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The Importance of Eco-Bonuses in the Sustainable Development of European Electromobility

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Abstract

The National Fleet Renewal Program is a program in which a country's government aims to retire old vehicles from its fleet and replace them with new, more efficient and environmentally friendly. The scientific paper presents an original study and a personal opinion of the authors on the techno-economic and scientific acceptance of eco-bonuses in the sustainable and sustainable development of electromobility in the world. In its context, readers can learn about the current state of play regarding eco-bonuses for the purchase of road vehicles in Romania and the current state of play regarding eco-bonuses for the purchase of road vehicles in the countries of the European UnionAt the end of the paper, a case study is presented on the current state of sales of electric vehicles in Romania, Europe and other countries around the world, followed by the conclusions of the research carried out by the authors.

Keywords: Ecobonus, Financing Program, Rabla Classic, Rabla Plus, Renewal, Vehicle Fleet

1. Introduction

The governments of the European countries grant scrappage allowances for old cars or motorcycles that meet certain conditions under schemes to help individuals or businesses buy a new car or motorcycle. The conditions and deadlines for scrapping old, polluting, environmentally unfriendly and polluting vehicles are legally laid down in the Financing Guidelines of the Programs on reducing greenhouse gas emissions in transport by promoting clean and energy-efficient road transport vehicles. To this end, natural or legal persons may contact all car manufacturers validated in each Member State participating in such a program in order to complete the formalities for enrolment in the programs to be run during each calendar year. The programs are made available to natural or legal persons in most European countries via computer applications, where they can find the documents required for registration. In other countries, buyers of clean cars can go directly to an accredited car dealer, who is directly responsible for all the paperwork and formalities. The basic condition is that such a program must be active until the market share of electric cars reaches a point where the market share of electric cars reaches a threshold considered high enough for sales to continue naturally, and without financial stimulation [1]. Any program of this type has a period of maximum efficiency for implementation. When the objectives of the program have achieved the purpose for which they were created, the authorities of the countries concerned intervene in these funding programs. The intervention of the authorities on these funding programs consists in changing the conditions of application by reducing or even stopping (cancelling) the programs in order not to distort the economic sector of the country concerned. Sustainable transport is a complex system designed to ensure the mobility needs of today's generations without damaging environmental and health factors. By making energy and material consumption more efficient, it must make it possible to meet the mobility needs of future generations under optimal conditions from an economic, ecological and social perspective. The main economic instruments that can be used to this end are taxes, charges and authorization. In this way, it is possible to reduce the use of polluting means of transport, reduce energy consumption, make transport activities more efficient, redistribute income fairly between society and transport operators and redirect the way transport activities are satisfied [2]. Electromobility is seen as a less polluting form of automotive motorization. Today, electric cars are becoming increasingly popular, the population of European countries is becoming more educated and increasingly interested in this means of transport, the range of electric cars is increasing, the cost price is falling, supported by government authorities through substantial eco-bonuses, and their production is increasing correspondingly.

2. Literature Review

In Romania, the program for the renewal of its own fleet of road vehicles was conceived and implemented in 2005, with a modest budget, the smallest in the history of Rabla: only 45 million lei. Over the next three years, those who took their physically and morally worn out vehicles to scrap centers could buy a new car with a 3,000 lei discount, money paid from the Romanian state budget. In 2010, the scrapping premium was replaced by a voucher and the amount increased to 3,800 lei. And if you wanted a new car, you could use two more vouchers on top of the one you got for scrapping your old car. And for the first time, Rabla also helped businesses get rid of old cars. Since 2013, the Ministry of the Environment has increased the value of a voucher to 6,500 lei, but has stipulated that no more than one voucher can be used. Also in 2013, to encourage the purchase of electric cars, the state offered a 500 lei bonus on top of the voucher. As a result, more than 480,000 cars have been scrapped and almost 240,000 new cars have been bought in the last few years. Statistics show that most Romanians exchanged their old Dacia for a new one. In second place among the brands that took advantage of Rabla is Opel, followed by Chevrolet.

The Rabla program has been accepted and started in other European countries. Between January and September 2009, Germany ran a similar fleet renewal program. More than 2 million people benefited from this government program which had a €5 billion funding line available. The German state gave €2,500 for every old car exchanged for a new one. The financing scheme had an immediate impact, boosting consumption in Germany's toughest economic period since World War II. But measures to stimulate consumption only delayed the need to restructure the car industry.

In France, the scrapping premium was €1,000 in 2009, 380,000 scrapping applications were submitted and expenditure amounted to €380,000,000. From January 1, 2010, the amount of the premium will be reduced to €700 and from July 1, 2010 to €500.

3. State of play on eco-bonuses for the purchase of road vehicles in Romania

In Romania, the financing programs for individuals or legal entities to purchase a new car or a new motorcycle are carried out through the Rabla and Rabla Plus programs, are just some of the government programs implemented in recent decades to encourage investment in this direction, for the purchase of new electric vehicles. The programs were implemented in order to revitalize the sales of cars or motorcycles, a sector of particular importance for mobility and the Romanian economy. Subsequently, these programs were intended to contribute to the transition to a less carbon-intensive economy in the context of global warming. Romania is not a singular case. Such economic policies are regularly implemented in most countries in the world, for various economic sectors. In the automotive industry, Rabla-type programs to encourage the purchase of new cars were introduced in 2009 in countries such as Germany, France, Spain, Austria and Slovakia and have played a key role in reviving the car industry, including by maintaining jobs. The main purpose of these programs in Romania is to provide financial incentives to encourage the purchase of electric cars, which in turn spurs car manufacturers to develop electric cars and charging station infrastructure [1].

When the share of such vehicles reaches or exceeds the desired market share, the program is limited or even stopped. In this case, sales can continue as normal without financial stimulation.

In Romania, the government is supporting the renewal of the car fleet by granting a scrappage premium for cars that meet specific conditions.

The Rabla program has two components:

- Rabla Classic financing program;
- Rabla Plus financing program.

Conditions and deadlines are stipulated in the PSIPAN Financing Guide 2020-2024 (National Fleet Renewal Stimulation Program) and the 2020 Financing Guide for the Program on Reducing Greenhouse Gas Emissions in Transport by Promoting Clean and Energy Efficient Road Transport Vehicles, 2020-2024.

- ***Rabla Classic financing program*** [3].

In the year 2024, through the Rabla Classic Program, the Romanian government granted a voucher (scrappage premium) in the amount of 7,000 lei for a car with an age of 6 years or more, registered in Romania, which is scrapped, with the purpose of purchasing a new low emission car. The newly purchased car must have a maximum emission level of 150g CO_2/km in the WLTP mixed measurement regime. 2 Rabla vouchers can be used for the purchase of a new car, with the mention that the scrapping premium for 2 cars is 10,000 lei.

In addition to the amount of up to 10,000 lei, the participant in the Rabla Classic Program can also benefit from other eco-bonuses, if the car he/she wants to purchase meets the conditions below. Thus, it is offered:

- an ecobonus of 1,500 lei (in addition to the scrappage bonus) for the purchase of a car whose engine generates emissions of maximum 120g CO_2/km in the Worldwide Harmonized Light-Duty Vehicles Test Procedure (WLTP) system;
- an ecobonus of 1,500 lei (in addition to the scrapping bonus) for the purchase of a car with Liquefied Petroleum Gas (LPG) system;
- an ecobonus of 1,500 lei (in addition to the scrappage bonus) for each scrapped car with Euro 3 or lower pollution standard, for a maximum of 2 cars;
- an ecobonus of 3,000 lei for the purchase of a new hybrid car; Plug-in Hybrid Electric Vehicle (PHEV) versions that charge from the plug are included in the Rabla Plus Program.

- ***Rabla Plus financing program*** [3]

In the year 2024, if you opt for a 100% electric or PHEV car, through the Rabla Plus Program you could benefit from:

- a scrappage bonus of 13,000 lei when scrapping a single car older than 6 years, in order to purchase a new Plug-in Hybrid (PHEV) car with maximum emissions of 80 g CO_2/km in WLTP system;
- a scrappage bonus of 25,500 lei on the scrapping of a single car more than 6 years old, for the purchase of a 100% electric car or a new car with a hydrogen fuel cell, but not more than 50% of the selling price, provided that the value of the pure electric vehicle does not exceed 70,000 euro, VAT included.

Buying a new car under the Rabla Plus Program is only possible if you are scrapping an old car.

4. State of play on eco-bonuses for the purchase of on-road vehicles in EU countries

Over the years, many countries in Europe have adopted policies to finance the purchase of new electric cars by individuals or companies. Due to the growing interest and appetite of buyers, some European countries have started to adapt the programs based on the evolution of sales of electric vehicles.

Germany intended to phase out the program at the end of 2024, but was forced to adopt the measure with quick effect at the end of 2023 [4], following a court decision cutting the national budget by €60 billion [1].

In some European countries, the decision has been seen as the beginning of the end for subsidy programs when buying a new electric car in Europe. However, data compiled by the European Automobile Manufacturers Association (ACEA) show that Germany's decision is justified by the sales trend and has not been copied by other European countries. On the contrary, some countries have increased and even doubled subsidies on the basis of their own strategies to electrify their car fleets [1].

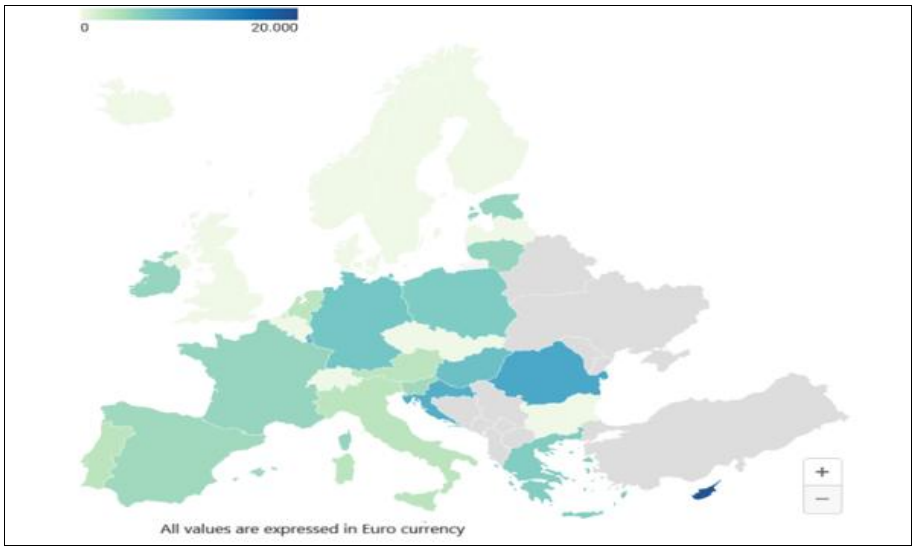

Fig 1: European map of government bonuses in 2023 [1]

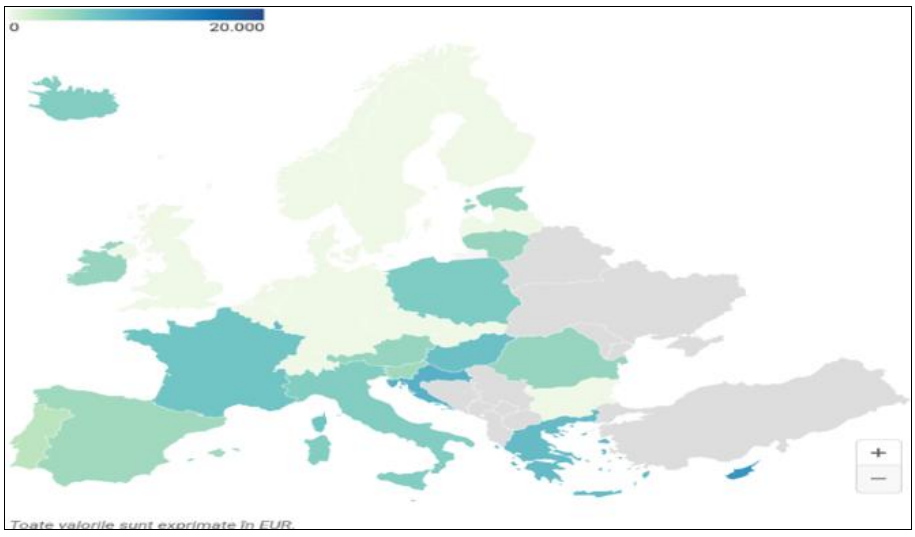

Fig 2: European map of government bonuses in 2024 [1]

In Fig 1 we show the European map of government bonuses awarded in 2023, and in Fig 2 we show the European map of government bonuses awarded in 2024, with the note that the bonus is larger the darker the shade of blue. In Table 1 we present the detailed data presented in Fig 1. The data reveal the situation of financial bonuses granted by the governments of the European Union states when purchasing a new car in 2023.

In Table 2 we present the detailed data presented in Fig 2. The data reveal the situation of financial bonuses granted by the governments of the European Union states when purchasing a new car in the year 2024.

Table 1: The detailed situation of financial bonuses granted by the governments of the European Union member states for the purchase of a new car in 2023

Country	Bonus value [Euro €]	Comments
Iceland	0	Does not exist. VAT exemption on purchases worth €8,000 for the first €36,000 of the vehicle price
Norway	0	Does not exist. Exemption from 25% VAT on the first €45,000 of the price and from paying taxes on vehicle mass and NO_2 emissions
Sweden	0	Does not exist
Finland	0	Does not exist
Estonia	5,000	-
Latvia	0	Does not exist
Lithuania	0	-
Denmark	0	Substantial tax exemptions apply to car registration
Ireland	5,000	-
United Kingdom	0	Does not exist
Netherlands	2,950	-
Belgium	0	Does not exist
Germany	6,750	For cars up to €40,000 and €4,500 for cars up to€ 65,000
Czech Rep.	0	It applies locally, depending on the policy of each region of the country
Slovakia	0	Does not exist
Poland	6,200	For cars up to €52,000
France	5,000	For cars up to €47,000
Switzerland	0	Does not exist
Austria	3,000	For cars up to €60,000
Hungary	7,350	7,350 Euro for cars up to €32,000
Romania	10,000	Extra bonus for scrapping an old car
Portugal	3,000	For cars up to €62,500
Spain	4,500	€4,500 or €7,000 when scrapping an old car
Italy	3,000	For cars costing up to €35,000 + VAT €2,000 extra for scrapping an old car
Slovenia	4,500	Up to €4,500
Croația	9,300	The new vehicle purchased cannot be sold for 2 years
Bulgaria	0	Does not exist
Greece	6,000	20% of the purchase price of the vehicle before tax, but not more than €6,000
Cyprus	19,000	For vehicles with a purchase price of €80,000 or less

Table 2: Detailed situation of the financial bonuses granted by the governments of the European Union states when purchasing a new car in 2024

Country	Bonus value [Euro €]	Comments
Iceland	6,000	For vehicles with a purchase price below €67,000
Norway	0	Exemption from 25% VAT for the first €43,000 of the purchase price and from vehicle mass and NO_2 emission taxes
Sweden	0	Does not exist
Finland	0	Does not exist
Estonia	5,000	-
Latvia	0	Does not exist
Lithuania	5,000	The vehicle must have been registered for no more than 6 months
Denmark	0	Substantial registration tax exemptions apply
Ireland	5,000	Maximum value
United Kingdom	0	Does not exist
Netherlands	0	There are various bonuses depending on the region
Belgium	0	Does not exist
Germany	0	Does not exist
Czech Rep.	0	It applies locally, depending on the policy of each region of the country
Slovakia	0	Does not exist
Poland	6,200	For cars up to €52,000
France	7,000	For cars priced up to €47,000, only for people on low incomes
Switzerland	0	Does not exist
Austria	5,000	€2,000 + €3,000 from the importer for vehicles with a purchase price up to €60,000
Hungary	7,350	For cars priced up to €32,000, €1,500 for cars between €3,000-44,000
Romania	5,000	Extra bonus for scrapping an old car
Portugal	3,000	For cars up to €62,500
Spain	4,500	€7,000 when you scrap an old car. Program valid until July 31, 2024
Italy	6,000	For cars priced up to €35,000 + VAT. €7,350 more for scrapping a car with the European 0-2 pollution standard
Slovenia	4,500	-
Croația	9,000	The new car purchased cannot be sold for 2 years and must not cost more than €50,000
Bulgaria	0	Does not exist
Greece	8,000	30% of the purchase price of the vehicle before tax, but not more than €8,000
Cyprus	12,000	For vehicles with a purchase price of €8.000 or less

The ***market share*** is defined as the total sales expressed as a percentage (%) of an organization's sales in a competitive (competitive) market over a given period of time. It is calculated based on the ratio of the total volume of sales of an organization's physical goods or products [5] during a reporting period to the total sales of the industry in that country during the same reporting period.

The resulting value is used to give an overall picture of the size of a company in relation to the market and its competitors. A company's market share is its "share" of total sales relative to the market in which it operates [5].

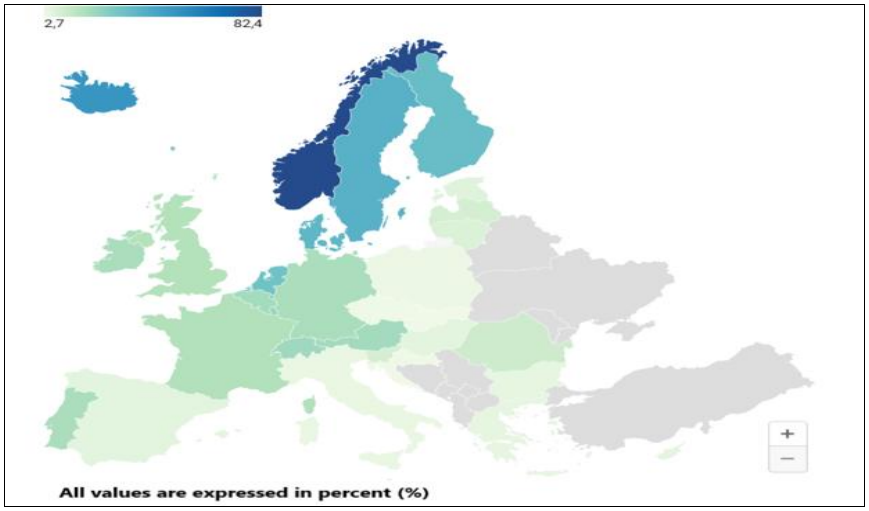

Fig 3: Market share for electric cars in 2023 for European countries [1]

For example, if a car manufacturer in a European country sells €1 million worth of cars per year, and the total volume of cars sold is €10 million, the market share will be 10%. In Fig 3 we present the market share for electric cars in European countries in 2023.

Managers of any road transport organization look closely at the rise or fall in market share. This is a sign of the relative competitiveness of the products (transport vehicles) or services provided (motor vehicle transportation services). As the total market for transport motor vehicles or transport services provided by transport organizations grows, and such an organization maintains its market share, it actually means increasing sales of services and revenues. We note that this market share is higher in European countries marked on the map with darker colors.

Based on the data presented in Fig 3, according to the colors with which each country is marked, in Table 4 we present the market share for electric cars in 2023 for the EU countries, and for each country additional information is available on the electric car bonus in 2023 and 2024.

Table 4: Electric car market share in 2023 for European Union countries, with additional information on bonuses for electric cars in 2023 versus 2024

Country	Market share [%]	Bonus awarded in 2023	Bonus awarded in 2024
Iceland	50.1	Does not exist. VAT exemption on purchase of up to €8,800 for the first €36,600 of the car price	€6,000 for cars priced below €67,000
Norway	82.4	Does not exist. Exemption from 25% VAT on the first €43,000 of the price and from paying taxes on car mass and NO_2 emissions	Exemption from 25% VAT on the first €43,000 of the price and from paying taxes on car mass and NO_2 emissions
Sweden	38.7	Does not exist	Does not exist
Finland	33.8	Does not exist	Does not exist
Estonia	6.3	€5,000	€5,000
Latvia	8.9	Does not exist	Does not exist
Lithuania	7.5	€5,000	€5,000. Car must have been registered for no more than 6 months
Denmark	36.3	Does not exist, but significant registration tax exemptions apply	Does not exist. Significant registration tax exemptions apply
Ireland	18.6	Up to €5,000	Up to €5,000
United Kingdom	16.5	Does not exist	Does not exist
Netherlands	30.8	€2,950	There are various bonuses depending on the region
Belgium	19.6	Does not exist	Does not exist
Germany	18.4	€6,750 for cars up to €40,000 and €4,500 for cars up to €65,000	Does not exist
Czech Rep.	3	Does not exist. It applies locally, depending on the policy of each region of the country	Does not exist. It applies locally, depending on the policy of each region of the country
Slovakia	2.7	Does not exist	Does not exist
Poland	3.6	Up to €6,200 for cars priced up to €52,000	Up to €6,200 for cars priced up to €52,000
France	16.8	€5,000 for cars priced up to €47,000	€7,000 for cars priced up to €47,000, only for people on

			low incomes
Switzerland	20.9	Does not exist	Does not exist
Austria	19.9	€3,000 for cars priced up to €60,000	€5,000; €2,000 + €3,000 de la importator pentru mașini cu preț de cel mult €60,000
Hungary	5.4	€7,350 for cars priced up to €32,000	€7,350 for cars priced up to €32,000. €1,500 for cars priced between €32,000 - 44,000
Romania	10.6	Approx. €10,000 extra bonus for scrapping an old car	Approx. €5,000 extra bonus for scrapping an old car
Portugal	18.2	€3,000 for cars priced up to €62,500	€3,000 for cars priced up to €62,500
Spain	5.4	€4,500 or €7,000 when scrapping an old car	€4,500 or €7,000 when scrapping an old car. The program is valid until July 31, 2024
Italy	4.2	€3,000 for cars priced up to €35,000 + VAT. Another €2,000 for scrapping an old car	€6,000 for cars priced up to €35,000 + VAT. A further €7,350 for scrapping a car with the European 0-2 pollution standard
Slovenia	8.9	Up to €4,500	Up to €4,500
Croația	2.8	€9,300. The car cannot be sold for 2 years	€9,000. The car cannot be sold for 2 years and must cost no more than €50,000
Bulgaria	4.8	Does not exist	Does not exist
Greece	4.7	20% of the price of the car without tax, but not more than €6,000	30% of the price of the car without tax, but not more than €8,000
Cyprus	5.3	Up to €19,000 for cars priced up to €80,000	€12,000 for cars priced up to €80,000

5. Current status of electric vehicle sales worldwide: Case Study

Strong electric car sales in the first quarter of 2024 surpass the annual total from just four years ago. Electric car sales remained strong in the first quarter of 2024, surpassing those of the same period in 2023 by around 25% to reach more than 3 million. This growth rate was similar to the increase observed for the same period in 2023 compared to 2022 [6]. The majority of the additional sales came from China, which sold about half a million more electric cars than over the same period in 2023. In relative terms, the most substantial growth was observed outside of the major EV markets, where sales increased by over 50%, suggesting that the transition to electromobility is picking up in an increasing number of countries worldwide [7].

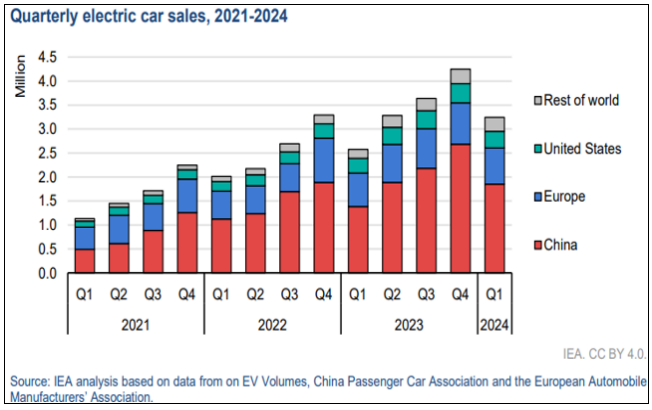

Fig 4: Quarterly electric car sales, 2021-2024 [6, p. 27]

Analysis of the data presented in Fig 4 shows that from January to March of this year, nearly 1.9 million electric cars were sold in China, marking an almost 35% increase compared to sales in the first quarter of 2023. In March, NEV sales in China surpassed a share of 40% in overall car sales for the first time, according to retail sales reported by the China Passenger Car Association. As witnessed in 2023, sales of plug-in hybrid electric cars are growing faster than sales of pure battery electric cars. Plug-in hybrid electric car sales in the first quarter increased by around 75% year-on-year in China, compared to just 15% for battery electric car sales, though the former started from a lower base [7].

In Europe, the first quarter of 2024 saw year-on-year growth of over 5%, slightly above the growth in overall car sales and thereby stabilising the EV sales share at a similar level as last year. Electric car sales growth was particularly high in Belgium, where around 60,000 electric cars were sold, almost 35% more than the year before. However, Belgium represents less than 5% of total European car sales [7]. In Fig 4 we show global sales over 2021-2024 by quarter.

In the major European markets – France, Germany, Italy and the United Kingdom (together representing about 60% of European car sales) – growth in electric car sales was lower. In France, overall EV sales in the first quarter grew by about 15%, with BEV sales growth being higher than for PHEVs. While this is less than half the rate as over the same period last year, total sales were nonetheless higher and led to a slight increase in the share of EVs in total car sales.

The United Kingdom saw similar year-on-year growth (over 15%) in EV sales as France, about the same rate as over the same period last year. In Germany, where battery electric car subsidies ended in 2023, sales of electric cars fell by almost 5% in the first quarter of 2024, mainly as a result of a 20% year-on-year decrease in March. The share of EVs in total car sales was therefore slightly lower than last year. As in China, PHEV sales in both Germany and the United Kingdom were stronger than BEV sales. In Italy, sales of electric cars in the first three months of 2024 were more than 20% lower than over the same period in 2023, with the majority of the decrease taking place in the PHEV segment. However, this trend could be reversed based on the introduction of a new incentive scheme [8], and if Chinese automaker Chery [9] succeeds in appealing to Italian consumers when it enters the market later this year.

In the United States, first-quarter sales reached around 350,000, almost 15% higher than over the same period the year before. As in other major markets, the sales growth of PHEVs was even higher, at 50%. While the BEV sales share in the United States appears to have fallen somewhat over the past few months, the sales share of PHEVs has grown.

In smaller EV markets, sales growth in the first months of 2024 was much higher, albeit from a low base. In January and February, electric car sales almost quadrupled in Brazil and increased more than sevenfold in Viet Nam. In India, sales increased more than 50% in the first quarter of 2024. These figures suggest that EVs are gaining momentum across diverse markets worldwide.

Since 2021, first-quarter electric car sales have typically accounted for 15-20% of the total global annual sales. Based on this observed trend, coupled with policy momentum and the seasonality that EV sales typically experience, we estimate that electric car sales could reach around 17 million in 2024. This indicates robust growth for a maturing market, with 2024 sales to surpass those of 2023 by more than 20% and EVs to reach a share in total car sales of more than one-fifth [7].

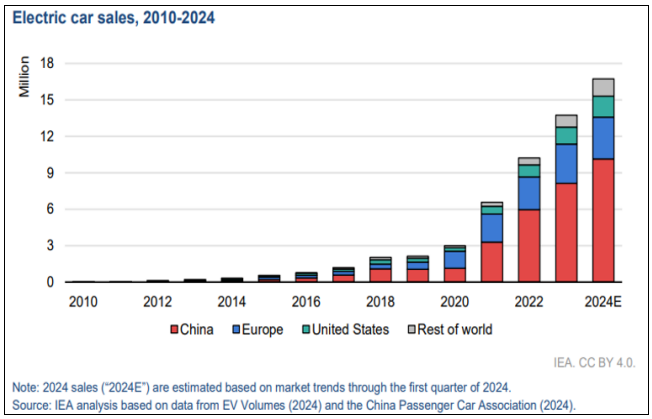

Fig 5: Electric car sales, 2010-2024 [6, p. 28]

The majority of the additional 3 million electric car sales projected for 2024 relative to 2023 are from China. Despite the phase-out of NEV purchase subsidies last year, sales in China have remained robust, indicating that the market is maturing. With strong competition and relatively low-cost electric cars, sales are to grow by almost 25% in 2024 compared to last year, reaching around 10 million. If confirmed, this figure will come close to the total global electric car sales in 2022. As a result, electric car sales could represent around 45% of total car sales in China over 2024. Fig 5 shows global sales of electric cars from 2010-2024 [7].

In 2024, electric car sales in the United States are projected to rise by 20% compared to the previous year, translating to almost half a million more sales, relative to 2023. Despite reporting of a rocky end to 2023 for electric cars in the United States, sales shares are projected to remain robust in 2024. Over the entire year, around one in nine cars sold are expected to be electric.

Based on recent trends, and considering that tightening CO_2 targets are due to come in only in 2025, the growth in electric car sales in Europe is expected to be the lowest of the three largest markets. Sales are projected to reach around 3.5 million units in 2024, reflecting modest growth of less than 10% compared to the previous year. In the context of a generally weak outlook for passenger car sales, electric cars would still represent about one in four cars sold in Europe [7].

Outside of the major EV markets, electric car sales are anticipated to reach the milestone of over 1 million units in 2024, marking a significant increase of over 40% compared to 2023. Recent trends showing the success of both homegrown and Chinese electric carmakers in Southeast Asia underscore that the region is set to make a strong contribution to the sales of emerging EV markets (see the section on Trends in the electric vehicle industry). Despite some uncertainty surrounding whether India's forthcoming FAME III scheme will include subsidies for electric cars, we expect sales in India to remain robust, and to experience around 50% growth compared to 2023. Across all regions outside the three major EV markets, electric car sales are expected to represent around 5% of total car sales in 2024, which – considering the high growth rates seen in recent years – could indicate that tipping point [10] towards global mass adoption is getting closer.

There are of course downside risks to the 2024 outlook for electric car sales. Factors such as high interest rates and economic uncertainty could potentially reduce the growth of global electric car sales in 2024. Other challenges may come from the IRA restrictions on US electric car tax incentives, and the tightening of technical requirements for EVs to qualify for the purchase tax exemption in China. However, there are also upside potentials to consider. New markets may open up more rapidly than anticipated, as automakers expand their EV operations and new entrants compete for market share. This could lead to accelerated growth in electric car sales globally, surpassing the initial estimations.

More electric models are becoming available, but the trend is towards larger ones. The number of available electric car models nears 600, two-thirds of which are large vehicles and SUVs. In 2023, the number of available models for electric cars increased 15% year-on-year to nearly 590, as carmakers scaled up electrification plans, seeking to appeal to a growing consumer base. Meanwhile, the number of fully ICE models (i.e. excluding hybrids) declined for the fourth consecutive year, at an average of 2%. Based on recent original equipment manufacturer (OEM) announcements, the number of new electric car models could reach 1.000 by 2028. If all announced new electric models actually reach the market, and if the number of available ICE car models continues to decline by 2% annually, there could be as many electric as ICE car models before 2030 [7].

As reported in GEVO-2023, the share of small and medium electric car models is decreasing among available electric models: in 2023, two-thirds of the battery-electric models on the market were SUVs,5 pick-up trucks or large cars. Just 25% of battery electric car sales in the United States were for small and medium models, compared to 40% in Europe and 50% in China. Electric cars are following the same trend as conventional cars, and getting bigger on average. In 2023, SUVs, pick-up trucks and large models accounted for 65% of total ICE car sales worldwide, and more than 80% in the United States, 60% in China and 50% in Europe [7].

Several factors underpin the increase in the share of large models. Since the 2010s, conventional SUVs in the United States have benefited from less stringent [11] tailpipe emissions rules than smaller models, creating an incentive for carmakers to market more vehicles in that segment. Similarly, in the European Union, CO_2 targets for passenger cars have included a compromise on weight, allowing CO_2 leeway [12] for heavier vehicles in some cases. Larger vehicles also mean larger margins for carmakers. Given that incumbent carmakers are not yet making a profit on their EV offer in many cases, focusing on larger models enables them to increase their margins. Under the US IRA, electric SUVs can qualify [13] for tax credits as long as they are priced under $80,000, whereas the limit stands at $55,000 for a sedan, creating an incentive to market SUVs if a greater margin can be gathered. On the demand side, there is now strong willingness to pay for SUVs or large models. Consumers are typically interested in longer-range and larger cars for their primary vehicles, even though small models are more suited to urban use. Higher

marketing [14] spend on SUVs compared to smaller models can also have an impact on consumer choices [7].

The progressive shift towards ICE SUVs has been dramatically limiting [15] fuel savings. Over the 2010-2022 period, without the shift to SUVs, energy use per kilometre could have fallen at an average annual rate 30% higher than the actual rate. Switching to electric in the SUV and larger car segments can therefore achieve immediate and significant CO_2 emissions reductions, and electrification also brings considerable benefits in terms of reducing air pollution and non-tailpipe emissions, especially in urban settings. In 2023, if all ICE and HEV sales of SUVs had instead been BEV, around 770 Mt CO_2 could have been avoided globally over the cars' lifetimes (see section 10 on lifecycle analysis). This is equivalent to the total road emissions of China in 2023 [7].

Nevertheless, from a policy perspective, it is critical to mitigate the negative spillovers associated with an increase in larger electric cars in the fleet.

Larger electric car models have a significant impact on battery supply chains and critical mineral demand. In 2023, the sales-weighted average battery electric SUV in Europe had a battery almost twice as large as the one in the average small electric car, with a proportionate impact on critical mineral needs. Of course, the range of small cars is typically shorter than SUVs and large cars (see later section on ranges). However, when comparing electric SUVs and medium-sized electric cars, which in 2023 offered a similar range, the SUV battery was still 25% larger. This means that if all electric SUVs sold in 2023 had instead been medium-sized cars, around 60 GWh of battery equivalent could have been avoided globally, with limited impact on range. Accounting for the different chemistries used in China, Europe, and the United States, this would be equivalent to almost 6,000 tonnes of lithium, 3,000 tonnes of nickel, almost 7,000 tonnes of cobalt, and over 8,000 tonnes of manganese [7].

Larger batteries also require more power, or longer charging times. This can put pressure on electricity grids and charging infrastructure by increasing occupancy, which could create issues during peak utilisation, such as at highway charging points at high traffic times.

In addition, larger vehicles also require greater quantities of materials such as iron and steel, aluminium and plastics, with a higher environmental and carbon footprint for materials production, processing and assembly. Because they are heavier, larger models also have higher electricity consumption. The additional energy consumption resulting from the increased mass is mitigated by regenerative braking to some extent, but in 2022, the sales-weighted average electricity consumption of electric SUVs was 20% higher than that of other electric cars [7].

Major carmakers have announced launches of smaller and more affordable electric car models over the past few years. However, when all launch announcements are considered, far fewer smaller models are expected than SUVs, large models and pick-up trucks. Only 25% of the 400+ launches expected over the 2024-2028 period are small and medium models, which represents a smaller share of available models than in 2023 [7].

Even in China, where small and medium models have been popular, new launches are typically for larger cars. In China, where the sales share of electric cars has been high for several years, the sales-weighted average price of electric cars (before purchase subsidy) is already lower than that of ICE cars. This is true not only when looking at total sales, but also at the small cars segment, and is close for SUVs. After accounting for the EV exemption from the 10% vehicle purchase tax, electric SUVs were already on par with conventional ones in 2022, on average.

Electric car prices have dropped significantly since 2018. We estimate that around 55% of the electric cars sold in China in 2022 were cheaper than their average ICE equivalent, up from under 10% in 2018. Given the further price declines between 2022 and 2023, we estimate that this share increased to around 65% in 2023. These encouraging trends suggest that price parity between electric and ICE cars could also be reached in other countries in certain segments by 2030, if the sales share of electric cars continues to grow, and if supporting infrastructure – such as for charging – is sustained.

As reported in detail in GEVO-2023 [16], China remains a global exception in terms of available inexpensive electric models. Local carmakers already market nearly 50 small, affordable electric car models, many of which are priced under CNY 100,000 ($15,000). This is in the same range as best-selling small ICE cars in 2023, which cost from CNY 70,000 to CNY 100,000. In 2022, the best-selling electric car was SAIC's small Wuling Hongguang Mini EV, which accounted for 10% of all BEV sales. It was priced around CNY 40,000, weighing under 700 kg for a 170 km range. In 2023, however, it was overtaken by Tesla models, among other larger models, as new consumers seek longer ranges and higher-end options and digital equipment [7].

In the United States, the sales-weighted average price of electric cars decreased over the 2018-2022 period, primarily driven by a considerable drop in the price of Tesla cars, which account for a significant share of sales. The sales-weighted average retail price of electric SUVs fell slightly more quickly than the average SUV battery costs over the same period. The average price of small and medium models also decreased, albeit to a smaller extent.

Across all segments, electric models remained more expensive than conventional equivalents in 2022. However, the gap has since begun to close, as market size increases and competition leads carmakers to cut prices. For example, in 2023-2024, Tesla's Model 3 could be found in the $39,000 to $42,000 range, which is comparable to the average price for new ICE cars, and a new Model Y priced under $50,000 was launched. Rivian is expecting to launch its R2 SUV in 2026 at $45,000, which is much less than previous vehicles. Average price parity between electric and conventional SUVs could be reached by 2030, but it may only be reached later for small and medium cars, given their lower availability and popularity [7].

Smaller, cheaper electric models have further to go to reach price parity in the United States. We estimate that in 2022, only about 5% of the electric cars sold in the United States were cheaper than their average ICE equivalent. In 2023, the cheapest electric cars were priced around $30,000 (e.g. Chevrolet Bolt, Nissan Leaf, Mini Cooper SE). To compare, best-selling small ICE options cost under $20,000 (e.g. Kia Rio, Mitsubishi Mirage), and many best-selling medium ICE options between $20,000 and $25,000 (e.g. Honda Civic, Toyota Corolla, Kia Forte, Hyundai Avante, Nissan Sentra) [7].

Around 25 new all-electric car models are expected in 2024, but only 5 of them are expected below $50,000, and none

under the $30,000 mark. Considering all the electric models expected to be available in 2024, about 75% are priced above $50,000, and fewer than 10 under $40,000, even after taking into account the $7,500 tax credit under the IRA for eligible cars as of February 2024. This means that despite the tax credit, few electric car models directly compete with small mass-market ICE models.

In December 2023, GM stopped production of its best-selling electric car, the Bolt,announcing it would introduce a new version in 2025. The Nissan Leaf (40 kWh) therefore remains the cheapest available electric car in 2024, at just under $30,000, but is not yet eligible for IRA tax credits. Ford announced in 2024 that it would move away from large and expensive electric cars as a way to convince more consumers to switch to electric, at the same time as increasing output of ICE models to help finance a transition to electric mobility. In 2024, Tesla announced it would start producing a next-generation, compact and affordable electric car in June 2025, but the company had already announced in 2020 that it would deliver a $25,000 model within 3 years. Some micro urban electric cars are already available between $5,000 and $20,000 (e.g. Arcimoto FUV, Nimbus One), but they are rare. In theory, such models could cover many use cases, since 80% of car journeys in the United States are under 10 miles [7].

At European level pricing trends differ across European countries, and typically vary by segment.

In Norway, after taking into account the EV sales tax exemption, electric cars are already cheaper than ICE equivalents across all segments. In 2022, we estimate that the electric premium stood around -15%, and even -30% for medium-sized cars. Five years earlier, in 2018, the overall electric premium was less advantageous, at around -5%. The progressive reintroduction of sales taxes on electric cars may change these estimates for 2023 onwards.

Germany's electric premium ranks among the lowest in the European Union. Although the sales-weighted average electric premium increased slightly between 2018 and 2022, it stood at 15% in 2022. It is particularly low for medium-sized cars (10-15%) and SUVs (20%), but remains higher than 50% for small models. In the case of medium cars, the sales-weighted average electric premium was as low as €5,000 in 2022. We estimate that in 2022, over 40% of the medium electric cars sold in Germany were cheaper than their average ICE equivalent. Looking at total sales, over 25% of the electric cars sold in 2022 were cheaper than their average ICE equivalent. In 2023, the cheapest models among the best-selling medium electric cars were priced between €22,000 and €35,000 (e.g. MG MG4, Dacia Spring, Renault Megane), far cheaper than the three front-runners priced above €45,000 (VW ID.3, Cupra Born, and Tesla Model 3). To compare, best-selling ICE cars in the medium segment were also priced between €30,000 and €45,000 (e.g. VW Golf, VW Passat Santana, Skoda Octavia Laura, Audi A3, Audi A4). At the end of 2023, Germany phased out its subsidy for electric car purchases, but competition and falling model prices could compensate for this [7].

In France, the sales-weighted average electric premium stagnated between 2018 and 2022. The average price of ICE cars also increased over the same period, though more moderately than that of electric models. Despite a drop in the price of electric SUVs, which stood at a 30% premium over ICE equivalents in 2022, the former do not account for a high enough share of total electric car sales to drive down the overall average. The electric premium for small and medium cars remains around 40-50% [7].

These trends mirror those of some of the best-selling models. For example, when adjusting prices for inflation, the small Renault Zoe was sold at the same price on average in 2022-2023 as in 2018-2019, or €30,000 ($32,000). It could be found for sale at as low as €25,000 in 2015-2016. The earlier models, in 2015, had a battery size of around 20 kWh, which increased to around 40 kWh in 2018-2019 and 50 kWh in newer models in 2022-2023. Yet European battery prices fell more quickly than the battery size increased over the same period, indicating that battery size alone does not explain car price dynamics.

In 2023, the cheapest electric cars in France were priced between €22,000 and €30,000 (e.g. Dacia Spring, Renault Twingo E-Tech, Smart EQ Fortwo), while best-selling small ICE models were available between €10,000 and €20,000 (e.g. Renault Clio, Peugeot 208, Citroën C3, Dacia Sandero, Opel Corsa, Skoda Fabia). Since mid-2024, subsidies of up to €4,000 can be granted for electric cars priced under €47,000, with an additional subsidy of up to €3,000 for lower-income households.

In the United Kingdom, the sales-weighted average electric premium shrank between 2018 and 2022, thanks to a drop in prices for electric SUVs, as in the United States. Nonetheless, electric SUVs still stood at a 45% premium over ICE equivalents in 2022, which is similar to the premium for small models but far higher than for medium cars (20%) [7].

In 2023, the cheapest electric cars in the United Kingdom were priced from GBP 27 000 to GBP 30,000 ($33,000 to $37,000) (e.g. MG MG4, Fiat 500, Nissan Leaf, Renault Zoe), with the exception of the Smart EQ Fortwo, priced at GBP 21,000. To compare, best-selling small ICE options could be found from GBP 10,000 to 17,000 (e.g. Peugeot 208, Fiat 500, Dacia Sandero) and medium options below GBP 25 000 (e.g. Ford Puma). Since July 2022, there has beenno subsidy for the purchase of electric passenger cars.

Elsewhere in Europe, electric cars remain typically much more expensive than ICE equivalents. In Poland, for example, just a few electric car models could be found at prices competitive with ICE cars in 2023, under the PLN 150,000 (Polish zloty) (€35,000) mark. Over 70% of electric car sales in 2023 were for SUVs, or large or more luxurious models, compared to less than 60% for ICE cars.

In 2023, there were several announcements by European OEMs for smaller models priced under €25,000 in the near-term (e.g. Renault R5, Citroën e-C3, Fiat e-Panda, VW ID.2all). There is also some appetite for urban microcars (i.e. L6-L7 category), learning from the success of China's Wuling. Miniature models bring important benefits if they displace conventional models, helping reduce battery and critical mineral demand. Their prices are often below $5,000 (e.g. Microlino, Fiat Topolino, Citroën Ami, Silence S04, Birò B2211) [7].

In Europe and the United States, electric car prices are expected to come down as a result of falling battery prices, more efficient manufacturing, and competition. Independent analyses suggest that price parity between some electric and ICE car models in certain segments could be reached over the 2025-2028 period, for example for small electric cars in Europe in 2025 or soon after. However, many market variables could delay price parity, such as volatile

commodity prices, supply chain bottlenecks, and the ability of carmakers to yield sufficient margins from cheaper electric models. The typical rule in which economies of scale bring down costs is being complicated by numerous other market forces. These include a dynamic regulatory context, geopolitical competition, domestic content incentives, and a continually evolving technology landscape, with competing battery chemistries that each have their own economies of scale and regional specificities.

Japan is a rare example of an advanced economy where small models – both for electric and ICE vehicles – appeal to a large consumer base, motivated by densely populated cities with limited parking space, and policy support. In 2023, about 60% of total ICE sales were for small models, and over half of total electric sales. Two electric cars from the smallest "Kei" category, the Nissan Sakura and Mitsubishi eK-X, accounted for nearly 50% of national electric car sales alone, and both are priced between JPY 2.3 million (Japanese yen) and JPY 3 million ($18,000 to $23,000). However, this is still more expensive than best-selling small ICE cars (e.g. Honda N Box, Daihatsu Hijet, Daihatsu Tanto, Suzuki Spacia, Daihatsu Move), priced between $13,000 and $18,000. In 2024, Nissan announced that it would aim to reach cost parity (of production, not retail price) between electric and ICE cars by 2030 [7].

In EMDEs, the absence of small and cheaper electric car models is a significant hindrance to wider market uptake. Many of the available car models are SUVs or large models, targeting consumers of high-end goods, and far too expensive for mass-market consumers, who often do not own a personal car in the first place (see later sections on second-hand car markets and 2/3Ws) [7].

In India, while Tata's small Tiago/Tigor models, which are priced between $10,000 and $15,000, accounted for about 20% of total electric car sales in 2023, the average best-selling small ICE car is priced around $7,000. Large models and SUVs accounted for over 65% of total electric car sales. While BYD announced in 2023 the goal of accounting for 40% of India's EV market by 2030, all of its models available in India cost more than INR 3 million (Indian rupees) ($37,000), including the Seal, launched in 2024 for INR 4.1 million ($50,000) [7].

Similarly, SUVs and large models accounted for the majority share of electric car sales in Thailand (60%), Indonesia (55%), Malaysia (over 85%) and Viet Nam (over 95%). In Indonesia, for example, Hyundai's Ioniq 5 was the most popular electric car in 2023, priced at around $50,000 [7]. Looking at launch announcements, most new models expected over the 2024-2028 period in EMDEs are SUVs or large models. However, more than 50 small and medium models could also be introduced, and the recent or forthcoming entry of Chinese carmakers suggests that cheaper models could hit the market in the coming years.

In 2022-2023, Chinese carmakers accounted for 40-75% of the electric car sales in Indonesia, Thailand and Brazil, with sales jumping as cheaper Chinese models were introduced. In Thailand, for example, Hozon launched its Neta V model in 2022 priced at THB 550,000 (Thai baht) ($15,600), which became a best-seller in 2023 given its relative affordability compared with the cheapset ICE equivalents at around $9,000. Similarly, in Indonesia, the market entry of Wuling's Air EV in 2022-2023 was met with great success. In Colombia, the best-selling electric car in 2023 was the Chinese mini-car, Zhidou 2DS, which could be found at around $15,000, a competitive option relative to the country's cheapest ICE car, the Kia Picanto, at $13,000 [7].

5.1 The decline in sales of electric cars, due to the reduction of eco-bonuses granted by the Romanian government

Europe is going through a prolonged period of declining car sales, with a good proportion of customers preferring to postpone their purchase decision. Against this backdrop, the rebound in electric car sales in many markets, including Germany, is surprising. Unfortunately, Romania is leading the countries where sales of electric cars simply collapsed by more than 50% in September. In terms of propulsion system, there was a visible advance for electrics, which in September had a 17.3% share of the total market, up from 14.8% a year ago, thanks to a 9.8% increase, with a volume of 139,702 units, but sales fell by 5.8% for the year as a whole, and market share fell by almost one percentage point over the three quarters to 13.1%, due to declines in Germany in particular. Note that Germany saw growth in the electric segment in September of almost 9%, with 34,400 cars registered. Registrations of plug-in hybrid cars fell 22.3% last month, driven by declines in all major markets. In September, plug-in hybrids accounted for 6.8% of the car market, down from 8.2% last year, with 54,889 units sold. In contrast, plug-in hybrids grew 12.5% in September to a 32.8% share, putting them ahead of sales of gasoline engines [17].

In the year 2024, as can be deduced from the analysis of the data presented in Tables 1 and 2, the Romanian government reduced the *"Rabla plus"* ecobonus granted for the purchase of a new electric car from €10,000 to €5,000. The reduction of the ecobonus granted was reflected in 2024, directly in the sales in this sector, by decreasing them.

In Romania, the situation for electric cars is in a sharp decline, following the halving of the Rabla Plus voucher. With 7,378 fully electric cars this year, Romania reported a 37.3% drop in this segment, after only 501 electric cars were registered in September, 56% fewer than a year ago. This is the biggest drop in electrics in the EU since 2024. At brand level, Dacia is not going through a very good period, with a result that could prevent the Romanian car brand from ending 2024 with an increase [17].

By 2025 the Rabla program is suspended in Romania due to the economic situation.

5.2 Sales of electric cars in Europe

he European car sector faces several challenges, including high production costs, managing the transition to electric cars and the influx of cheap vehicles from Chinese rivals. In September 2024, Germany's Volkswagen Group, Europe's biggest carmaker, announced plans to close at least three plants in Germany [18].

Europeans are not as interested in zero-emission cars as they were some time ago. The latest data, provided by ACEA, shows that sales are in freefall for the fourth consecutive month.

In August, electric car sales fell by 43.9% in the EU compared to the same month in 2023. In other words, while 165,204 units were sold in the eighth month of last year, 92,627 were sold in August 2024. At the same time, the market share of electric cars fell from 21% to 14.4%. The declines are much larger when looking at the biggest markets in Europe. In Germany, for example, there was a

68.8% decline, and in France 33.1%. In fact, car sales are at their lowest level since 2021. A total of 643,637 units were registered in August, down 18.3% from August 2023 [19].

However, there has been an increase in sales of hybrid cars, which grew by 6.6% in European countries. According to data presented by APIA (the European Automobile Manufacturers Association), the decline in sales of electric cars in European countries is due to inadequate and insufficient charging infrastructure in some European countries, high competition in production and low subsidies (eco-bonuses) that are granted by the governments of the European Union member states.

According to ACEA, the situation could improve with a short-term exemption from the new CO_2 emission targets [20], for passenger cars and commercial vehicles, due to enter into force in 2025 [19].

5.3 State of electric car sales worldwide

Global sales of all-electric cars and plug-in hybrid vehicles rose 35% in October 2024 compared to the same month in 2023. This is due to a 54% jump in sales in the Chinese market, show figures released by market research firm Rho Motion.

According to the data, a total of 1.72 million all electric cars and plug-in hybrids were sold worldwide in October. Chinese market sales reached a record 1.2 million vehicles. In the US and Canada, sales of electric cars rose by 11.4% year-on-year to 160,000 units, while in Europe they totaled 260,000 units, up slightly by 0.8% compared to October last year, Reuters and Agerpres news agencies note. Despite modest increases, October was the second consecutive month of growth for electric car sales in Europe and the market research firm expects a good end to the year in the region, said Charles Lester, manager at Rho Motion. He also said: *"The Chinese electric car market shows no signs of slowing down as it enters the last two months of the year with solid car sales".* Charles Lester also said that November and December are traditionally months with solid automobile sales. The EU's carbon emission reduction targets for next year could lead to price cuts as carmakers seek to boost sales of electric cars to meet the targets and avoid fines, Charles Lester said [18].

However, electric cars are becoming increasingly unattractive globally due to a lack of infrastructure, low range, costly purchase price and lack of financial support from government. This makes it difficult to meet the target of lower pollutant emissions.

According to the fifth annual EY Global Mobility Consumer Index, global demand for electric vehicles has slowed. The main fear of potential buyers is the lack of charging infrastructure. The report, based on a survey of 19,000 respondents in 28 countries, shows that while the percentage of those planning to buy an electric vehicle has risen from 55% to 58% over the previous year, demand growth is starting to stall, after increasing from 30% to 55% between 2020 and 2023. Potential buyers, 27% of respondents are discouraged, citing the lack of charging infrastructure as their main concern. 25% said they are concerned about the range of electric vehicles and 18% said charging electric vehicles takes too long [21].

Given that it has been a few years since electric cars have been on the market, the latest survey also identified concerns about the high cost of replacing batteries. This was cited by 26% of potential buyers.

6. Conclusions

18 of the 31 countries surveyed offer bonuses for the purchase of electric cars, which represents 58% of the countries in the European Union and EFTA Area (Iceland, Norway, Switzerland and the United Kingdom).

In a further four countries there are bonuses offered on a regional basis or there are significant tax exemptions on the purchase of an electric car, such as the elimination of VAT. Including these four countries, 71% of EU + EFTA countries offer bonuses or tax exemptions for electric cars.

Cyprus is still the country with the highest bonus (€12,000), even if its value has decreased by 37% compared to 2023, while Malta still offers €11,000. Meanwhile, Croatia, Greece and Luxembourg, three other countries with small populations and low sales, offer consistent bonuses of €9,000 and €8,000 respectively.

10 out of the 18 countries with direct purchase bonuses offer buyers between €5,000 and €7,000. The most common bonus is €5,000 and is offered by five countries, while the lowest bonus is offered by Portugal: €3,000.

The average bonus currently offered by the 18 European countries is €6,530, up 4.9% compared to the average bonus of €6,227 offered in 2023 by 20 countries.

The average bonus offered in 2024 across all 31 countries surveyed is €3,792, down by 5.6% compared to the average of €4,018 in 2023.

Romania is the European country with the biggest percentage reduction in the bonus: 50%, from €10,000 to €5,000. Meanwhile, Cyprus is the country with the biggest decrease in value: €7,000, from €19,000 to €12,000.

There are nine European countries that do not offer any bonus for buying electric cars: Belgium, Bulgaria, Bulgaria, Finland, Germany, Germany, Latvia, Slovakia, Sweden, Switzerland, UK and the United Kingdom. Of these, Germany is the only country offering a bonus in 2023.

The bonus for buying an electric car has decreased in 2024 compared to 2023 in only four countries: Croatia (insignificantly, from €9,300 to €9,000), Cyprus (from €19,000 to €12,000), the Netherlands (government bonus of €2,950 has been replaced by a bonus set by each individual region according to certain parameters) and Romania, where the value of the bonus has decreased by 50%, from the equivalent of around €10,000 to €5,000. Moreover, it is easy to notice that, with the exception of the Netherlands, the bonus has decreased exactly in the European states with the highest subsidy values in 2023, especially Cyprus and Romania.

At the opposite pole, the bonus for electric cars has increased this year compared to 2023 in five European countries: Austria (from €3,000 to €5,000, through an artifice that imposes a financial contribution from importers), France (from €5,000 to €7,000, but only for people on low incomes), Greece (from 20% of the price of the car, maximum €6,000 in 2023 to 30% of the price of the car, maximum €8,000 in 2024), Italy (from €3,000 to €6 000), Iceland (a €6,000 bonus is now added to the VAT exemption applied in 2023).

In all other states, the amount of the bonus and the conditions under which it is granted remained mostly similar to 2023.

Basically, there is only one state that completely dropped the subsidy this year, four states where the bonus decreased, and five states where the bonus increased.

Of the nine states that currently offer no subsidies, electric car market share exceeds 10% in six states. The only exceptions are Slovakia (2.7%), Bulgaria (4.8%) and Latvia (8.9%), which at the same time are also among the countries with the fewest inhabitants in the EU.

Of the four countries where the bonus is decreasing, in the Netherlands the market share for electrics is almost 31%, while in Romania it has passed the 10% threshold.

Traditionally, the market share of electric cars in northern European countries is high even in the absence of direct purchase subsidies. Iceland this year introduced a €6,000 purchase bonus, whereas until last year electric car buyers were exempt from paying 24% VAT. In other words, the Icelandic government is offering less money for electric cars this year compared to last year, as the VAT was higher than €6,000 for any electric car on the market.

With the exception of Germany, most central European countries, where the market share of electrics is usually between 10% and 20%, have adopted a conservative policy, with bonuses similar or only slightly modified compared to last year.

Of the countries with relevant European sales, the most radical change has been made by Italy, where the market share of electric cars is only 4.2%. The Italian government has decided to double the purchase bonus from €3,000 to €6,000, plus a €7,350 bonus when scrapping a car with a thermal engine with Euro 0, Euro 1 or Euro 2 pollution standardsIn other words, the bonus goes up to €13,750 for the purchase of an electric car priced up to €35,000 + VAT, which is more than what Romania was offering until last year. An important observation is that the Italian market is dominated by affordable city cars, an element that has probably contributed to the weaker sales of electric cars in this country.

Despite much controversy in recent years, more than half of European countries continue to offer bonuses for buying electric cars, and the average amount remains generous. In addition, some European countries have decided to reintroduce or increase the bonuses to meet their targets, despite the general perception that they are no longer as popular as in the past.

The United States also has an extensive subsidy program to encourage the purchase of electric cars, giving tax rebates of up to $7,500.

As of August 2022, only cars whose final assembly takes place in the United States are eligible under the program, and as of April 2023, additional requirements have been introduced: $3,750 in tax rebates are given for cars that meet a number of critical raw material sourcing requirements, and a further $3,750 for cars that meet a number of battery sourcing requirements, to reach the $7,500.

China has offered a government bonus of 60,000 yuan (about €7,600) since 2009, but this was abolished in 2022 after the total subsidies exceeded the €25 billion threshold.

Many local governments in China now offer purchase subsidies, but these are worth no more than 10,000 yuan, equivalent to less than €1,300.

At this date (July 31, 2025), the Rabla program is suspended in Romania due to the economic situation (budget deficit of over 9% of GDP). For this reason the Romanian state cannot afford to finance it. The exact date when it will resume is not yet known.

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