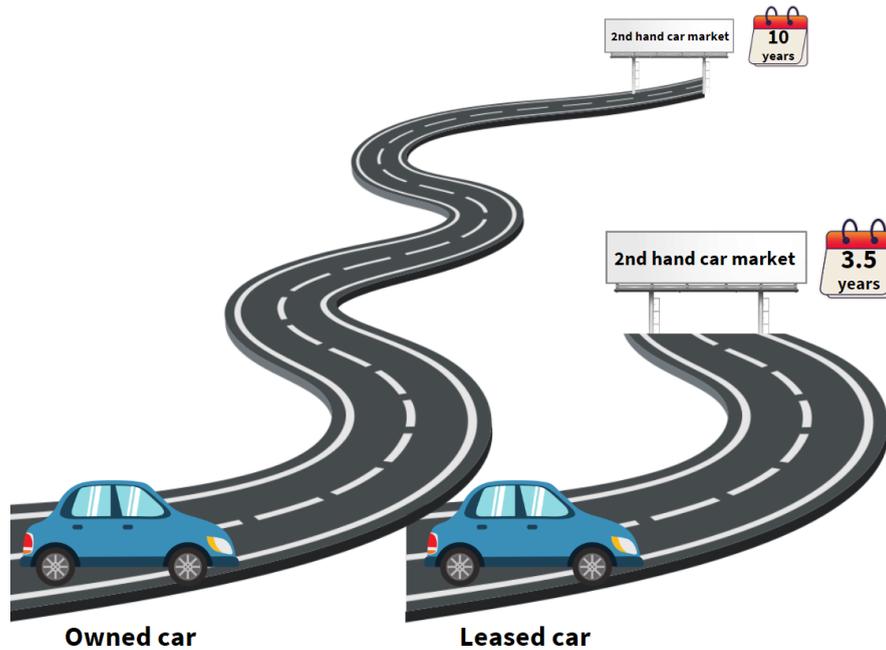


Figure 5: Leased cars will enter the market twice as fast as owned cars

Source: Author's illustration

4.3. Leasing companies buy the newest technologies and make it accessible through used sales

Leasing companies act as a filter through which more than half of all new cars will pass. Year after year, there is a continuous flow with new cars entering the market through the leasing sector and then exiting onto the used market. This filtering effect can shape the car market in different ways. The car market depends to a large extent on the vision of the leasing industry and its role in it.

Leasing companies often prioritise the inclusion of the latest BEV models with advanced technology and features in their fleets. As they renew their fleets every few years, the used market receives a continuous influx of relatively newer BEVs. As electric vehicle technology evolves rapidly, early generations of BEVs may experience faster depreciation. Leasing companies absorb a significant

¹⁹ Half of the cars entering the second-hand market every year in the EU come from the leasing sector, as this sector registers half of the new cars.

portion of this initial depreciation, which can make used BEVs more cost-effective for second-hand buyers who might otherwise be concerned about steep depreciation costs. For example, an electric car purchased in 2022 that is four years old (a typical leasing period) has reduced its value from the initial 35,000 euros to 14,000 euros, making these BEVs cheaper for households.



Figure 6: Leasing companies absorb a significant portion of the initial depreciation

Source: T&E analysis based on Autovista Residual Value Intelligence tool

Notes: Data refers to C segment in 2021 and 2022 transactions for Germany, France, Italy and Spain

4.4. But leasing is not driving the transition to electrification

Despite being a major player in terms of size (vehicles registered per year and fleet) and financial capacity (high profits), a recent T&E report²⁰ has shown that the leasing sector and the largest leasing firms are not accelerating the uptake of BEVs in the new (and used) car market.

For the eleven EU countries where car registrations are recorded by keeper of the vehicle, BEV uptake in the leasing sector - during H1 2023 - is below the rest of the market in seven countries, above in three countries, and in line with the market in one country (see Figure 7). Combining the figures for all eleven EU countries results in a BEV uptake in the leasing sector that is just in line with the rest of the market: 10.4% leasing compared to 10.5% in non-leasing channels.

²⁰ T&E (2023). Stuck in the fossil age: Are car leasing companies in the EU green leaders or greenwashing? ([link](#))

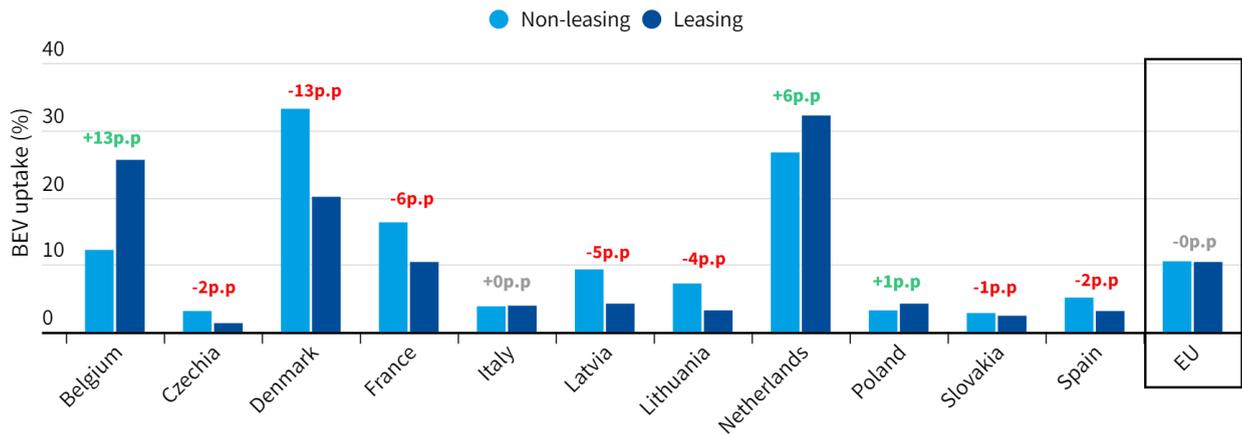


Figure 7: Uptake of battery electric vehicles in the leasing sector and all other channels

Source: T&E calculations based on Dataforce (2023). New passenger car registrations H1 2023.

Notes: Numbers indicate the absolute difference (in percentage points) between the leasing and non-leasing channels. Data is recorded by the ‘keeper’ of the vehicle, which covers operational but not financial leasing.

In conclusion, leasing companies have the size, leverage and financial power to drive the uptake of BEVs in the new and used car market, but at the moment they are not playing this role. What would happen if leasing companies decided to lead the market? What effect would it have on the used car market and for households? These questions will be addressed in the next section.

Conclusion: The leasing channel is key in providing second hand BEVs to EU citizens. An estimated 4.6 million cars are sold annually from leasing companies onto the used car market. But their low BEV uptake is slowing down the electrification of this segment.

5. What would be the effect on the used car market if leasing would accelerate their shift to electric?

In this section of the report we model a ‘green leasing leadership scenario’ and we calculate the effects on the uptake of BEVs in the used car market when the leasing sector moves faster on electrification. In this exercise we focus on the top seven leasing firms. While there are more than 1,200 leasing companies in the European Union,²¹ a small number of companies dominate the sector in terms of sheer car volumes. Seven key players, Volkswagen Financial Services, ALD/LeasePlan,²² Mobilize Financial Services, Arval, Leasys, Alphabet and Athlon oversee a steadily growing fleet of 13.4 million cars globally of which an estimated 9.7 million are in the EU. This fleet size is equivalent to 2.9 million annual registrations representing 61% of the EU leasing market and 31% of all new car registrations in the EU (see Figure 8).

In this analysis we model the following scenario: as of 2028, the top seven leasing companies only register battery electric vehicles. The rest of the sector as of 2030. This scenario is compared to the level of BEV uptake required to meet EU’s car CO₂ standards: 23% in 2025 and 58% in 2030. The latter is our business as usual scenario.

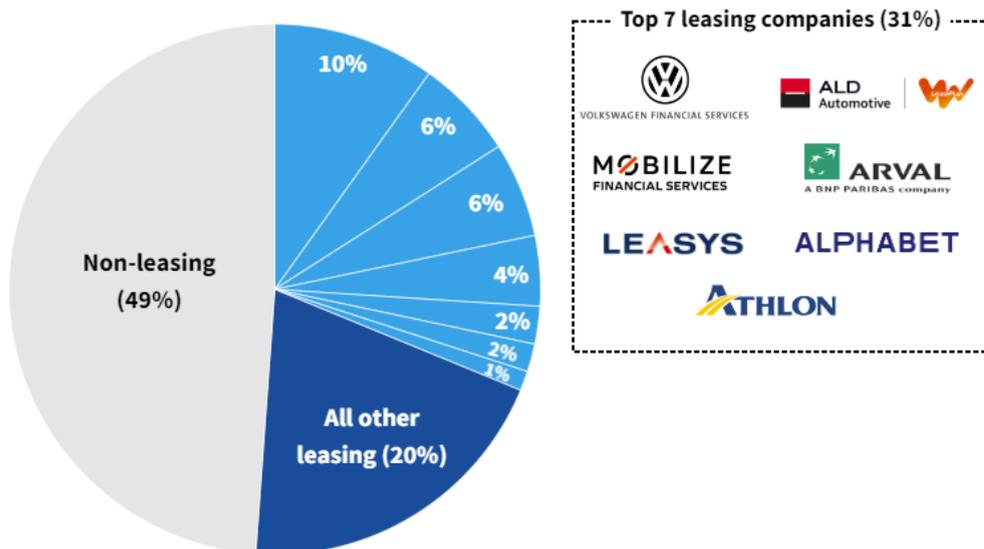


Figure 8: Share of new car registrations in Europe

Source: T&E calculations based on Leasing company reports on fleet size, Autovista on the share of the leasing sector, ACEA on the number of new registrations, and an assumption of 3.5 year leasing period.

To reach these phase-out dates, an exponential growth rate up to 2028 is used for the top 7 leasing companies, leading to larger changes in future years, which is in line with the production plans of carmakers. The rest of the leasing sector goes 100% electric by 2030. This modelling exercise analyses the effects on an EU scale overall as well as the results for the biggest EU car markets: Germany, France, Italy, Spain and Poland. For more detail, please see the [Methodology](#) section.

²¹ Leaseurope minus UK, Norway, Turkey, Switzerland

²² The official name of the new company following the merger of ALD and Leaseplan is [Ayvens](#).

5.1. Leasing companies' green leadership could bring 18 million additional used BEVs

Our analysis confirms the potential of the leasing sector in accelerating the supply of BEVs onto the used car market. Under the 2028 green leadership scenario (i.e. top 7 leasing companies only register BEVs as of 2028, the rest of the sector by 2030), 2.2 million additional and cheaper used BEVs would enter the market by 2030. Because of the combination of a more ambitious 2028 and 2030 target and the short ownership period of leased cars, we can observe a strong growth effect after 2030: 18.3 million by 2035 and 23.9 million additional BEVs enter the used car market by 2040. This means that in 2035 there will have entered 56% more BEVs on the used car market compared to the baseline scenario.

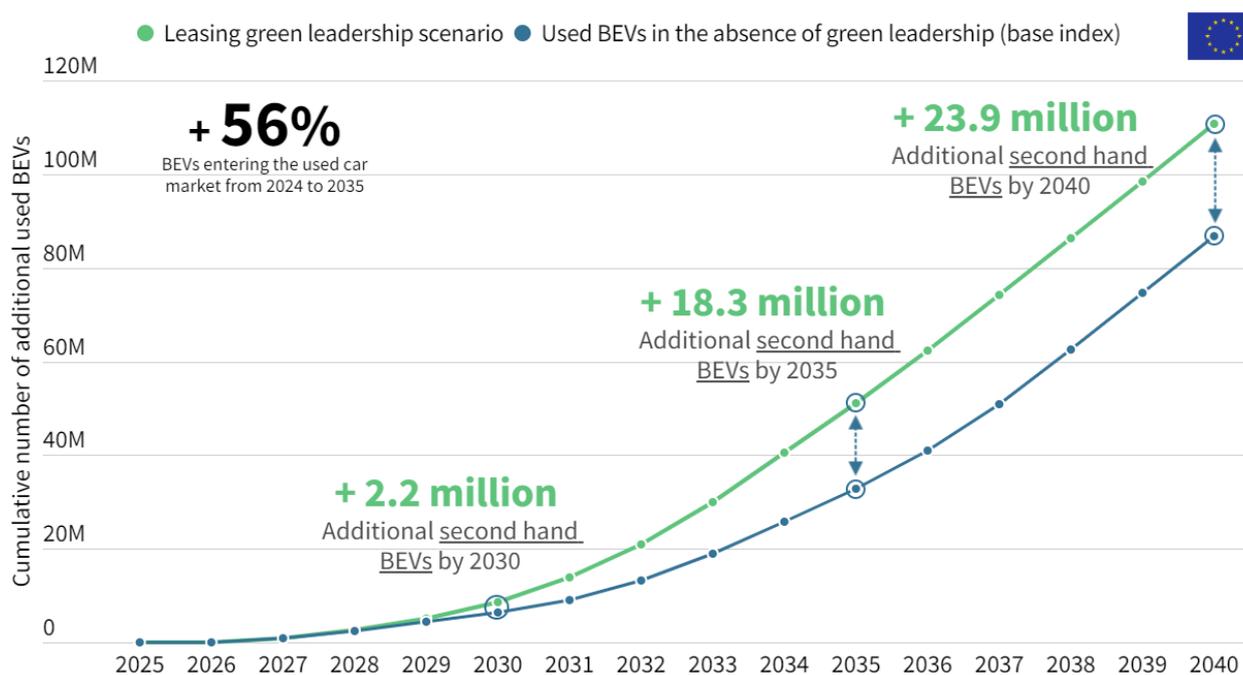


Figure 9: Leasing green leadership could bring more than 18 million additional used ZEVs by 2035

Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

When looking at country specific results, we see considerable differences between the markets. These differences are primarily influenced by the current market uptake of battery electric vehicles and the specific trajectory for each country to transition from their current BEV market uptake to 100% in 2028 for the biggest leasing companies (2030 for the entire sector). By examining these results on a country-by-country basis, we gain valuable insights regarding the effects and also challenges for each market (see Figure 10 to 14).

The results for **Germany** show that the impact on the used BEV market will be the largest of all the countries analysed when looking at the absolute numbers (+4.5M by 2035) due to the fact that Germany is the largest EU market in terms of new registrations. However, Germany has the lowest increase (+49%) because its current and projected BEV uptake in our business as usual scenario is

higher compared to the other countries. A similar conclusion can be drawn for **France**, where the absolute impact amounts to an additional 3.2M used BEVs and an increase of 58% by 2035 (see Figure 10 - 11).

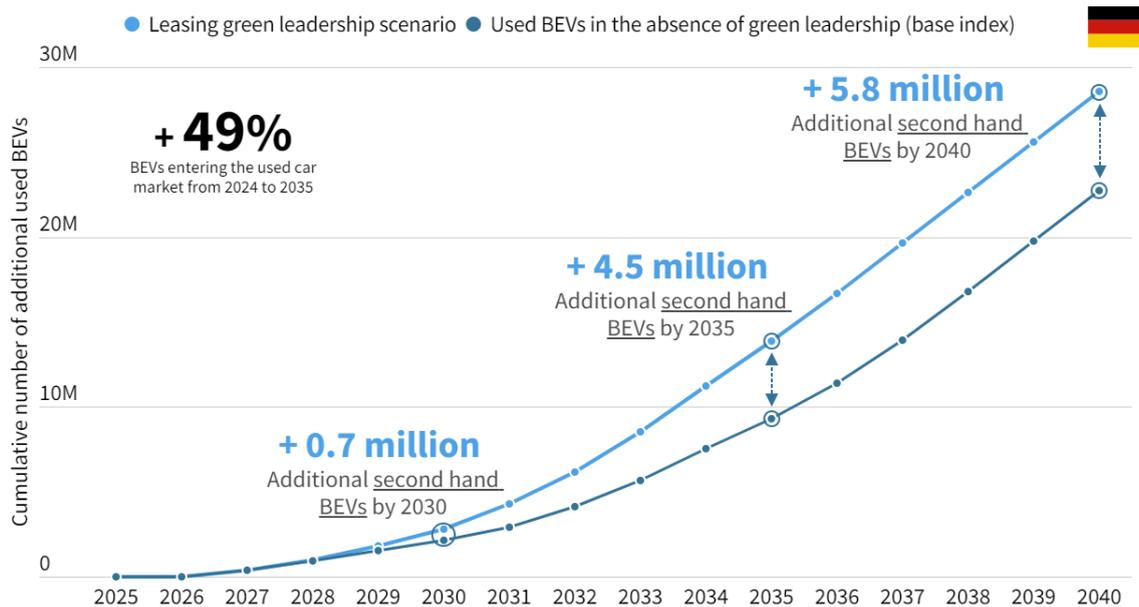


Figure 10: Leasing green leadership could bring 4.5 million additional used ZEVs by 2035

Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

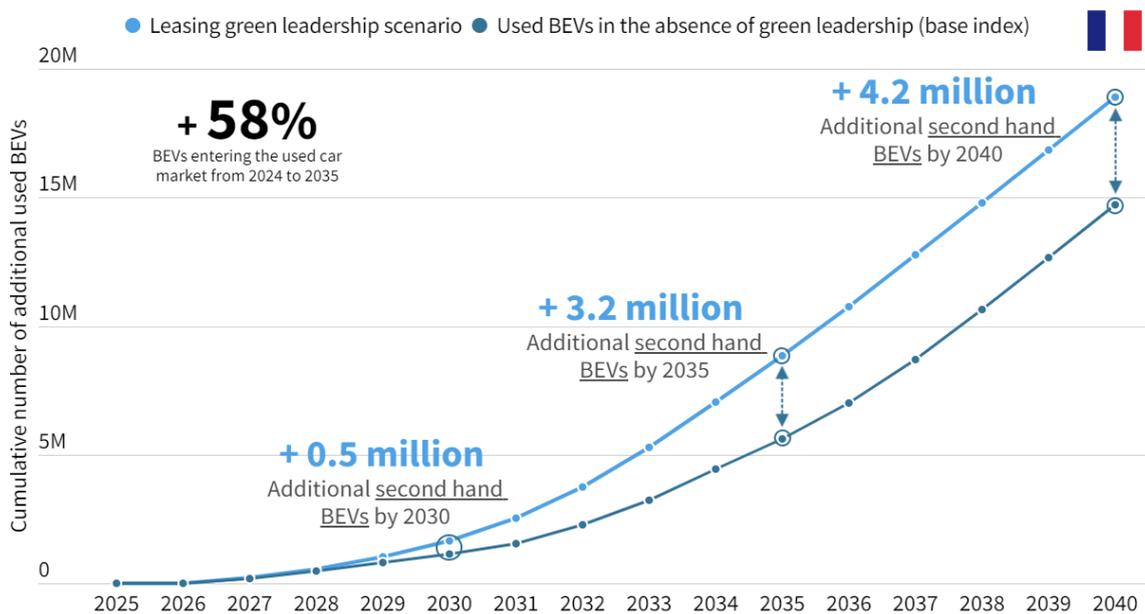


Figure 11: Leasing green leadership could bring 3.2 million additional used ZEVs by 2035

Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

For **Italy and Spain** the situation is quite different. For these two countries the challenge is bigger which also means that a faster electrification of leasing will bring more benefits. The impact on the used car market for Italy would be 3.3 million by 2035, a doubling of the baseline scenario (+130%). In Spain these numbers stand at 2.2 million, with a substantial increase of 112% (see Figure 12 - 13).

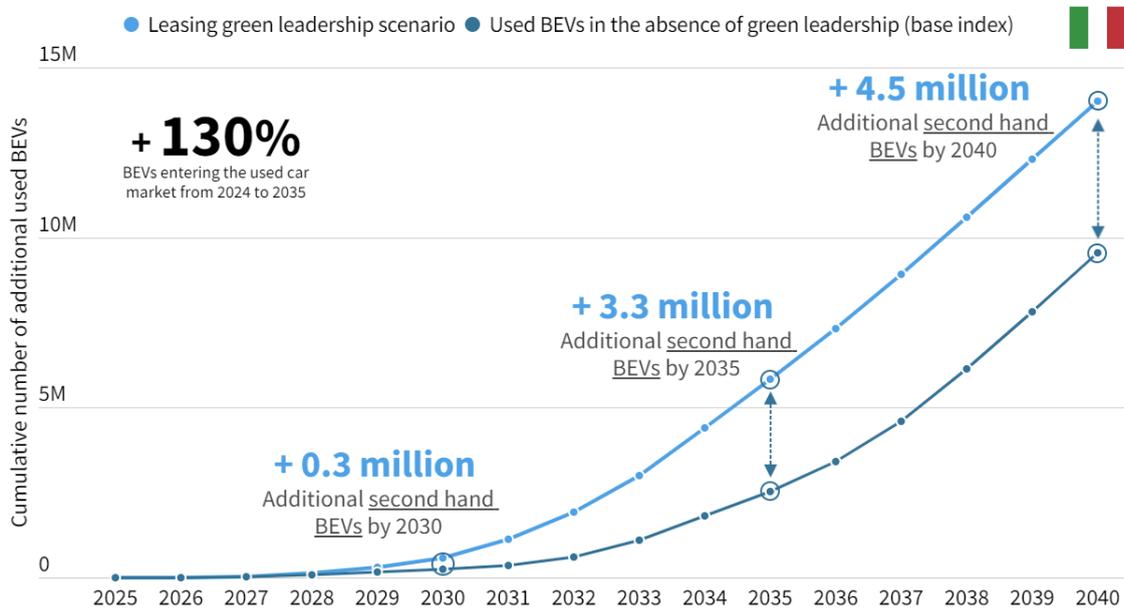


Figure 12: Leasing green leadership could bring more than 3 million additional used ZEVs by 2035

Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

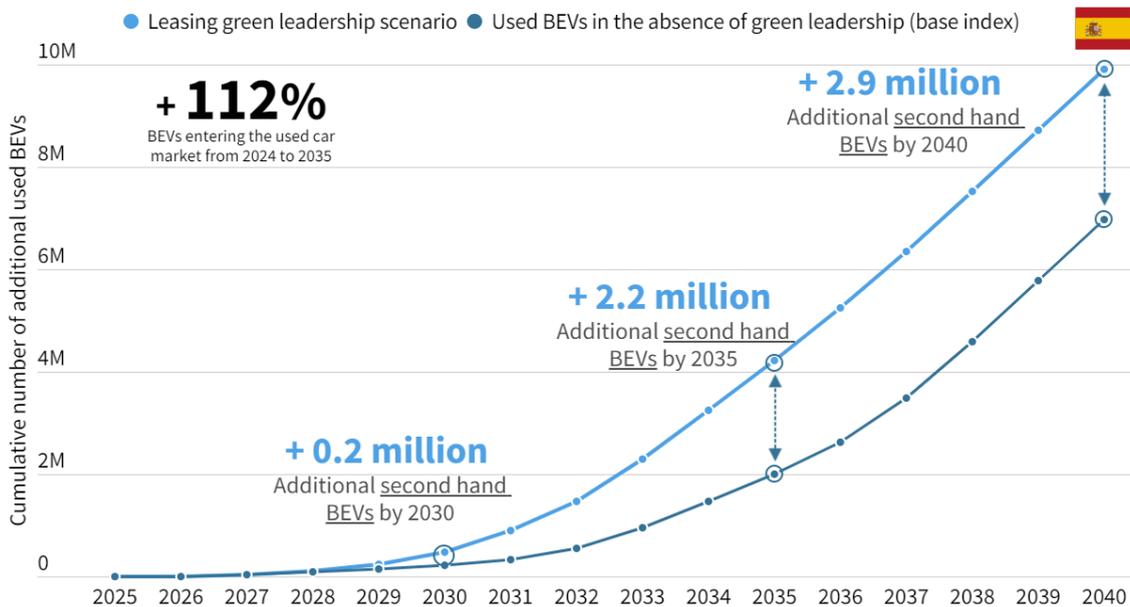


Figure 13: Leasing green leadership could bring more than 2 million additional used ZEVs by 2035

Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

In the case of **Poland** the impact would also be very significant i.e. an increase of 1.4 million used BEVs by 2035 (+152%). As in Poland the majority of new registrations (84%) are used cars, the effects of the green leadership scenario are very large.

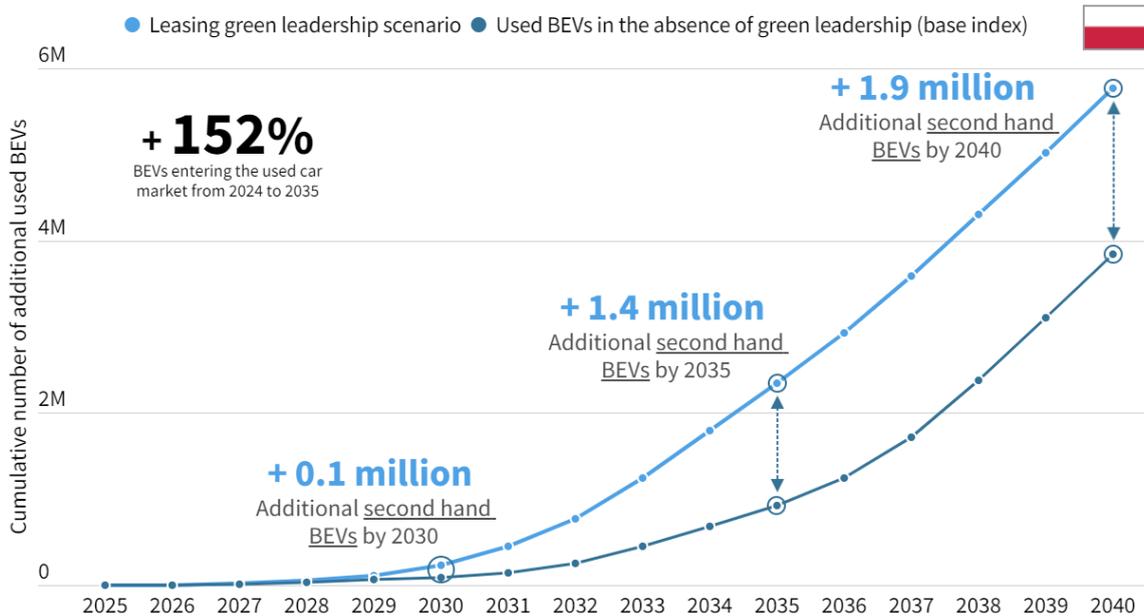


Figure 14: Leasing green leadership could bring 1.4 million additional used ZEVs by 2035

Source: T&E modelling

Notes: The graph shows the cumulative number of BEVs entering the second hand market from today. Results do not take into account BEVs leaving the fleet

5.2. Nearly half of the 18 million used BEVs will cost less than 10,000 euros

If leasing companies decide to be the green leaders they claim to be, the used car market would benefit from the entry of almost 18 million additional BEVs by 2035 and 23.5 million by 2040. But how many of these BEVs would enable low- and middle-income households to buy a used electric car?

Data on used car purchases show that middle-income households on average pay 10,000 euros for a used car.²³ Therefore, in this report this threshold is used to define the total number of used BEVs that will be accessible for low- and middle-income households. However, in this regard it is still important to underline that the remaining share of used BEVs costing more than 10,000 euros will remain attractive and will still be bought by upper middle-income households who still account for around 60% of used car buyers in the EU.²³

There are three factors that influence the price of used BEVs and thus the share of used cars that would fall under the 10,000 euros threshold: i) faster and higher availability of older BEVs; ii) increased supply of second-hand BEVs and iii) lower purchase prices of new BEVs. This section will analyse and quantify the first point. The remaining two (point ii and iii) are only discussed theoretically.

²³ Adjusted data based on Vanherle, K. and Vergeer, R. (2016). Data gathering and analysis to improve the understanding of 2nd hand car and LDV markets and implications for the cost effectiveness and social equity of LDV CO2 regulations. DG Climate Action ([link](#))

5.2.1. Faster and higher availability of older BEVs is key

One major factor that influences the total share of cars that will fall below this 10,000 euro threshold is the number of BEVs entering the used car market. If this increases, the average age of BEVs on the used car market will grow, leading to a greater number of older used BEVs that will have depreciated more and will therefore become more affordable.

Indeed, research has shown that cars typically lose around 20%-35% of their value in the first year of ownership and around 10%-15% for each subsequent year, meaning that after five years a car has depreciated around 40%.²⁴ Recent market data shows that there is a variance in depreciation rates between fuel types, countries, brands, and carmakers, but the general trend is similar.²⁵

As cars age they will lose value and enter the budget range of middle income households, with more expensive cars taking longer, up to ten or more years (see Table 2).

Table 2: Affordability threshold for low- and middle-income households reached in the used car market per year and initial price

	€ 20,000	€ 25,000	€ 30,000	€ 35,000	€ 40,000	€ 50,000	€ 60,000	€ 70,000	€ 80,000
Year 1	14,000	17,500	21,000	24,500	28,000	35,000	42,000	49,000	56,000
Year 2	11,900	14,875	17,850	20,825	23,800	29,750	35,700	41,650	47,600
Year 3	10,115	12,644	15,173	17,701	20,230	25,288	30,345	35,403	40,460
Year 4	8,598	10,747	12,897	15,046	17,196	21,494	25,793	30,092	34,391
Year 5	7,308	9,135	10,962	12,789	14,616	18,270	21,924	25,578	29,232
Year 6	6,212	7,765	9,318	10,871	12,424	15,530	18,636	21,742	24,847
Year 7	5,591	6,988	8,386	9,784	11,181	13,977	16,772	19,567	22,363
Year 8	5,032	6,290	7,547	8,805	10,063	12,579	15,095	17,611	20,126
Year 9	4,528	5,661	6,793	7,925	9,057	11,321	13,585	15,850	18,114
Year 10	4,076	5,095	6,113	7,132	8,151	10,189	12,227	14,265	16,302
Year 11	3,668	4,585	5,502	6,419	7,336	9,170	11,004	12,838	14,672
Year 12	3,301	4,127	4,952	5,777	6,602	8,253	9,904	11,554	13,205
Year 13	3,136	3,920	4,704	5,488	6,272	7,840	9,409	10,399	11,884

Source: T&E analysis based on Autovista Residual Value Intelligence tool, Wollenhaupt and Jones (2022) and Georgiev G.Z (2023)

The green leadership scenario will lead to a higher number of used BEVs entering the market in the years prior to 2035 and therefore increase the share of BEVs falling under the 10,000 euros price level.

To analyse this effect, the fleet of used BEVs below 10,000 euros from 2020 to 2040 has been modelled for both scenarios. Knowing the initial purchase price of new BEVs is crucial, since it will determine the year when they will fall below 10,000 euros (see Table 2). In order to model this, we have applied Autovista Residual Value Intelligence data to understand the initial price of the cars entering the used car market after 4 years (a typical leasing period). In addition, a survival curve has been applied, taking

²⁴ T&E analysis based on Autovista Residual Value Intelligence tool
Wollenhaupt and Jones (2022): Car Depreciation: How Much Value Will Your New Car Lose? ([link](#))
Georgiev G.Z., "Car Depreciation Calculator" ([link](#))

²⁵ T&E (2023), BEUC (2021) and The New Drive (2021)

into account the lifetime of each BEV over the years in order to show the situation of the affordable used BEV fleet as realistically as possible.

The results show that under the green leadership scenario, 8 of the 18 million additional used BEVs will fall under the 10,000 euros threshold which is the average budget low- and middle-income households spend on a used car. This means that low- and middle-income households will have access to clean cars that will also offer lower ownership costs compared to a used petrol car ([see section 3](#)).

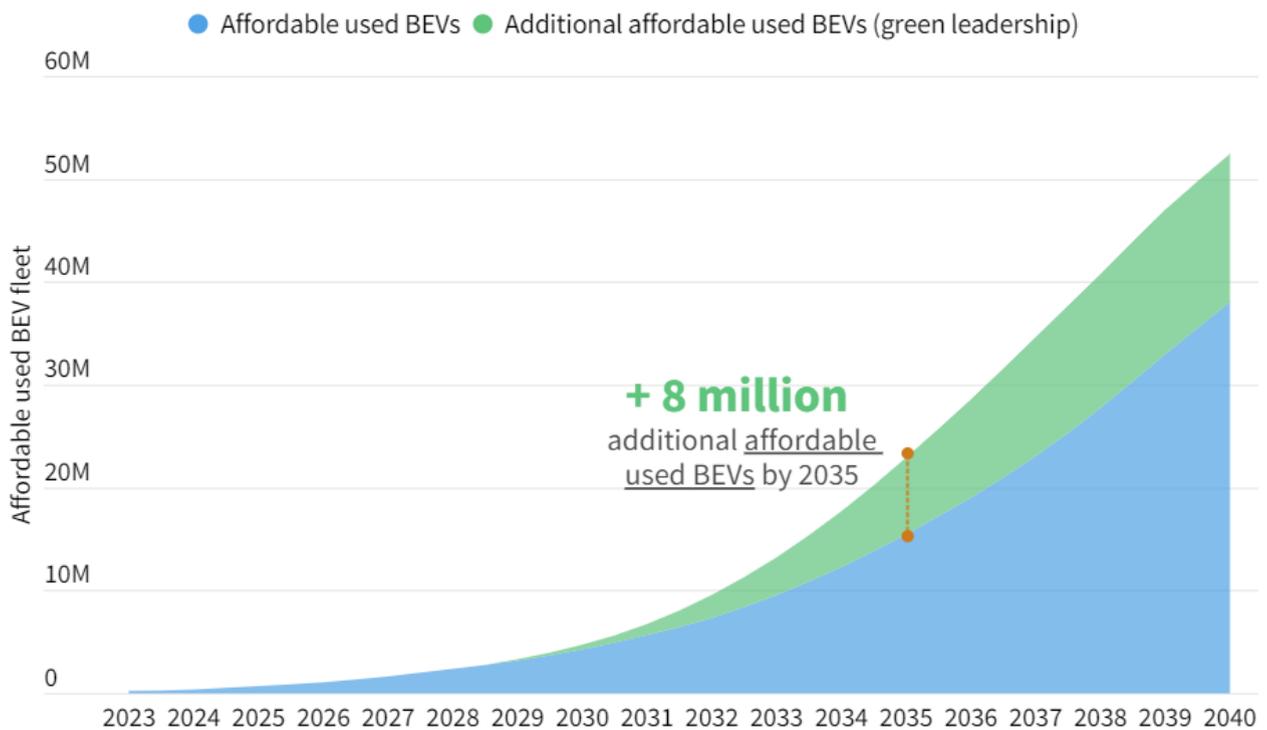


Figure 15: Leasing green leadership could help low- and middle-income households to access eight million of additional used BEVs by 2035

Source: T&E modelling

Note: An affordable used BEV is defined as a BEV whose price allows low- and middle-income households to have access to a used car. This amount corresponds to 10,000 euros.

5.2.2. Increased supply of second-hand BEVs will impact prices

The fact that the supply of used BEVs will increase on the second-hand market may have a significant impact on prices in this market, making them cheaper and more accessible for households. As observed in the UK, the large influx of used BEVs has led to a significant drop in used BEV prices.²⁶ This is mainly attributed to an increase in supply resulting in downward pressure on prices.

Interestingly, in response to these market dynamics, leasing companies are increasingly exploring second-hand leasing options.²⁷ Recognising the surplus of used electric vehicles and the resulting price adjustments in the market, leasing companies are adapting their strategies to include

²⁶ Autovista (2023): How are UK battery-electric vehicle residual values developing? ([link](#))

²⁷ Ayvens (2023). A growing portfolio of used EVs ([link](#))

second-hand leasing, capitalising on the increasing availability of these vehicles and reducing the impacts on residual values. This trend reflects a changing landscape, where leasing companies are evolving to become mobility operators rather than fixed-term leasing operators.

5.2.3. Smaller and cheaper BEV models would further increase the affordability of used cars

Another factor that would further increase the number of used BEVs that would fall under the €10,000 level is the initial purchase price. For example a new BEV with a price of €25,000 would already become accessible for low- and middle-income households after four years i.e. after the first leasing ownership period (see table 2). It is therefore of vital importance that car manufacturers start producing BEVs that have a lower purchase price and that leasing companies also incorporate these models in their portfolio.

A recent T&E report²⁸ shows that by 2025 it will be possible for carmakers to produce small electric cars that are at the same time also profitable. Recent announcements of major European car manufacturers confirm this (see Table 3).

Table 3: Carmakers announcements of smaller and cheaper BEVs (non exhaustive)

Carmaker	Model name	Expected price	Launch date	Source
Citroën	ë-C3	from €23,300	2024	(1)
Opel	<i>to be defined</i>	€25,000	2026	(2)
Fiat	e-Panda	€25,000	2024	(3)
Renault	R5	€22,000 to €25,000	2026	(4)
	Legend / Twingo	€20,000	2025	(5)
VW	ID.2	€25,000	2025	(6)
	ID.1	€20,000	2027	(7)
Skoda	Elroq	~ €25,000	2024	(8)
Tesla	<i>compact model</i>	~ €23,000	2026 - 2027	(9)

(1) Electrive (2023): Citroën takes aim for more affordable EVs with the ë-C3 ([link](#))

(2) Reuters (2023): Opel expects to offer electric vehicle for around 25,000 euros by 2026 ([link](#))

(3) Bloomberg (2023): Stellantis Plans Sub-€25,000 Panda EV to Take on Renault, BYD ([link](#))

(4) Autocar (2023): Renault 5 platform targets keen dynamics, low cost ([link](#))

(5) Electrive (2023): Electric car from Renault for under 20,000 euros in 2025 ([link](#))

(6) Carscoops (2023): VW Confirms Sub-\$21k Entry-Level ID.1 Small Electric Hatchback ([link](#))

(7) Auto Express (2023): New Volkswagen ID.2 all concept previews future affordable electric car ([link](#))

²⁸ T&E (2023). “Small and profitable: why affordable electric cars in 2025 are feasible.” ([link](#))

(8) Electrive (2023): Skoda announces plans for electric station wagon to release in 2026 ([link](#))

(9) Electrive (2023): Musk biography reveals plans for compact model and robot taxi on the same platform ([link](#))

Stellantis is expected to launch different models under its brands that fall in this price category. Citroën's ë-C3 model will arrive in 2024, with a starting price of 23,300 euros, this model is expected to be produced in Europe.²⁹ Opel will bring a new BEV model to the market in 2026 with a price of around 25,000 euros. And Fiat will offer an electric Panda model for 25,000 euros (July 2024).

In conclusion, the recent announcements by car manufacturers mark an important milestone on the road towards the widespread electrification of the car fleet. This shift towards cheaper BEVs not only fosters greater affordability for early adopters, but also has the potential to reshape the used car market in profound ways. As cheaper BEVs enter the market, their initial price is lower, reinforcing the availability of used BEVs at even more competitive price levels in the used car market after fewer years, offering middle-income households and other consumers an affordable alternative.

Conclusion: If leasing companies decide to be green leaders, 18 million additional used BEVs will enter the second-hand market by 2035, of which 8 million will be accessible for low- and middle-income households i.e. costing less than €10,000.

²⁹ Bloomberg (2023) - ([link](#))

6. Conclusions

The used car market is the main source for almost 80% of EU citizens that want to buy a car. Vehicles that enter this market have lower upfront costs as a large share of the depreciation already takes place in the first ownership period, making them especially attractive for low- and middle-income households. Moreover, the ownership costs of used BEVs are considerably lower compared to petrol cars with total savings - for the second and third owners combined - going up to more than €8,000.

If the EU wants to be successful in not only accelerating the switch to zero-emission transport but also ensure that electric cars will become accessible and affordable to all EU citizens, electrification of the used car market is therefore key.

In this briefing we analysed the key role leasing companies can play in accelerating the uptake of battery electric cars in the used car market. Leasing companies are strategically well positioned to drive this transition. They own fleets of millions of cars that only have an ownership period of three to four years before entering the used market.

A faster electrification of Europe's top leasing companies could bring an additional 18 million additional BEVs onto the used car market by 2035. This would be an increase of more than 50% compared to a business as usual scenario. However, leasing companies are showing a lack of climate leadership: their uptake of BEV is in line with the market and none of the top leasing companies has set a target to phase out fossil fuel cars. Moreover, recent T&E research has shown that leasing firms - especially in France - are steering their clients towards fossil cars instead of BEVs.³⁰ In other words, Europe is currently missing out on this big opportunity.

Apart from increasing the share of used BEVs, affordability remains an essential element. Our analysis shows that of the 18 million additional used BEVs, 8 million will cost less than 10 000 euros, the average budget low- and middle-income households spend on a used car. This number can even grow further if leasing companies increase the number of smaller and cheaper BEVs in their portfolio. The announcements of carmakers show that as of 2025 there will be supply of these cheaper BEVs that would allow the leasing companies to effectively do so.

In conclusion, the potential and responsibility of leasing companies in accelerating the electrification of the used car market cannot be overstated. Their proactive role as green industry leaders will foster a more affordable, accessible and environmentally friendly used car market. For this to become a reality, leasing companies need to increase their electrification efforts.

Therefore T&E is calling on leasing companies to implement the following policies:

- **Set timely and ambitious targets** for their transition to an electric future meaning committing to a 2028 phase-out date for polluting vehicles with intermediate BEV targets;
- **Improve** their performance by leading the market in the uptake of efficient zero-emission cars;

³⁰ T&E (2023). Are leasing companies advising clients to go electric? ([link](#))

- **Include** smaller and cheaper models in their BEV portfolio, pushing car manufacturers to increase production;
- Change their **consulting practices** and start to proactively steer consumers towards electric when advising them;
- **Advocate** for policy changes that incentivise and accelerate the uptake of electric cars (company car tax reforms at a national level and binding electrification targets for corporate cars at an EU level).

Methodology

For the impact on the second-hand market of a faster electrification of leasing companies in Europe, an ad-hoc model has been developed for the purpose of this project (sharing the main assumptions and parameters of the T&E's [EUTRM](#) model).

EUTRM, T&E's car fleet emission mode

EUTRM makes use of the most recently available data such as the 2021 car fleet composition³¹ and the latest car activity forecast from the European Commission (EC)³² to model the turnover of the whole car fleet on EU27 roads. It is based on historical data on fleet behaviour (e.g. fuel consumption, emissions, car retirement age, mileage changes depending on car age) and scenario inputs (e.g. car activity, electric cars sales share), the model's outputs include the fleet composition and the associated CO2 emissions until 2050.

Fleet size modelling

The EUTRM tool has been used to model the forecast of new passenger car registrations in EU-27 (see previous point). This forecast follows the latest [LMC automotive](#) data and is in line with the expectation that car activity will grow in line with the European Commission's expectation that passenger transport activity will continue growing in the future.

The EU27 car fleets CO2 emissions are predominantly determined by the following parameters:

- **Transport demand** (number of kilometres travelled in passenger-km): Overall transport demand impacts the number of kilometres driven by car, the higher the demand the higher the car fleet kilometres driven. A broad range of measures can be aimed at reducing the distance travelled, for instance by providing a better distribution of services within cities and avoiding urban sprawl.
- **Modal split** (split in distance travelled between car and other transport modes): Car activity can be reduced by shifting transport demand from car to active mobility and public transport.
- **Zero-emission vehicles (ZEVs) uptake** (percentage of ZEV in the fleet): Resulting from the sales of new ZEVs, the uptake of ZEV in the overall car fleet defines the percentage of car activity with zero tailpipe emissions.³³
- **Energy consumption** (energy consumed per km): Energy consumption depends both on the specific characteristics of cars (e.g. size, weight, engine power) and their use in real world conditions such as driver behaviour and speed.
- **ICE lifespan**: The shorter the lifetime of ICE cars, the faster the transition toward cleaner, lower emission solutions.

³¹ ACEA (2023). Vehicles in use, Europe 2023 ([link](#))

³² EC (2021). EU Reference Scenario 2020 ([link](#))

³³ The focus is placed on direct tailpipe emissions. To understand the overall life cycle emissions of electric cars, please refer to <https://www.transportenvironment.org/discover/how-clean-are-electric-cars/>

ZEV uptake

Under the baseline scenario, T&E modelled the minimum sale of new ZEVs required to meet the standards set in the car CO2 Regulation. The methodology was described in the T&E 2022 car CO2 report ([link](#)). The new scenario includes the latest development on the zero and low emission vehicle benchmark agreed in the final regulatory text as well as update of the 2021 reference parameters.

Under the scenario for cars affected by the faster electrification, the sales of new leasing ZEVs required to the final target (2028 - 100% ZEV top 7 leasing companies and 2030 - rest of the sector) have been applied. An exponential growth has been applied between these two key points, as the delivery of new ZEVs is expected to increase close to the target points.

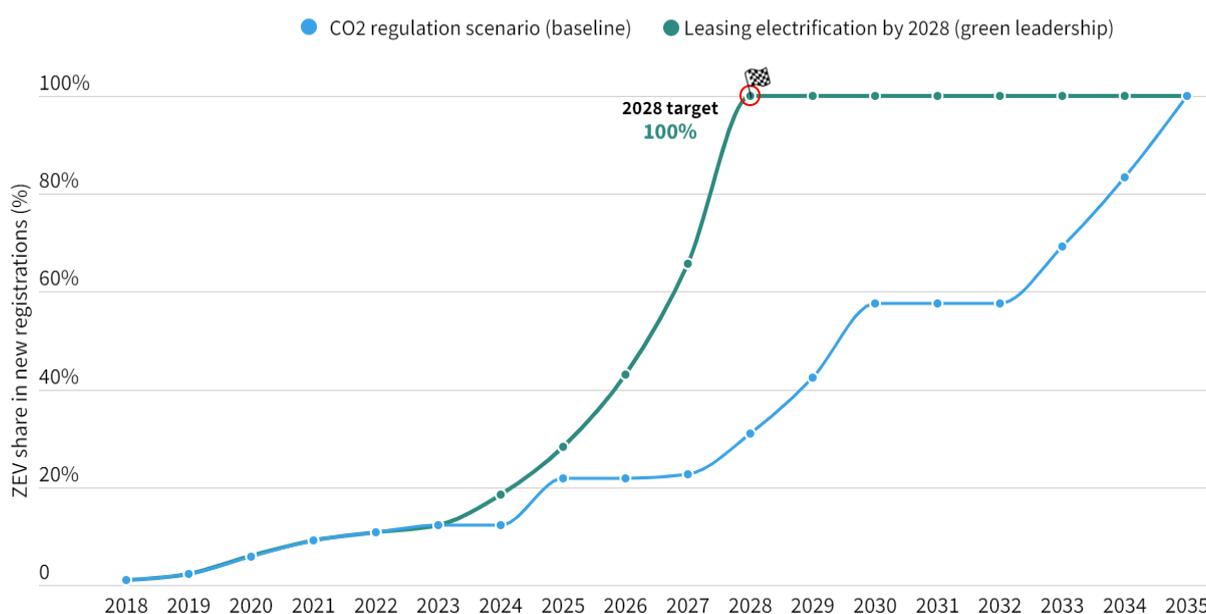


Figure 16: Baseline uptake of ZEVs compared to 2028 green leadership ambition

Source: T&E calculations

Effects on the private market

In addition to the direct impact on the private leasing market, the increased uptake of ZEVs in the corporate market causes more ZEVs entering the private channel after four years through the second-hand market. This situation has a positive impact, as the electrification of the private market will be accelerated and therefore the demand for ICEs is lower, bringing emissions reductions and affordable second-hand ZEVs.

Affected fleet in the scenario

Under the scenario of faster electrification for leasing companies, the new ZEV uptake curve has been applied to vehicle registrations under a leasing agreement. For the percentage of registrations under a leasing agreement, Autovista's forecasts³⁴ up to 2030 have been used. These data are provided on an aggregated basis for both corporate and private registrations. In order to be able to disaggregate these data and perform the calculations for the two channels separately, actual data from France and the Netherlands on the weight of corporate leasing in total leasing have been used.

³⁴ Autovista (2023). Remarketing Expert Track. FleetEurope. ([link](#))

Kilometres driven

For the use of the kilometres driven in the model, a distinction has been made between corporate and private cars. Within the corporate channel, a further distinction has been made depending on the type of registration (True fleets, Dealer & Manufacturer, Leasing & LTR and RAC). The distance in kilometres used in the model is based on different sources³⁵, with a distance of 12,000km for the private channel and 27,000km in the corporate channel (true fleets and leasing & LTR).

Survival curve and kilometres driven curve

The new affordable fleet composition created with the faster leasing electrification is aged through the application of survival rates and adjusted for the fact that older vehicles are typically driven less than newer ones.

Historical survival rates for all vehicle types are estimated from TRACCS³⁶ and are adjusted for import and export activity. Using the estimated bilateral trade matrices the total amount of exports as a percentage of vehicle sales was estimated and then applied to discount the survival rates of vehicles. Likewise, the total amount of imports as a percentage of total vehicle stock was estimated and then applied to inflate the survival rate to account for the replacement of vehicles of varying ages. The average survival rates estimated from the five years of available TRACCS data are assumed to hold for all time periods.

Average annual distance travelled per vehicle (measured in km) was collected for all modes from TRACCS. Projections of average annual distance travelled per vehicle for LDVs are calculated based on vehicles per capita (VPC). The higher the number of vehicles per capita the smaller the average annual distance travelled per vehicle. The initial distance driven is differentiated by corporate and private cars, assuming that true corporate fleets, corporate rental cars and leased corporate cars are driven 2.25 times more km than private.

³⁵ Dataforce (2022), Element Energy & BEUC (2021), Ricardo-AEA (2014)

³⁶ TRACCS (2013) is a transport database by EMISIA S.A. Available at this [link](#)

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