



**BRIEFING - June 2024**

# **Carmaker's EV investments:**

Is Europe falling behind?

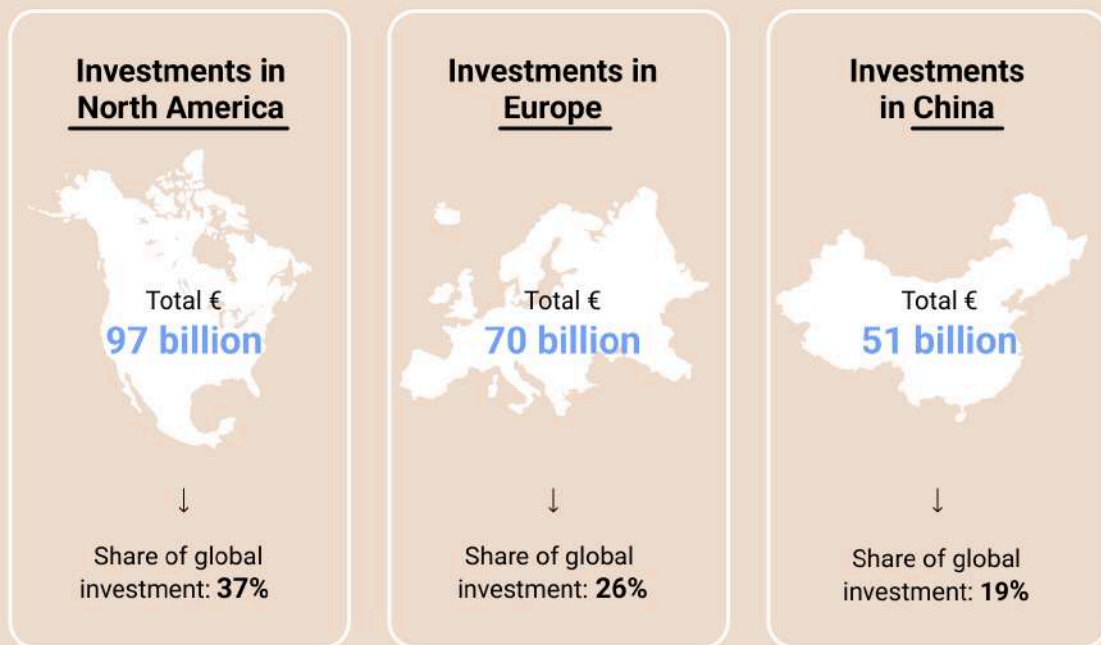
# Summary

Since 2019, global BEV sales have rapidly grown from 1.6 million to 9.6 million cars in 2023, or around 15% of the global market. Carmakers have been pouring investments into EVs and batteries in a race to electrify driven by global regulations, including the EU car CO2 standards. This briefing looks at the EV, battery and charging investment announcements made by 19 global carmakers between 2021 and 2023 to analyse which regions and carmakers are winning when it comes to EV investments.

Total global investment announcements in EVs, battery cells and charging by the 19 carmakers analysed in this study<sup>1</sup> have increased almost six fold between 2021 and 2023, reaching €150 billion in 2023 alone. In total €265 billion of investments were announced during this period, this is almost the annual GDP of Romania, indicating a strong appetite for EV investments.

Of the carmakers analysed, European carmakers were responsible for the largest share of announcements (34%), followed by Chinese (20%) and South Korean (18%) carmakers. Yet, while European carmakers have invested the most in electrification, North America - which is a smaller car producer than Europe- is the biggest destination for investments, securing 37% of announced investments compared to Europe's 26%.

### North America is leading on attracting EV investments



Source: Transport & Environment 2024



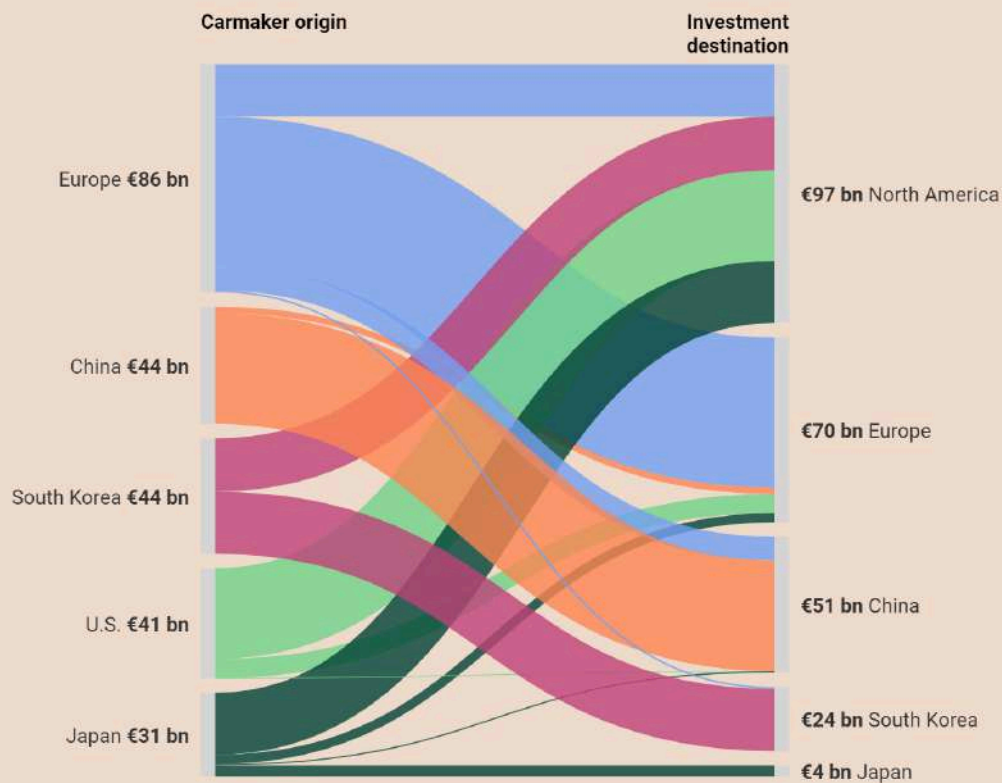
North America is the only region which has a large share of investments from non-domestic carmakers including European, Japanese and South Korean carmakers, lured by the generous local manufacturing subsidies granted by the 2022 U.S. Inflation Reduction

<sup>1</sup> BMW, JLR, Mercedes, Renault, Stellantis, VW, Honda, Nissan, Toyota, Hyundai, Ford, General Motors, Tesla, BAIC, BYD, Dongfeng, FAW, Geely. The actual investments made by companies in the 2021-2023 period are not covered by this study only investment announcements made during this period. Focusing on announcements over a 3 year period enables us to identify key trends in companies' investment strategies. Still, corporations' investment cycle can span over a longer timeframe. Therefore, this study does not provide the full picture of the entire investment strategies of carmakers.



Act for EV and battery production. In contrast the majority of investments in Europe (80%) are by European carmakers, with the remaining majority coming from Tesla, Geely, Nissan and Ford. The small share of investments by non European carmakers indicates a lack of attractiveness of Europe as a destination for foreign EV investments compared to North America.

### Europe securing less EV investment - especially from foreign carmakers



Source: 2021-2023 public investment announcements of EV, battery and charging investments compiled by T&E



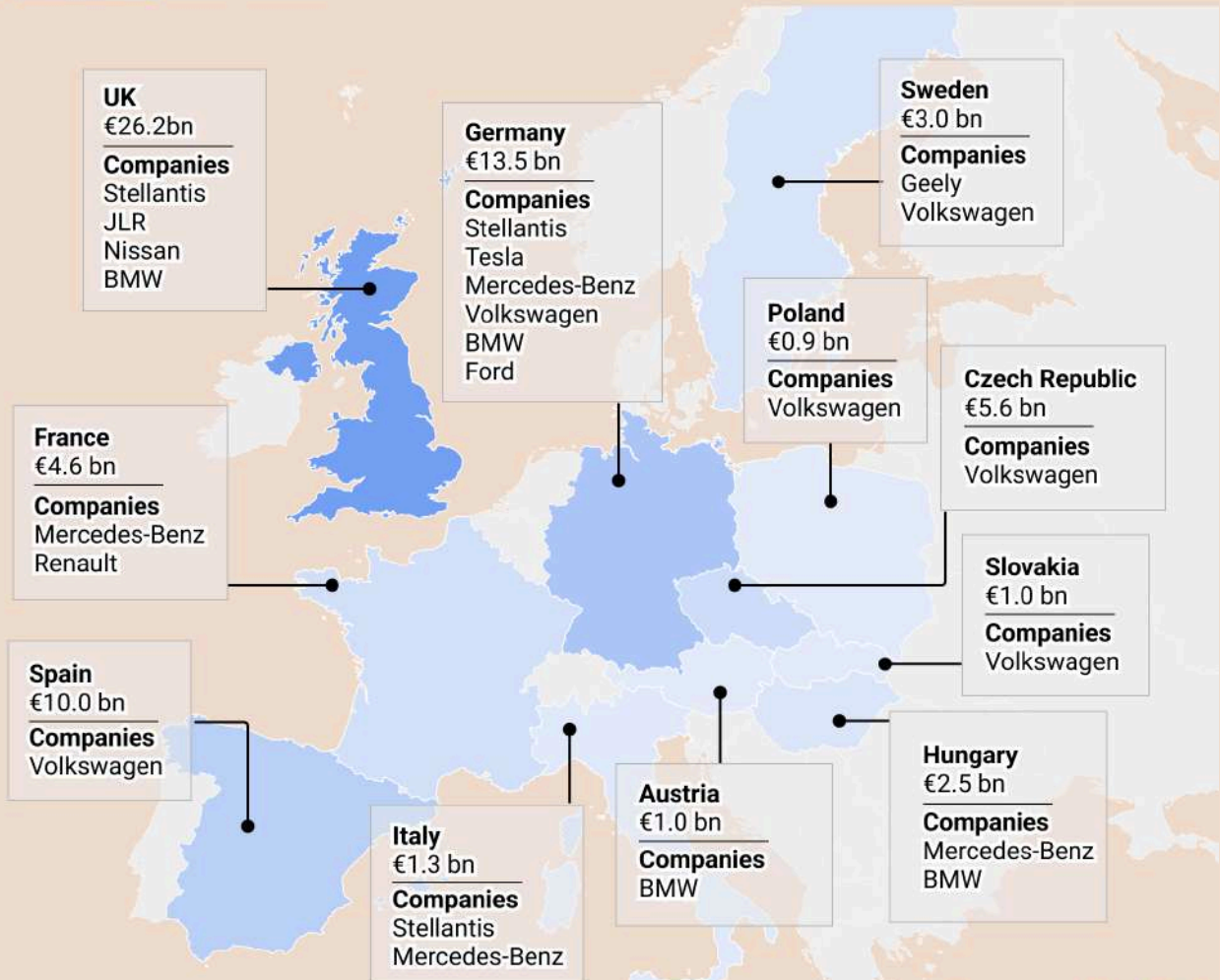
Of the carmakers which have invested in Europe, only 6 (BMW, JLR, Renault, Mercedes, Nissan and VW) have directed more than 50% of their investments to Europe. Major European carmaker Stellantis has directed just 10% of announced investments to Europe, instead locating 74% in North America. This should sound warning bells for Europe: its current lack of a coherent EV industrial strategy to compete with China and the U.S. is hampering investment even from its own domestic carmakers.

European investments by carmakers were directed towards 10 EU Member States and the UK. The UK, Germany and Spain were the biggest beneficiaries, securing 71% of announced investments for Europe. The largest beneficiary was the UK, predominantly due to large investments by JLR accounting for 84% EV investments in the UK. In Germany, Tesla was the biggest investor with €4.5 billion followed by VW (€3.1 billion) and Ford (€2.7 billion). VW was the only investor in Spain, with announcements worth €10 billion. Italy, a major

manufacturing hub for Stellantis, managed to attract just €1.3 billion and this investment now appears to be delayed<sup>2</sup>.

## Carmaker EV, battery and charging investments in Europe

0.9  26.2 € billion



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E



While European carmakers have spent the most on EV investments in total between 2021 and 2023, growth in EU carmakers' investments appears to now be slowing. After announcing €29 billion in investments in 2022, announcements increased by just €4 billion in 2023. This is likely due to the lack of tighter CO<sub>2</sub> standards beyond 2025 until 2030, hampering the need for further growth in European investments for now. When normalised based on sales, European carmakers are already investing less than U.S. carmakers. On average European carmakers invested €3,840 per car sold compared to €4,970 for U.S. carmakers.

This is concerning for the EV leadership of the European automotive industry, since 80% of European EV investments are by European carmakers and several European carmakers

<sup>2</sup> [Stellantis- backed battery maker ACC pauses plans for German, Italian plants.](#)

such as Mercedes, VW and JLR have recently announced delays in EV investments or their EV targets.

Attracting EV investment to Europe is critical for maintaining the strength of the European automotive industry and keeping automotive jobs in Europe as the market shifts to EVs. To successfully attract and lock in the EV investments needed to maintain the sustainable competitiveness of the European automotive industry, the following measures are key:

- 1) **The most important policy for attracting EV investments into Europe is maintaining the ambition of the EU car CO<sub>2</sub> standards, including the 2035 100% zero emission target.** This is crucial for providing carmakers with the regulatory certainty needed to credibly invest in EV and battery production in Europe. Reopening and any weakening of the standards would increase the risk of investing in Europe, sapping investments away from Europe to other regions.
- 2) **Europe urgently needs an EU investment package to continue to attract public and private investment in EV manufacturing and the EV battery value chain.** T&E calls for a €1 trillion social and green investment plan with a Green Industry Fund at its core<sup>3</sup>. It should provide grants, loans and guarantees to scale up EV production in Europe and support the EV battery value chain. This is key to accelerate and de-risk private investments.
- 3) **The EU should support and reward local manufacturing, however this should not result in protectionism from meaningful competition or slow down EV uptake. Instead ‘Made in EU’ measures should be accompanied by accelerated EV production plans.**
  - Build resilience aspects into various public procurement and subsidy rules around electric cars and battery value chain manufacturing. For example, loans of the European Investment Bank to EV or battery manufacturers and EU grants under the EU Innovation Fund should include ‘Made in EU’ provisions.
  - Reward more sustainable local manufacturing: This can be done via ambitious battery carbon footprint rules that should be proposed without delay. Similarly, national EV subsidies or clean manufacturing contracts can be used to encourage green ‘Made in EU’ production, as is currently done in France with its “eco-score” concept.

---

<sup>3</sup> T&E. (2024) [Towards a €1 trillion package for Europe](#).

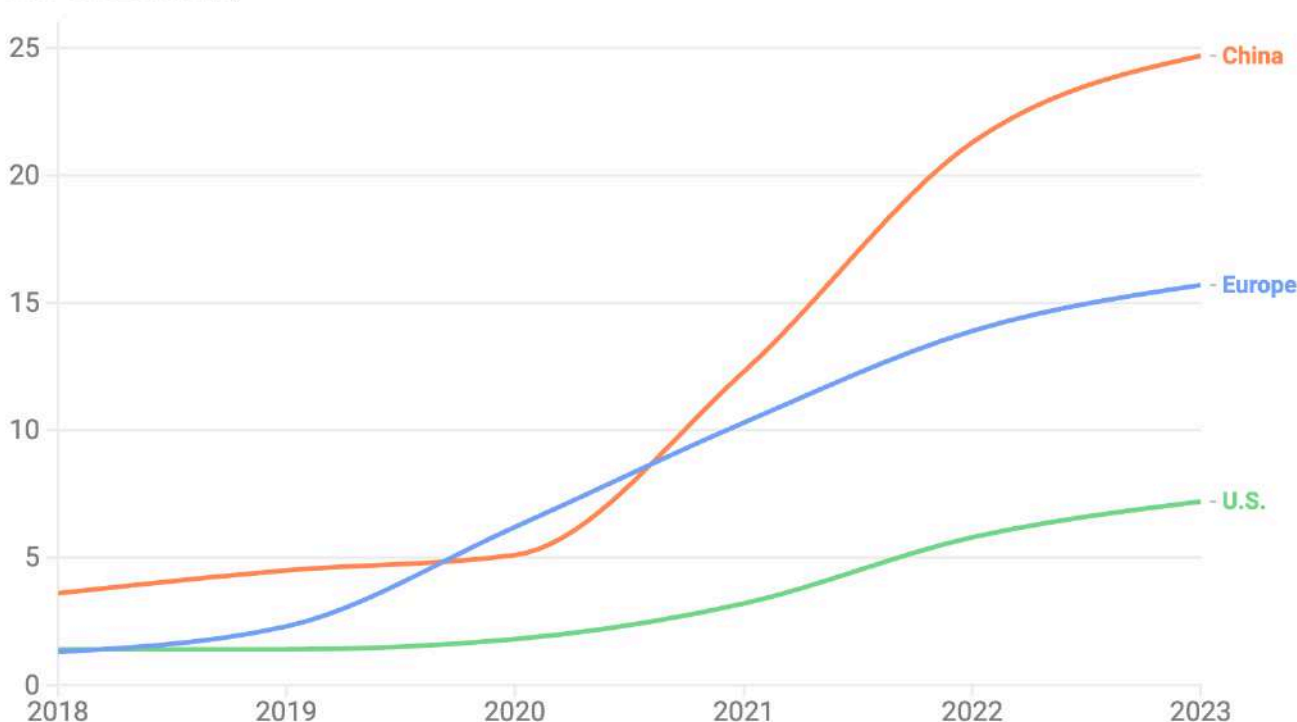


# 1. Introduction

Global BEV sales have grown from 1.6 million in 2019 to 9.6 million cars in 2023, reaching around 15% of the global car market<sup>4</sup>. China is currently the world's biggest BEV market with 2 out of every 3 BEV sold there. In total, Chinese car buyers bought 6.7 million BEVs last year<sup>5</sup>, driving BEVs to reach 25% market share (Figure 1). Europe came second with 2 million BEV sales and a 16% market share in 2023 (1.5 million, 15% in the EU). The U.S. had 7% BEV market share with 1.1 million sales<sup>6</sup>.

## China is leading in global BEV sales

BEV sales share (%)



Source: Europe ACEA registrations, China and U.S. EV volumes



Fig. 1 Chinese, European and U.S. BEV sales share 2018-2023

In the EU, car CO<sub>2</sub> standards have been the main driver for increasing BEV supply. These required carmakers to reduce fleet average CO<sub>2</sub> to 95 g/km in 2020/2021 resulting in a large increase in BEV sales from just 2.3% in 2019 to 9.1% in 2023<sup>7</sup>. A further 15% reduction is required in 2025, 55% in 2030 and 100% in 2035. Upon leaving the EU, the UK replaced fleet

<sup>4</sup> Bloomberg. (2024) [Electrified Transport Market Outlook 1Q 2024: Speed Bumps.](#)

<sup>5</sup> Nikkei Asia. (2024, 01, 11) [China's 2023 auto sales grow 12% on overseas demand for EVs.](#)

<sup>6</sup> Inside EVs. (2024, 01, 18) [U.S EV sales ended 2023 at 1.1 million.](#)

<sup>7</sup> ACEA. (2022, 02, 02) [Fuel types of new cars: battery electric 9.1%, hybrid 19.6% and petrol 40.0% market share full-year 2021.](#)



average CO<sub>2</sub> targets with an annual ZEV mandate starting in 2024. The mandate requires 22% BEV sales in 2024, ramping up to 100% in 2035. Many Member States and the UK also deployed various subsidies<sup>8</sup> and tax cuts<sup>9</sup> to encourage BEV uptake, however many EV purchase subsidies have now been reduced or phased out as the European BEV market matures.

In China BEV supply has been driven by a strong government strategy, subsidies, and regulations. The New Energy Vehicle (NEV) mandate (covering BEV, PHEV and FCEV vehicles) set credit based targets between 2019 to 2023, requiring manufacturers to sell 10% NEV vehicles in 2019 increasing annually to 18% in 2023. In addition to the NEV vehicle mandate, China has set fleet average fuel efficiency standards of 5 L/100km in 2020 and 4 L/100km in 2025 which further encourage BEV sales growth. By the end of 2023 it is expected that purchase tax exemptions for NEVs will have exceeded €40 billion, an extension of the policy has been announced until 2027<sup>10</sup>.

In the U.S. Federal and State regulations and subsidies have driven EV adoption. Federal regulations required a 1.5% annual reduction in fleet average CO<sub>2</sub> emission between 2021 and 2023. In 2023 the annual required reduction increased to 9.8%, with further annual reductions until 2026, in total culminating in a reduction of 28.3% by 2026 vs. 2022. Between 2027 and 2032 further annual reductions are required, culminating in a 44% reduction (vs. 2026) by 2032. This is expected to require carmakers to sell 56% BEVs in 2032. In 2022, the U.S. announced the Inflation Reduction Act (IRA) which provides generous incentives for purchase of BEVs, including used vehicles as well as significant funding for battery production.

California has moved the fastest at State level, deploying credits and mandatory targets for ZEV sales as well as subsidies and tax incentives. The latest regulation requires carmakers to sell 35% ZEV in 2026 increasing to 100% in 2035. As of the end of 2023, 13 States have followed California and implemented ZEV mandates, 10 fully and three partially (without a 100% ZEV mandate in 2035)<sup>11</sup>.

Aside from the regulatory requirements driving BEV supply, some carmakers have pledged to electrify faster. Notable examples include Volvo's commitment to 100% BEV by 2030<sup>12</sup>, Ford's<sup>13</sup> and Renault's<sup>14</sup> commitment to 100% European BEV sales in Europe by 2030 and VW's commitment to 80% European BEV sales by 2030<sup>15</sup>.

---

<sup>8</sup> ACEA. (2023) [Tax benefits and purchase incentives.](#)

<sup>9</sup> T&E. (2022) [Good tax guide.](#)

<sup>10</sup> 315 billion yuan, Chinese Government website. (2023, 06, 20) The preferential car purchase tax policy is extended and the total reduction and exemption is expected to reach 520 billion yuan- precise policies will help expand the volume and improve the quality of new energy vehicles.

<sup>11</sup> Bloomberg Law. (2023, 12, 26) [States take measured approach to adopting clean cars rules.](#)

<sup>12</sup> Volvo. (2021,03, 02) [Volvo cars to be fully electric by 2030.](#)

<sup>13</sup> Ford. (2021, 06, 15) [Electrification 2030.](#)

<sup>14</sup> Electrek. (2022, 01, 14) [Renault CEO vows to go fully electric by 2030, contrary to statements from others at the company.](#)

<sup>15</sup> Forbes. (2023, 08, 28) [VW's electric plans face hurdles including technology, China.](#)



To meet the requirements of global regulations aimed at driving electrification and their own voluntary commitments, carmakers have to make substantial investments in BEVs, batteries and charging infrastructure this decade. For the European economy, securing investments in EVs and the EV supply chain is critical to continuing Europe's global automotive industrial prowess, securing European jobs in the automotive sector and improving industrial resilience to supply chain disruptions. Securing European EV production will also bring climate benefits by reducing the environmental and climate impact of their manufacture. For example, onshoring the battery supply chain (production of battery cells and cathodes) would result in a 37% reduction in CO<sub>2</sub> emissions<sup>16</sup>. Finally, strong EV investment in Europe is critical for European carmakers to be able to offer attractive and competitive BEVs to compete with Chinese carmakers, particularly in the small and affordable EV segments.

In 2020, T&E released a report<sup>17</sup> outlining €60 billion of EV investment in Europe in 2019 ahead of the entry into force of stricter 2020/2021 CO<sub>2</sub> standards. This briefing takes a wider look at global EV investments specifically focusing on the world's largest carmakers ahead of the introduction of the tighter EU car CO<sub>2</sub> standards in 2025. Moreover, it takes stock of the impact of the U.S. IRA on global EV investment flows. The study includes investments announced by 19 of the largest Chinese, European, South Korean, Japanese and U.S. carmakers between 2021 and 2023. It provides a snapshot on announced investments by carmakers worth €265 billion<sup>18</sup>.

## 2. What is happening to global EV, battery and charging investments?

This analysis looks into the investments in EV development and production, batteries and charging infrastructure publicly announced by 19 carmakers between 2021-2023. The analysis includes the biggest European (BMW, JLR, Mercedes, Renault, Stellantis, VW), Japanese (Honda, Nissan and Toyota), Korean (Hyundai) and U.S. (Ford, General Motors and Tesla) carmakers. The largest Chinese BEV carmakers are also included in the analysis (BAIC, BYD, Dongfeng, FAW, Geely which owns Volvo, and SAIC). Only investments in a specific project with a clear geographical scope and defined invested amount are included into the scope of the analysis to allow a quantitative analysis between geographical regions. Further information on the methodology is available in the Annex.

### 2.1 EV investments have grown rapidly since 2021

Total global investments by the 19 carmakers have increased rapidly since 2021 as shown in figure 2. Between 2021 and 2023 investment announcements for EVs, batteries and charging

<sup>16</sup> T&E. (2024) [An Industrial blueprint for batteries in Europe](#). The reduction percentage represents the difference in emissions between the production of batteries, cathodes and raw materials in China or China-controlled companies, compared to emissions from the production of batteries, cathodes, and raw materials in Europe using the EU grid.

<sup>17</sup> T&E. (2020) [Can electric cars beat the covid crunch?](#)

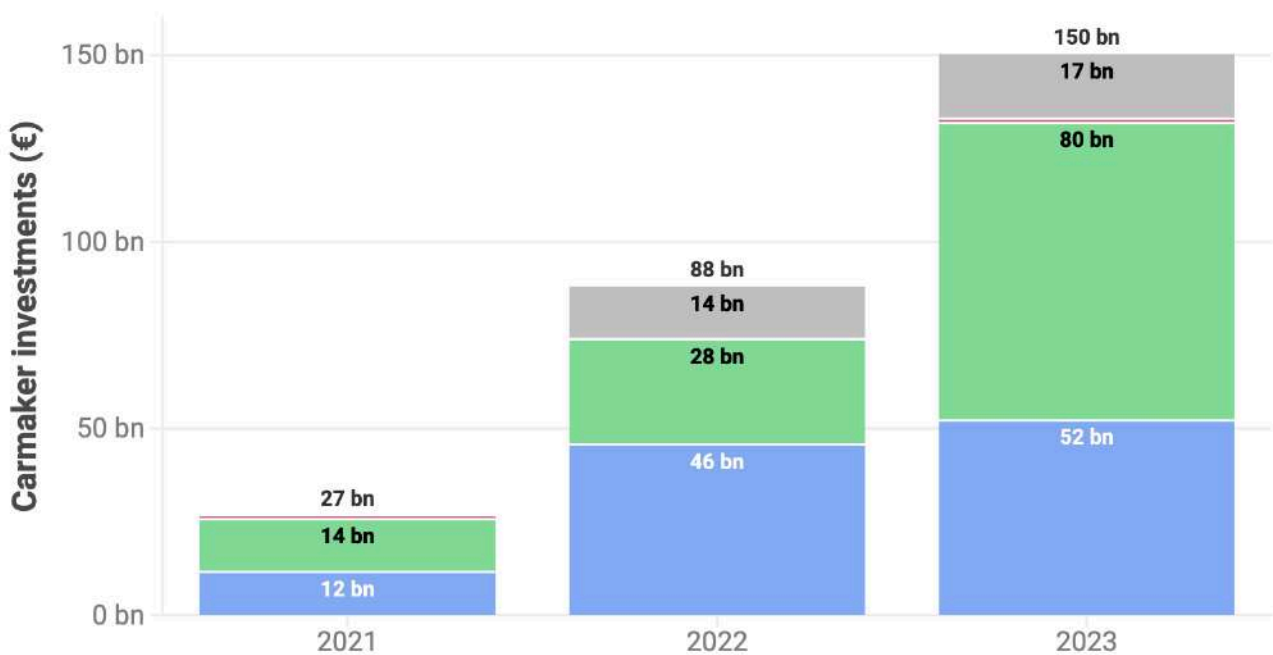
<sup>18</sup> The actual investments made by companies in the 2021-2023 period are not covered by this study. Focusing on announcements over a 3 year period enables us to identify key trends in companies' investment strategies. Still, corporations' investment cycle can span over a longer timeframe. Therefore, this study does not provide the full picture of the entire investment strategies of carmakers.

infrastructure have increased almost sixfold from €27 billion in 2021 to €150 billion in 2023. In total, carmakers announced €265 billion of investment between 2021 and 2023. This is almost the annual GDP of Romania<sup>19</sup>.

The majority of investments (87%) are aimed at EV and battery production with the share of investments almost evenly split. 46% (€122 billion) is directed towards batteries and 41% (€110 billion) to EV production. Charging accounts for a very small share of just 1% (€2 billion). 12% of investments (€31 billion) are aimed at electrification with the allocation unspecified.

## The majority of investment announcements are directed towards EV production and batteries

Production Batteries Charging Unspecified electrification



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E

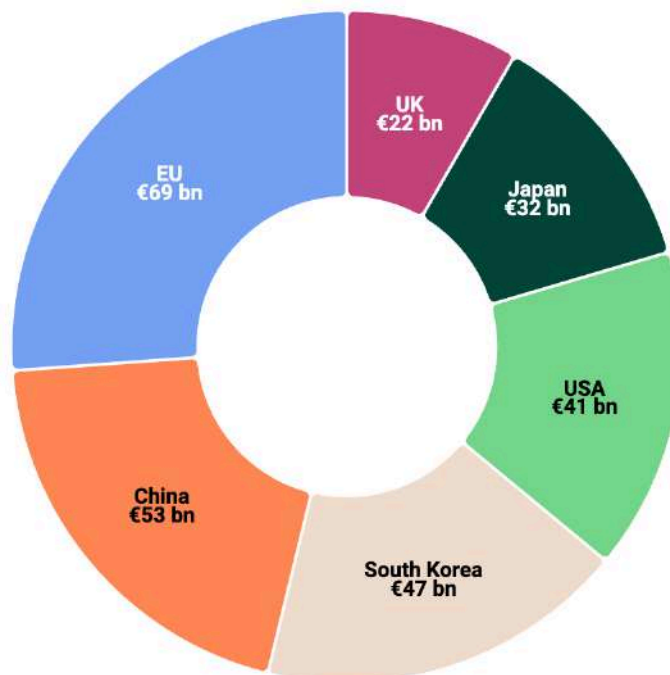
Fig. 2 Carmakers global investment announcements in EVs, batteries and charging between 2021 and 2023.

Of the carmakers and investments analysed, European carmakers have announced the most investments in electro-mobility, accounting for 34% of investments between 2021-2023, in total investing €91 billion (figure 3). 26% of announced investments were by EU based carmakers (€70 billion) and 8% UK based (€22 billion). Chinese carmakers came in second with a 20% share having announced investments totalling €53 billion. Japanese carmakers accounted for the smallest share of investments at 12% (€32 billion).

<sup>19</sup> Based on 2022 GDP of \$301 billion (€278 billion) obtained from the [World Bank](https://www.worldbank.org/) on 10/05/2024.

## European carmakers have announced the largest number of EV investments

EV investment announced between 2021 and 2023



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E

Fig. 3 Share of 2021-2023 investment per carmaker origin

### 2.2 North America takes the lead as destination for EV investments

While European carmakers have announced the largest investments in electrification, Europe<sup>20</sup> is failing to attract the bulk of the EV investments as shown in figure 4. Europe has only received 26% of the investments (€70 billion) announced between 2021-2023. Specifically, the EU secured 16% of investments totalling €43 billion and the UK 10% (€26 billion). This is far behind the leading region, North America<sup>21</sup>, for which 37% investments were announced during this period totalling €97 billion. 81% of those announced investments (€79 billion) were located in the U.S.

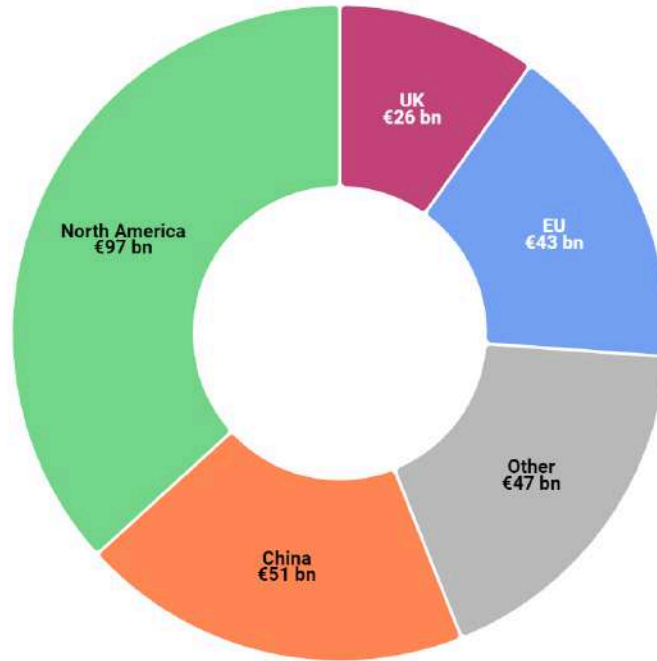
Overall, both Europe and North America are overperforming in terms of EV investment announcements, as their share of investments is greater than their global car production market share (19% in Europe and 15% in North America). By contrast, China appears to be

<sup>20</sup> European EV investments announcements cover the EU and the UK.

<sup>21</sup> North American EV investments announcements cover the U.S. and Canada.

underperforming, attracting just 19% of investment announcements compared to its 34% production market share<sup>22</sup>.

### North America has attracted the largest share of EV investment announcements



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E



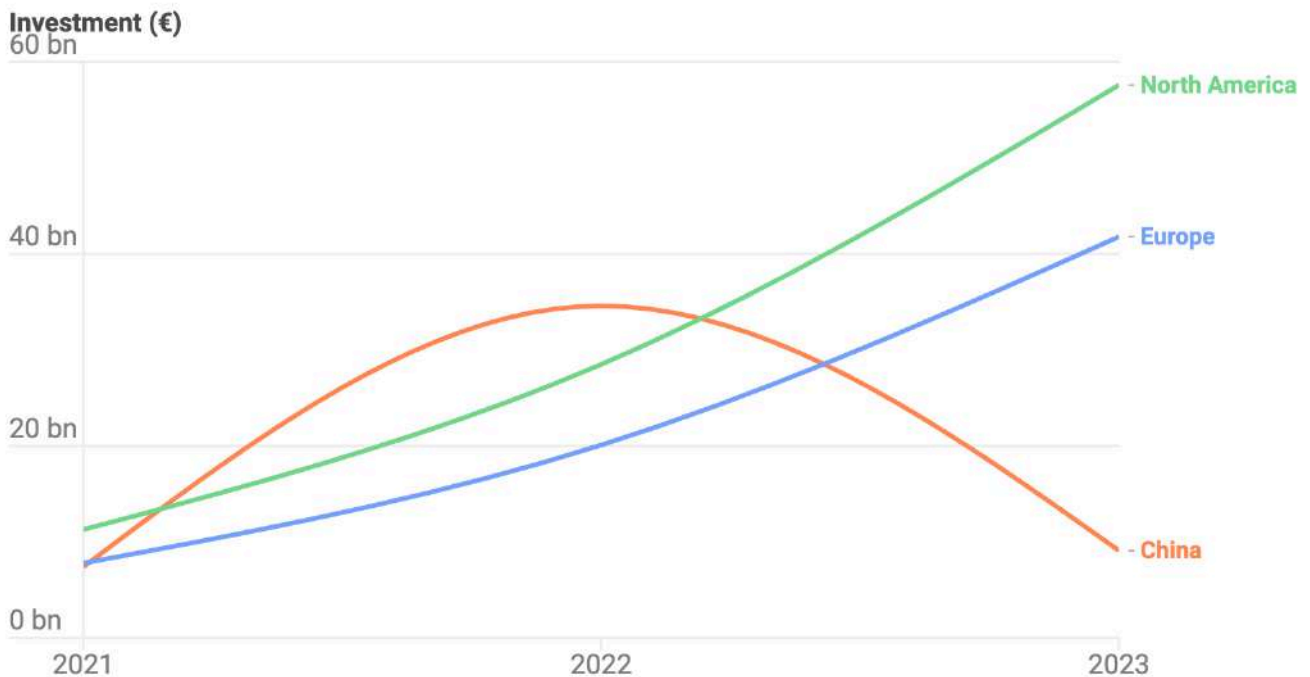
Fig. 4 Share of 2021-2023 investment per destination region

The annual breakdown in investments for China, North America and Europe (figure 5) shows that North America has outpaced Europe in investment announcements annually between 2021 and 2023 by around 40% despite North America’s lower car production volumes compared to Europe.

<sup>22</sup> ACEA. (2023, 05, 01) [Passenger car production by world region](#). This discrepancy is possibly linked to the lower public access to Chinese carmaker investments compared to Western carmakers or Chinese carmakers early investment into EVs as discussed in this section .



## EV investment announcements for North America have outpaced those for Europe since 2021



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E

Fig. 5 EV investments in China, U.S., Europe between 2021 and 2023.

Continued higher levels of EV investment in North America are likely to have been supported by the 2022 introduction of the U.S Inflation Reduction Act. The regulation provides significant subsidies for U.S. EV and battery manufacturing as well as charging infrastructure propelling private EV and supply chain investment into the U.S. EVs and batteries produced in Mexico and Canada may also be eligible for tax breaks<sup>23</sup> thus supporting investment into the wider North America region.

In the absence of a coherent EU industrial strategy for EVs and the supply chain to rival the U.S. IRA, Europe has struggled to compete, likely limiting the rate of growth of investment announcements for Europe in 2022 and 2023. T&E's latest assessment of European battery manufacturing concluded that around half of the battery production planned for Europe up to 2030 is at risk due to competition from the IRA<sup>24</sup>.

<sup>23</sup> Covington. (2023) [Global Spotlight: the IRA's implications for key U.S. Allies.](#)

<sup>24</sup> T&E. (2024) [An industrial blueprint for batteries in Europe.](#)

### U.S. Inflation Reduction Act

Part of the U.S. IRA package is designed to increase U.S. EV uptake and drive U.S. EV manufacturing and supply chain localisation, key policies within the IRA which have helped drive BEV investment in the U.S. are:

- A \$7,500 (€) tax credit for EVs, which is conditional on local manufacturing. Carmaker's are eligible for half if the car is made with domestically manufactured batteries and the other half if it is made with domestic critical raw materials<sup>25</sup>.
- A Battery manufacturing credit of \$35/kWh of battery cell capacity. Battery modules qualify for \$10/kWh.
- \$3 billion loan programme to support reequipping, expanding or establishing manufacturing facilities in the U.S for low and zero emission vehicles.

Lack of a strong EU industrial strategy compounded by a lack of more stringent car CO<sub>2</sub> standards until 2030 (beyond the limited 15% CO<sub>2</sub> reduction required in 2025 versus 2021) is hampering the attractiveness of the EU as an EV investment destination and allowing the U.S. to race ahead in investment announcements, since European supply of BEVs does not have to increase sharply until the end of the decade.

While announced investments in China decreased in 2023 accounting for just 6% of announced investments that year, Chinese carmakers are well known for having invested early in EVs and batteries unlike European carmakers, with the Chinese government setting annual EV production goals starting in 2015<sup>26</sup>. There are reports of production overcapacity in China of around 5-10 million vehicles a year<sup>27</sup> suggesting a more limited need for large investments to increase Chinese EV production capacity in the near future. This possibly explains the downturn in 2023 EV investment announcements in China. Moreover, EV investments in China are more opaque than in Europe and North America, which can possibly distort the picture. Early Chinese EV investment comes in stark contrast to Europe, where European carmakers only started seriously investing in EVs in 2019<sup>28</sup>, driven by the need to comply with 2020/2021 car CO<sub>2</sub> standards.

Large numbers of EVs sold in Europe are imported from abroad. In 2023, 20% of EVs sold in Europe were imported from China, this is expected to reach a quarter in 2024. The majority of the imports are from Western carmakers: Tesla, Dacia (owned by Renault) and BMW, indicating a missed opportunity for on-shoring production to Europe<sup>29</sup>. However, with the right industrial framework in place, Europe could reduce the share of EV imports and attract further EV

---

<sup>25</sup>The critical raw materials must be extracted in the U.S. or a country where the U.S. has a free trade agreement or recycled in North America).

<sup>26</sup> Research in China. (2012) [China Electric Vehicle Industry Report](#).

<sup>27</sup> Reuters. (2023, 06,16) [Tesla's China expansion hits speed bump amid industry overcapacity](#).

<sup>28</sup> T&E. (2020) [Can electric cars beath the covid crunch?](#)

<sup>29</sup> T&E.(2024) [One in four EVs sold in Europe this year will be made in China](#).

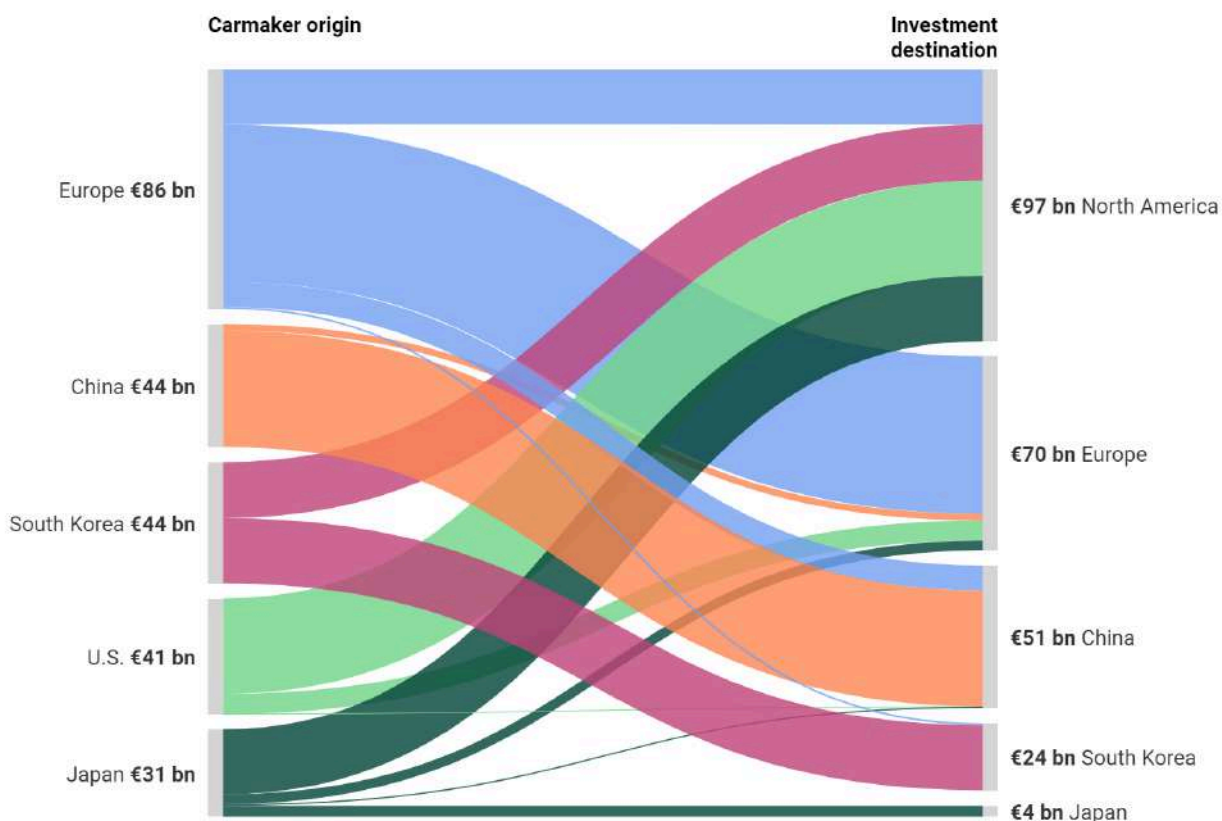


investment in the region. Section 3 covers key policies required to secure European EV investments.

### 2.3 Europe mostly attracts investment from European carmakers

A breakdown of investments flows (figure 6) shows that Europe is only really succeeding in attracting major investments from European carmakers. European carmakers accounted for 80% of announced investments in Europe between 2021 and 2023. The remainder came from Tesla, Geely, Nissan and Ford.

#### Europe securing less EV investment - especially from foreign carmakers



Source: 2021-2023 public investment announcements of EV, battery and charging investments compiled by T&E

**Fig.6 Investment flows based on carmaker origin and destination of announced EV investments between 2021 and 2023.**

Unlike Europe, North America has been successful in capturing a large share of investments not just from U.S. brands Ford, GM and Tesla but also European, Japanese and South Korean carmakers. 35% of announcements came from U.S. carmakers and 20% from European, 24% Japanese and 21% South Korean carmakers. The majority of EV investment announcements in China are from Chinese carmakers (82%) with the majority of the remaining share coming from European carmakers (17%).

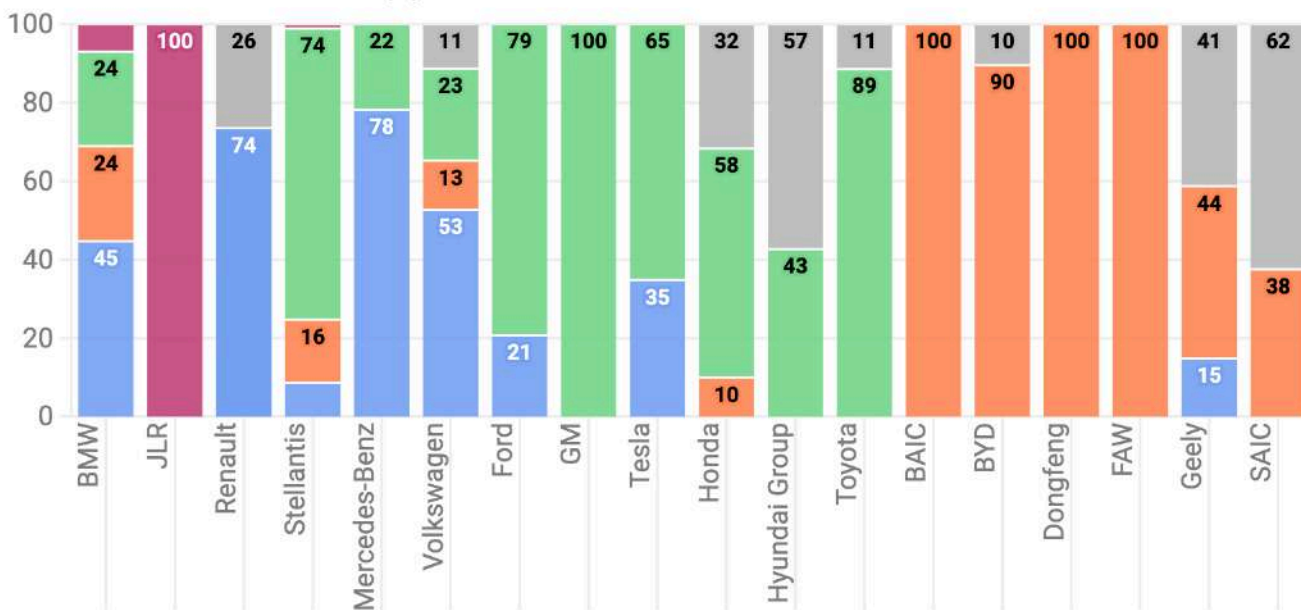
When broken down per carmaker (figure 7), only BMW, JLR, Renault, Mercedes, Nissan and VW have located more than 50% of their 2021-2023 announced investments in Europe. Of those

carmakers, JLR has the highest share, 100%, followed by Mercedes 78%, Renault 74%, VW 53% and BMW 52%. Nissan was the only non-European carmaker which located more than 50% of investments in Europe, with 72% located mostly in the UK. Surprisingly, Stellantis, which includes amongst its portfolio the iconic European Citroen, Peugeot and Fiat brands, has located 74% of announced investments in North America and just 10% in Europe, less than the 16% invested in China. Despite Ford’s European research and production presence only 21% of announced EV investments are in Europe with 79% located in North America. Tesla’s Berlin factory has managed to attract a third of Tesla’s EV investments to Europe.

## Only European carmakers and Nissan have directed more than 50% of announced investments to Europe

■ EU ■ China ■ North America ■ UK ■ Other

Share of carmaker investments (%)



Source: 2021-2023 public investment announcements of EV, battery and charging investments compiled by T&E



Fig.7 Breakdown of 2021-2023 investments per carmaker and destination.

North America, on the other hand, has attracted the majority of investments from U.S brands GM, Ford and Tesla but also Toyota and Stellantis as well as close to half the investments announcements from Honda and Hyundai. With the exception of Nissan, Europe has failed to attract Japanese and Korean carmakers between 2021 and 2023. 89% of Toyota’s 2021-2023 EV investments are located in North America, predominantly focused on battery production<sup>30</sup>. Honda and Hyundai have also located almost half of announced investments in North America, 58% and 43% respectively. North American investments from Toyota almost quadrupled in 2022

<sup>30</sup> Toyota current strategy and recent U.S sales suggest that battery production may be for PHEV and HEV vehicles as well as BEVs. The U.S. IRA provides support for production of PHEVs in the U.S. Inside EVs. (2024, 04, 07) [Toyota U.S. plug-in car sales almost doubled in Q1 2024](#). New York Times. (2024, 03, 09) [Toyota’s hybrid-first strategy is delivering big profits](#).



compared to 2021 and increased almost three fold again in 2023. Similarly, Hyundai doubled their announced EV investments in North America from 2022 to 2023. Once more this demonstrates the impact that the U.S. IRA has had on attracting EV investment to the U.S and North America.

While Europe has largely failed to attract EV investment from incumbent Asian carmakers, there are increasing signs that it is attracting investments from Chinese BEV manufacturers. Chinese investments in Europe have largely been excluded from the scope of this study because of the lack of public information available on the value of the investments<sup>31</sup>. Yet, announcements show that Chinese carmakers are increasingly looking to Europe to produce electric cars for the European market, driven by fierce competition in China, Europe's growing BEV market and the risk of tightening EU import tariffs on BEVs<sup>32</sup>. Recent announcements include:

- BYD, the Chinese carmaker competing with Tesla to be the world's biggest BEV manufacturer, plans to build an EV assembly plant in Hungary by 2026. It is expected to have a capacity of 200,000 cars<sup>33</sup>.
- Chery has signed a joint venture agreement in Spain, aiming to produce 150,000 vehicles by 2029, expected to be one of its main global exporting facilities<sup>34</sup>.
- SAIC is planning a European plant, including to potentially build the MG4 compact electric car<sup>35</sup>.
- Great Wall Motors has previously stated that they will consider establishing EU manufacturing once the carmaker sells more than 50,000 units in the EU<sup>36</sup>. Reports from 2023 now suggest that Germany, Hungary and Czechia are being scoped as potential future locations for a plant<sup>37</sup>.
- Dongfeng is reported to be considering a plant in Italy<sup>38</sup>, although this may initially be used to produce hybrid cars rather than BEVs.

---

<sup>31</sup> As detailed in the methodology in the Annex. The largest Chinese BEV carmakers are included in the analysis (BAIC, BYD, Dongfeng, FAW, Geely which owns Volvo and SAIC) but the lack of transparency on their investments makes it impossible to guarantee an accurate picture on the volume of their investments.

<sup>32</sup> Reuters. (2024, 03, 06) [EU set to allow possible retroactive tariffs for Chinese EVs](#).

<sup>33</sup> Automotive News Europe. (2023, 12, 21) [BYD picks Hungary for its first European car plant](#).

<sup>34</sup> Automotive News Europe. (2024, 04, 19) [Chery's Spanish plant to be among main export facilities worldwide](#).

<sup>35</sup> Electrive. (2023, 08, 04) [SAIC to manufacture the MG4 in Europe](#).

<sup>36</sup> Automotive news. (2019, 09, 11) [Great Wall may consider building cars in Europe once sales hit 50,000 a year: chairman](#).

<sup>37</sup> Car News China. (2023, 05, 30) [Great Wall considers Germany, Hungary and Czechia as locations for its first European plant](#).

<sup>38</sup> South China Morning Post. (2024, 04, 17) [Dongfeng, Chery lead Chinese carmakers in eyeing European factories amid brutal price war at home](#).

Several Chinese carmakers already have R&D or design centres in Europe including GAC in Milan<sup>39</sup>, Geely in Frankfurt<sup>40</sup> and Nio near Tesla's German factory in Grünheide<sup>41</sup>.

These are all positive announcements for the European economy and EU governments should be supportive of Chinese carmakers on-shoring EV manufacturing in Europe. Localising EV production and supply chains in Europe will create jobs, strengthen the economy and accelerate EV uptake by improving the offer and affordability of EVs. Crucially, it will bring EV and battery technology and know-how to Europe, strengthening Europe's competitive edge.

Chinese EV production in Europe will stimulate competition, and force European carmakers to innovate and improve their BEV offering. This will be beneficial for European consumers and bring further EV price reductions and affordable EVs models. In China, where there is significant competition in the EV market, the average price of EVs has dropped between 2015 and 2023 by 50% from an average of €66,000 to €31,000. There are also many compact, affordable BEVs available on the Chinese market. In Europe where there is less competition, especially in the smaller, more compact segments, the average EV price has increased by 37% to €67,000 over the same period<sup>42</sup>. At the same time, affordable European BEV models are expected to only be available to consumers from the end of 2024 and ramping up in 2025 when the new car CO<sub>2</sub> targets tighten<sup>43</sup>.

However, these recent announcements from Chinese carmakers should not reduce the urgency to improve the attractiveness of Europe as an investment destination area for research and production of sustainable and affordable EVs and batteries, especially since many announcements are not yet secure. Key for improving the attractiveness of the EU is maintaining the car CO<sub>2</sub> standards, the establishment of an EU investment package to de-risk European EV investments as well as 'Made in EU' provisions to require localised European EV and battery production. These are further detailed in section 3.

## 2.4 To which countries is European investment going?

Out of the €70 billion invested in Europe between 2021 and 2023, Germany, Spain and the UK are the biggest beneficiaries accounting for 71% of investment announcements. In total, carmakers made investments in 10 EU Member States and the UK as shown in figure 8 below.

---

<sup>39</sup> GAC Motor. (2022, 11, 01) [New GAC R&D centre Europe to strengthen innovation and grow talent pool](#).

<sup>40</sup> Automotive News Europe. (2019, 08, 15) [Chinese automakers use Europe-based R&D centres as springboards to bigger plans](#).

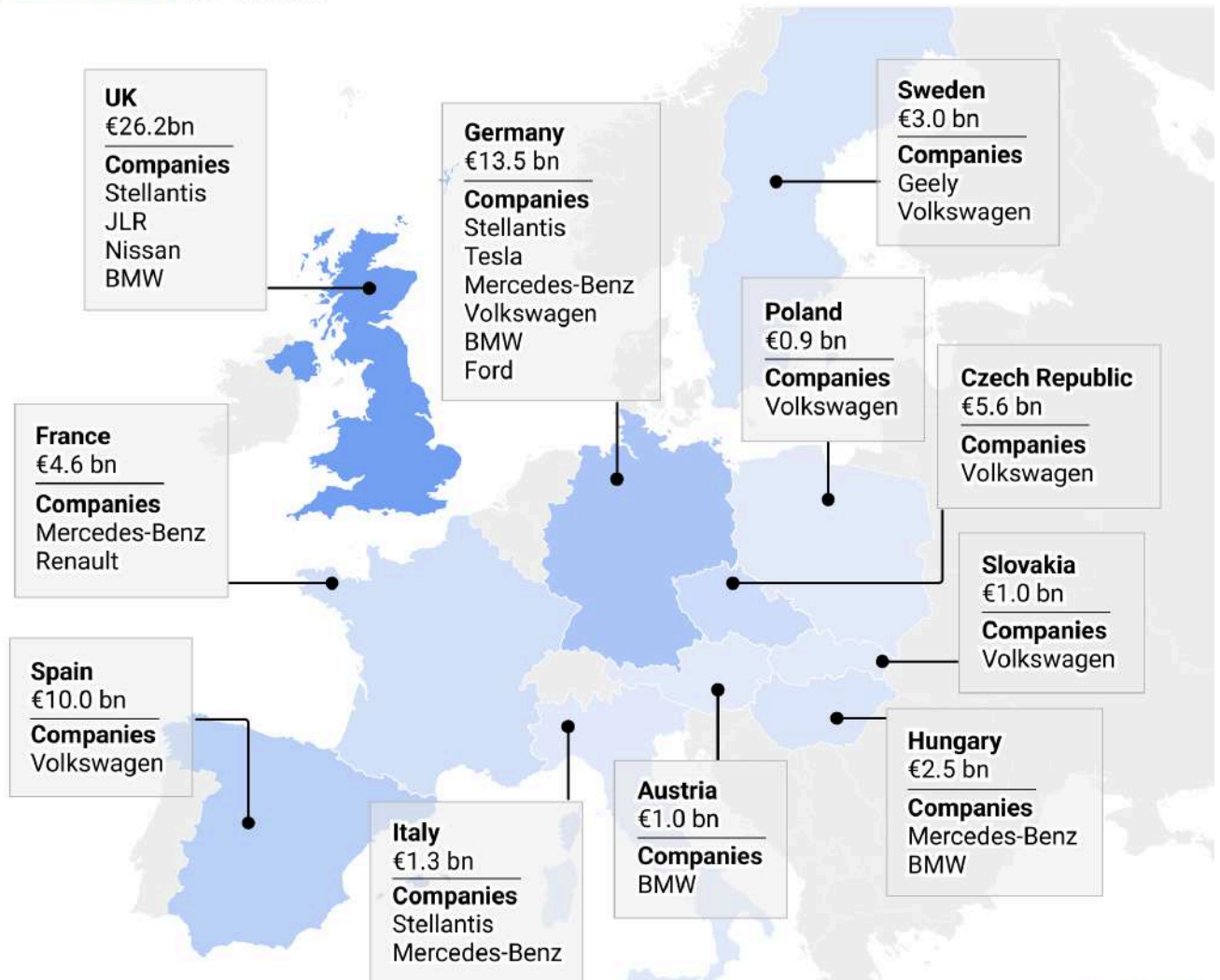
<sup>41</sup> Automotive News Europe. (2024, 04, 24) [Nio leans on customers to help create 'user defined vehicles'](#).

<sup>42</sup> JATO. (2023) [EV price gap a divide in the global automotive industry](#).

<sup>43</sup> T&E. (2024) [Europe's BEV market defies odds but more affordable models needed](#).

## Carmaker EV, battery and charging investments in Europe

0.9  26.2 € billion



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E

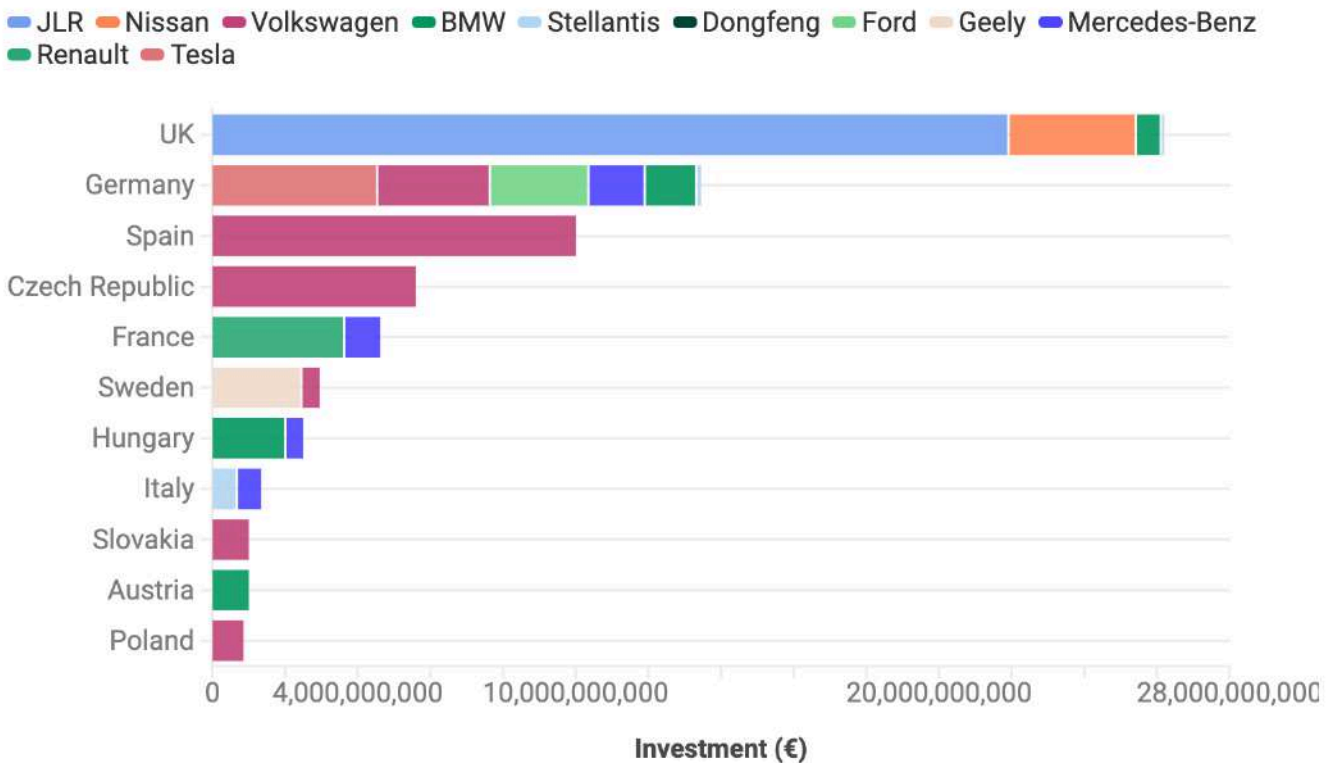


**Fig 8. Carmaker EV, battery and charging investments in Europe.**

The largest investment destination was the UK (figure 9) predominantly due to large investments by JLR worth €22 billion which accounts for 84% of total EV investments in the UK. This is followed by Germany with €13.4 billion of investments where Tesla was the biggest investor with €4.5 billion, followed by VW (€3.1 billion) and Ford (€2.7 billion). VW was the only investor in Spain, with announcements worth €10 billion.



## Total of European investments per carmaker



Source: 2021-2023 public investment announcements of EV, battery and charging investments compiled by T&E



**Fig. 9 Breakdown of European investments per carmaker in terms of value (left) and share (right)**

Although Italy is the 5th biggest car producing EU Member State<sup>44</sup>, where the automotive sector employs 110,000 workers in direct manufacturing<sup>45</sup> and is responsible for 5.2% of GDP<sup>46</sup>, Italy has attracted only €1.3 billion in announced EV investments between 2021 and 2023<sup>47</sup>. This is despite Italy being a major product<sup>48</sup>ion hub for Stellantis, producing 750,000 cars in 2023, more than Stellantis produces in France<sup>49</sup>. However, unlike France which has Renault, Italy's auto industry is almost completely reliant on Stellantis as over 90% of Italy's car production is Stellantis' PSA, Fiat and Chrysler brands. Yet, announced investments only suggest a €0.7 billion investment by Stellantis in Italy, while the majority of its €9 billion in EV investment announcements were directed towards North America. The latest news now suggests that this

<sup>44</sup> ACEA. (2023, 05, 01) [Motor vehicle production in the EU, by country.](#)

<sup>45</sup> Calculated as 4.6% of 2,400,000. ACEA (2023, 09, 22) [Share of direct automotive employment in the EU, by country.](#)

<sup>46</sup> International Trade Administration. (2022, 11, 26) [Italy country commercial guide: automotive sector.](#)

<sup>47</sup> Which fall within the scope of this study (see annex for further details). Carmakers have invested in charging but the value of those investments is unknown for example: Stellantis has invested in the development of wireless EV charging, Stellantis. (2021, 11, 30) [Stellantis and Factorial Energy to Jointly Develop Solid-State Batteries for Electric Vehicles.](#) VW in the Ewiva joint venture, Electrive. (2022, 12, 13) [Volkswagen & Enel launch HPC joint venture Ewiva in Italy.](#) Tesla in supercharger network expansion. InsideEVs (2023, 09, 14) [Tesla Gets Nearly \\$150M In EU Funding For Supercharger Network Expansion.](#)

<sup>48</sup> Reuters. (2024, 06, 04) [Stellantis- backed battery maker ACC pauses plans for German, Italian plants.](#)

<sup>49</sup> Reuters. (2024, 02, 12) [Stellantis uses surplus plants in Europe as leverage in a fight with Rome.](#)



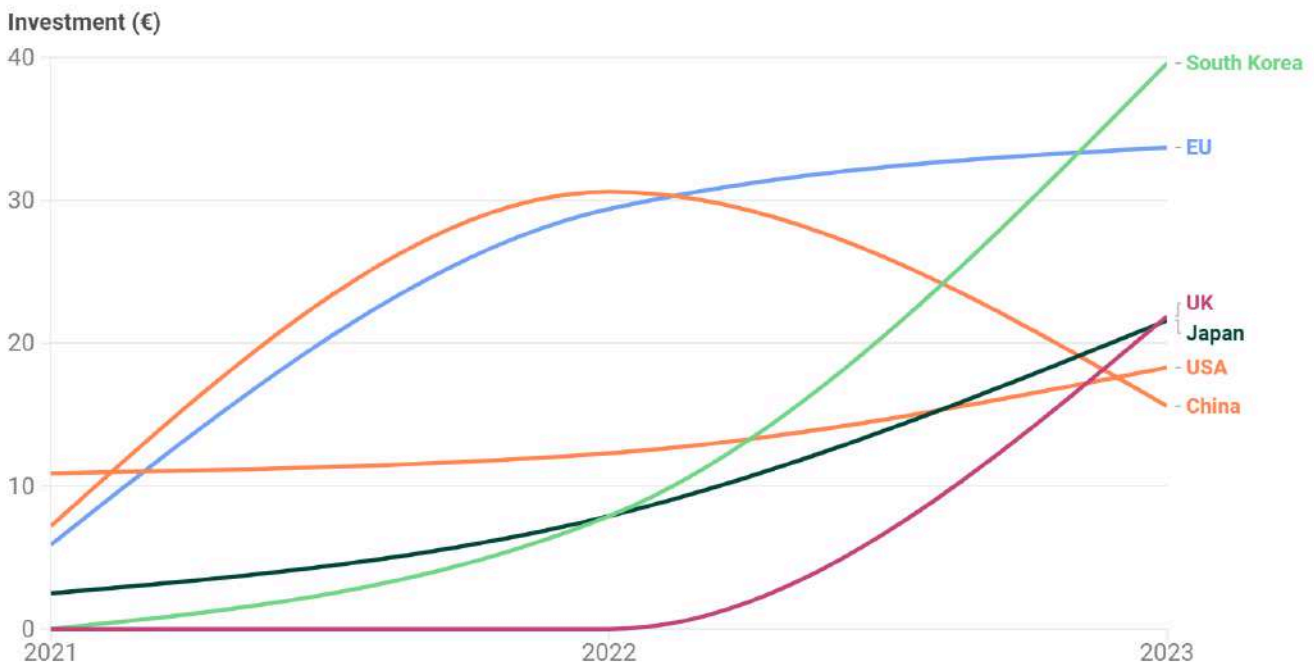
investment in a battery plant in Italy has been delayed. The Italian government has met with Tesla and several Chinese carmakers (including Chery) to attract one of them to manufacture cars in Italy in order to reduce Italy’s automotive industry’s dependency on Stellantis<sup>50</sup>.

## 2.5 EU carmaker’s EV investments are now slowing

While European carmakers have spent the most on EV investments between 2021-2023 and total European EV investments have continued to grow in 2023, the growth in EV investments by European carmakers now appears to be slowing as shown in figure 10.

After announcing €29 billion of spending in 2022, a large increase compared to 2021, EU carmakers’ announcements increased by just €4 billion in 2023. Since 59% of European carmakers investments are directed towards Europe, the slow down in growth in 2023 could be due to carmakers coming close to fulfilling their investment needs to meet the EU 2025 car CO<sub>2</sub> standards. In the absence of stricter EU CO<sub>2</sub> standards beyond 2025 until 2030, coupled with the cyclical nature of carmaker investments, there is no regulatory incentive to continue the rapid growth seen in EV investments by European carmakers in 2022.

### Growth in investment announcements from EU carmakers is slowing



Source: 2021-2023 public investment announcements of EV, battery and charging investments compiled by T&E

Fig. 10 Investments between 2021-2023 by carmaker origin.

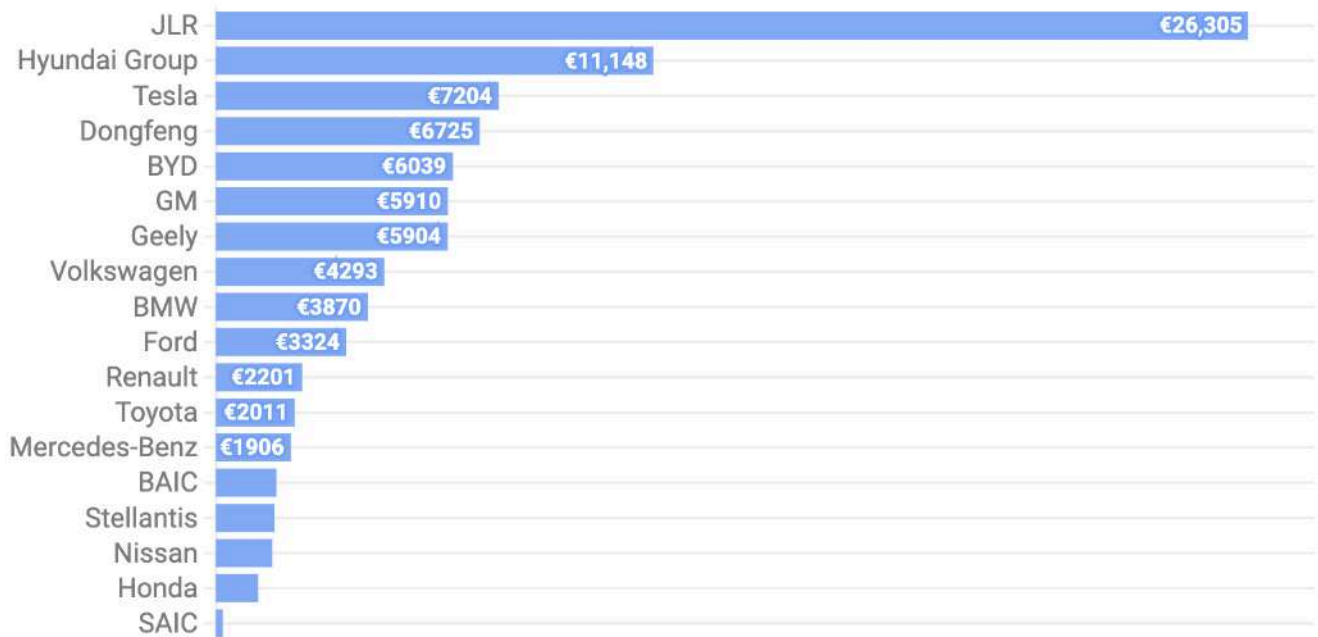
<sup>50</sup> Reuters. (2024, 04, 10) [Chinese car manufacturing in Italy could force tough decisions, says Stellantis CEO.](#)

While total EV investments have been the highest for European carmakers, European carmakers have lagged behind on announced investment during the 2021-2023 period when normalised by sales volume (based on the number of cars sold in 2023, figure 11)<sup>51</sup> compared to U.S. carmakers. On average European carmakers invested €3,840 per car sold compared to €4,970 for U.S. carmakers.

The average for all 2021-2023 investments for all carmakers was €3,790 per car sold in 2023. Aside from BMW, JLR and VW no other European carmaker achieved above this figure. JLR invested the most per vehicle sold, followed by South Korean, U.S and Chinese carmakers. Chinese BAIC and SAIC invested a much lower amount of below €2,000 per car which is likely explained by the EV production overcapacity in China discussed in section 2.2.

## When normalised for sales, EU carmakers are not leaders in EV investments

Investment (€) per 2023 vehicle sold



Source: 2021-2023 public announcements of EV, battery and charging investments compiled by T&E

Fig. 11 Carmakers 2021-2023 investments per vehicle sold (scaled by 2023 vehicle sales)

In reality, investments by European carmakers may already be lower than this analysis shows. Several European carmakers have recently announced delays in EV investments or their EV goals, for example:

<sup>51</sup> Based on 2023 sales obtained from carmakers annual reports, based on total vehicles (cars and vans) as no differentiation between cars and vans is available for most carmakers. Excludes FAW as vehicle sales figures for 2023 could not be obtained.

- Mercedes announced a delay of their target of 50% of sales to be electrified vehicles in 2025 to 2030 and instead focusing on updating its internal combustion engine models<sup>52</sup> and that it will stop development of its large EV platform<sup>53</sup>. Mercedes further cautioned that European sales will likely not be all electric by 2030<sup>54</sup>.
- VW has delayed plans to build a 4th battery plant in Europe<sup>55</sup> and the launch of the small, affordable (priced at €25,000) ID.2 BEV from 2025 to May 2026.
- JLR has also announced the delay of the launch of two EVs<sup>56</sup>.
- Even niche premium carmakers are slowing down EV ambition, for instance Aston Martin has recently delayed the launch of its first BEV to 2026<sup>57</sup>.

It is not possible to assess the impact of the announced delays on the EV investments included within the scope of the analysis due to the lack of information in the public domain. However, if falling EV investments from EU carmakers and EV investment delays turn out to be a multiyear trend, this could lead the Europe's automotive industry to fall behind in the EV race. Lower investments from European carmakers means less EV investments in Europe since European carmakers are responsible for the majority (80%) of European EV investment between 2021-2023.

Delaying and failing to sufficiently invest in the EV transition now is also risky for European carmakers. While it may boost car manufacturers' financial statements and possibly shareholder dividends in the short term (as revenue is not diverted towards investments or additional debt is not raised), in the longer term it puts European carmakers' competitiveness at risk. To maintain their market share in Europe and globally, European carmakers need to invest more in EVs, not less. Carmakers from other regions are all accelerating or at minimum maintaining the scale of their EV investments. If European carmakers reduce their EV investments now just as the BEV market is really taking off they risk falling behind.

EV technology, especially batteries, is developing quickly. It takes time to build technical expertise, re-train staff, develop new technologies as well as build and re-tool factories needed to build EVs, batteries and other components needed to deliver successful and competitive products to the market. European carmakers need to be scaling up development and production now to ensure they have the competitive offer of EVs available in all segments of the market needed to compete with Chinese carmakers increasing global BEV sales and offer. Delaying investments and relying mainly on premium BEVs as well as plug-in hybrids<sup>58</sup> and ICEs to maintain market share while ignoring the mass market is a shortsighted strategy as Chinese

<sup>52</sup> Reuters. (2024, 02, 22) [Mercedes-Benz delays electrification goal, beefs up combustion engine line-up.](#)

<sup>53</sup> Automotive News Europe. (2024, 05, 15) [Mercedes halts development of MB.EA large EV platform.](#)

<sup>54</sup> Reuters. (2023, 09, 4) [Mercedes-Benz: Europe likely won't be ready for all-electric by 2030.](#)

<sup>55</sup> Electrek. (2023, 11, 01) [Volkswagen delays fourth EV battery plant over 'sluggish' sales.](#)

<sup>56</sup> Electrek. (2024, 02, 08) [Jaguar Land Rover delays two new EVs as first electric Range Rover rolls out this year.](#)

<sup>57</sup> Reuters. (2024, 02, 2028) [Aston Martin delays first electric cars as losses narrow.](#)

<sup>58</sup> Automotive News Europe. (2024, 04, 24) [Automakers eyeing a pivot back to plug-in hybrids should think again.](#)

carmakers enter the European mass market with affordable, good quality and competitive BEVs and start to establish a manufacturing foothold in Europe.

### European carmakers should be investing in small, affordable BEVs

To increase their competitiveness and sales, European carmakers need to shift away from large, premium BEVs and to invest in affordable, compact EV models for the mass market. 80% of European sales are currently of small and medium cars but the offering of affordable European BEVs in these segments is lacking<sup>59</sup>. To compete with Chinese carmakers which have a large offering of cars in all segments, including small and medium BEVs, European carmakers need to bring smaller, affordable models to the market. If not, Chinese carmakers will satisfy these consumers' demand instead. Already some carmakers are heading in the right direction with 9 BEVs by European carmakers for less than €25,000 announced for launch between this year and 2027<sup>60</sup>. VW and Renault are also in talks on developing a BEV for less than €20,000<sup>61</sup>, but the cars announced to date are not enough to satisfy European demand, hence significant investment in further affordable European models is needed.

## 3. How Europe can lock down EV investment

To successfully attract and lock down the EV investments needed to maintain the sustainable competitiveness of the European automotive industry and to ensure a successful EV transition, the following measures are key:

- 1) **The most important policy for attracting EV investments into Europe is maintaining the ambition of the EU car CO<sub>2</sub> standards, including the 2035 100% zero emission target.** This is crucial for providing carmakers with the regulatory certainty needed to credibly invest in electric car and battery production in Europe as well as charging infrastructure. Reopening and any weakening of the standards would increase the risk of European EV investments, which would make other regions, like the U.S., more attractive for investors, sapping investments from Europe. Similarly, the 2025 target should not be weakened as it would cause further uncertainty and delays in EV investment and negatively impact those carmakers which have made sufficient investments to comply.
- 2) **Europe urgently needs an EU investment package to continue to attract public and private investment in EV manufacturing and the EV battery value chain.** T&E calls for a €1 trillion social and green investment plan with a Green Industry Fund at its core<sup>62</sup>. It should provide grants, loans and guarantees to scale up EV production in Europe and

<sup>59</sup> T&E. (2024) [Europe's BEV market defies odds but more affordable models needed.](#)

<sup>60</sup> T&E. (2024) [Europe's BEV market defies odds but more affordable models needed.](#)

<sup>61</sup> Reuters (2023, 12, 8) [VW considering cooperation with Renault on 20,000-euro electric car.](#)

<sup>62</sup> T&E. (2024) [Towards a €1 trillion package for Europe.](#)

support the EV battery value chain. This is key to accelerate and de-risk private investments. EU funding as well as national funding via State Aid support should be linked to strong environmental and social conditions in support of a 'Made in EU' strategy.

**3) The EU should support and reward local manufacturing, however this should not result in protectionism from meaningful competition or slow down EV uptake. Instead 'Made in EU' measures should be accompanied by accelerated EV production plans.**

- Build resilience aspects into various public procurement and subsidy rules around electric cars and battery value chain manufacturing, such as the Net Zero Investment Act (NZIA) provisions allowing for local bids to be prioritised. For example, loans of the European Investment Bank to EV or battery manufacturers and EU grants under the EU Innovation Fund should require firm offtake agreements for locally sourced components and materials.
- Reward more sustainable local manufacturing (carbon emissions, environmental stewardship and responsible business conduct). This can be done via ambitious battery carbon footprint rules that should be proposed without delay. Similarly, national EV subsidies or clean manufacturing contracts can be used to encourage green 'Made in EU' production, as is currently done in France with its "eco-score" concept. Such European EV eco-score should be based on a harmonised EU-wide methodology to uphold the single market<sup>63</sup>.
- Add conditions on local labour engagement and upskilling into the national subsidies targeting the EV battery supply chain facilities under EU State Aid rules.

## 4. Conclusion

Over the last three years global EV investments by carmakers have grown more than fivefold to reach €150 billion in 2023 alone. But Europe has failed to attract as much EV and battery investment as it could have amongst strong competition from North America since the introduction of the U.S. Inflation Reduction Act. Despite leading in overall EV investments, the growth in European carmakers investment announcements appears to be slowing, coupled with recent announcements of delaying already announced EV investments.

Yet attracting EV investment to Europe is critical for maintaining the strength of the European automotive industry and keeping automotive jobs in Europe as car sales decarbonise. European carmakers also need to be investing more in EVs, and not less, if they are to maintain their global automotive leadership as global markets transition to zero emission vehicles.

To ensure European carmakers invest sufficiently in EVs now and to attract private and public EV and battery investment, a strong European policy framework is needed. The backbone of such a framework are the EU car CO<sub>2</sub> standards which are critical for maintaining regulatory certainty and de-risking European EV investments. Leaving those unchanged, including the

---

<sup>63</sup> T&E. (2024) [A streamlined EV 'eco-score' would encourage green, made-in-Europe electric cars.](#)

2035 ICE phase out date is key, otherwise Europe risks sending EV investments elsewhere. Likewise, the EU should learn from the U.S. and set up a Green Industry Fund to provide a competitive financial incentive for scaling up sustainable EV and battery production in Europe. This must be bolstered by 'Made in EU' provisions for subsidy and incentive schemes to ensure that EU and national subsidies benefit best-in-class investments localised in Europe.

## 5. Annex

### Methodology

Investment data per OEM comes from companies' websites. Other sources - like online news platforms or automotive magazines - were occasionally included in case a company had announced an investment outside its official online communication channels. Among all company announcements, we only included those investments into a specific project with a clear geographical scope and a defined invested amount to allow a thorough analysis of investments' destination and value. For example:

- "Toyota announced building a €2 billion battery plant in 2025, located in Japan" → Included
- "Stellantis announced €30 billion investment in EVs" → Not included

Types of investments include direct investments, investments made through controlled or subsidiary companies, partnerships and joint ventures. When the investor is not the only shareholder of the investee and the source didn't break down the invested amount across shareholders, we assumed this was proportional to the shares held by each investor. The same method was applied to joint ventures, where we assumed an equal split unless explicitly stated otherwise.

The investment types in scope cover EV production, battery production/assembly and charging infrastructure for light private vehicles. Investments in vans (light commercial vehicles) or hybrid cars are not included.

The resulting database was complemented with data from the Atlas EV-Hub<sup>64</sup>.

---

### Further information

Anna Krajinska  
Transport & Environment  
anna.krajinska@transportenvironment.org

Written by Anna Krajinska with research and analysis by Luca Poggi and Leah Nyamey.

---

<sup>64</sup> <https://www.atlasevhub.com/>