



*Edition # 12 – DATA DIGEST is CLEPA’s monthly publication shedding light on the health and resilience of the European automotive supply industry through latest facts and figures*

## **Green mobility transition will require significant increase in investment and innovation**

**EU to produce 500,000 fewer electric vehicles than expected two years ago**

What you will find in this edition

- 1 – Vehicle production remains 2 million units below pre-COVID levels
- 2 – Affordability of electric vehicles hinges on EU battery innovation
- 3 – The EU battery supply chain continues to suffer from underinvestment
- 4 - Battery recycling in Europe will play a marginal role until mid-thirties
- 5 - Further development of combustion technologies and renewable fuels is needed

In the face of ongoing economic and industrial uncertainty, the automotive supply industry braces for a year of moderate growth. The electric vehicle segment continues to grow. Nevertheless, overall production volumes remain significantly

below pre-COVID levels, marking a departure from forecasts made just two years ago.

The establishment of a full EU battery supply chain will be crucial for turning this trajectory around. The key challenges hinge on driving down battery costs, with sodium emerging as a potential gamechanger that could reactivate the now lacking budget vehicle segment in the EU. However, a combination of low investment in the midstream battery supply chain coupled with insufficient access to raw materials poses a serious hurdle for the sector's growth.

While projections suggest that battery electric vehicles could represent more than 50% of vehicles produced by the end of this decade, combustion engine vehicles will still represent two-thirds of the fleet by the close of the next decade. This underscores the critical importance of further developments in combustion technology and substantial investments needed in renewable fuels to meet the required CO2 emission reductions in the transport sector.

"While roughly 35% increase in the number of EVs produced is a positive forecast for 2024, it's crucial to note that we find ourselves 500,000 vehicles short of projections from just two years ago. EV technology is evolving rapidly but is currently not matched by sufficient investment in an EU battery supply chain and the needed enabling conditions."

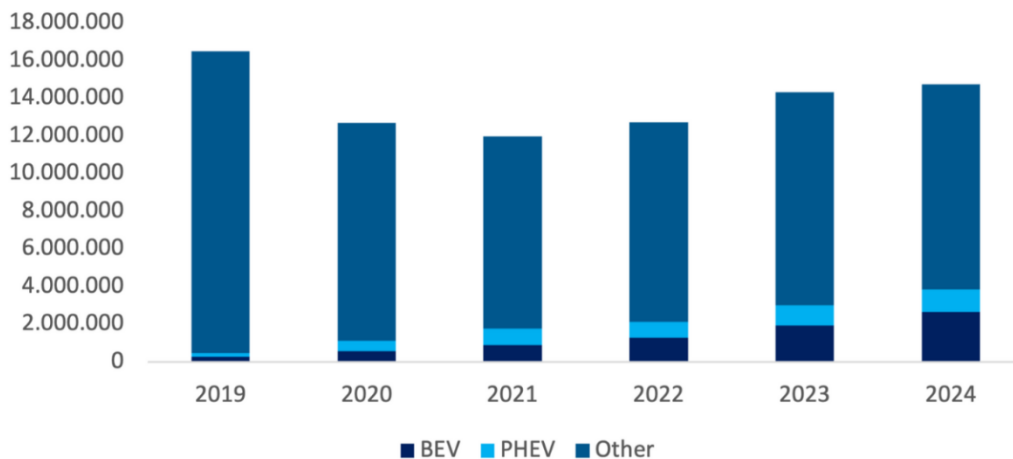


Nils Poel, CLEPA's Head of Market Affairs  
CLEPA Data Digest #12 | January 2024

# 1 - Vehicle production remains 2 million units below pre-COVID levels

In 2024, EU countries are poised to collectively manufacture 2.6 million battery electric vehicles - a 35% increase from the previous year. The latest forecasts by GlobalData (LMCA) indicate that more than 25% of vehicles produced in 2024 will be either battery electric or plug-in hybrids. Despite this growth, it falls short of earlier estimates. Initial forecasts in 2021 predicted the EU producing over three million battery electric vehicles, underlining the industry’s ongoing challenge to rebound from the COVID-19 pandemic. Considering electric and combustion engine vehicles, the EU’s current production levels lag behind those of 2019 by two million vehicles - potentially contributing to the more than 97,000 announced job losses and disappointing job creation related to EV manufacturing seen recently.

Figure 1  
**Light vehicle production forecast**  
 Source: LMC Automotive, a GlobalData company

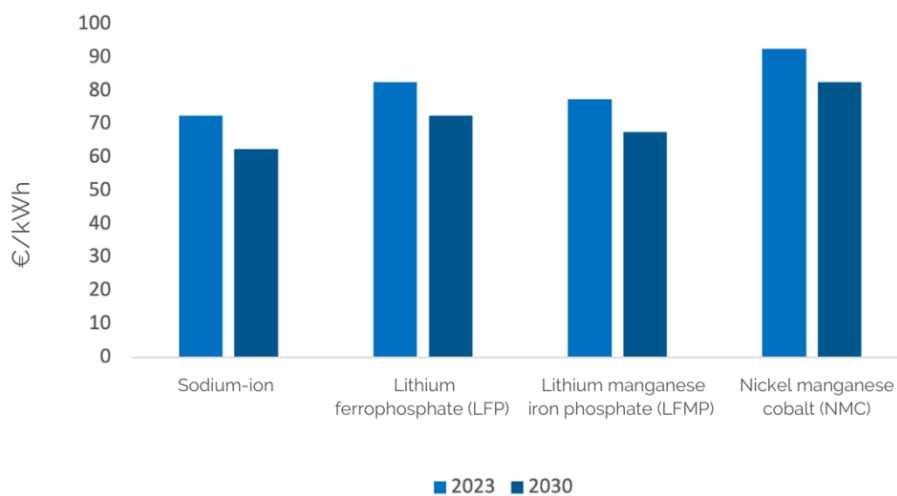


## 2 - Affordability of electric vehicles hinges on EU battery innovation

Raw and active materials are set to make up over 50% of total battery costs, introducing uncertainty and volatility due to potential supply chain bottlenecks and Europe’s strong reliance on Chinese imports.

Despite these challenges, market analysts expect a 10-20% decrease in battery prices in 2024 compared to 2023. A recent study by PwC Strategy& and Fraunhofer highlights how the introduction of sodium batteries emerges as a potential game-changer, offering the prospect of producing cheaper electric vehicles. Innovations in sodium battery technology aim to address concerns related to lower energy density, making it a viable option for smaller city cars and short-distance travel.

Figure 2  
**Battery cell price forecast, by type of battery**  
Source: PwC Strategy&, August 2023

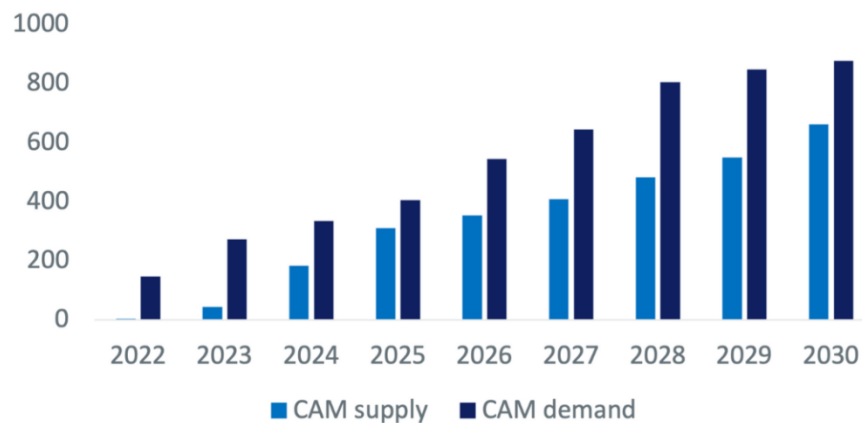


### 3 - The EU battery supply chain continues to suffer from underinvestment

Investment in the EU’s midstream battery supply chain continues to disappoint, while China and the United States are likely to continue to dominate active materials manufacturing throughout this decade.

The EU is expected to import roughly 40% of its active materials until 2030, according to recent forecasts by Ernst & Young, a consultancy. Geographic dependencies are likely to remain a risk, with China controlling more than 75% of the graphite supply chain, a crucial raw material for the production of anodes.

Figure 3  
Difference CAM supply capacity and CAM demand for Li-ion battery production in Europe in GwH  
Source: Ernst & Young, May 2023



"Keeping in mind the evolving landscape, EU's automotive suppliers still have the technological edge to deliver the green and digital transition, globally. The next Commission will need to put competitiveness front and centre to ensure our companies lead this transformation within the EU"



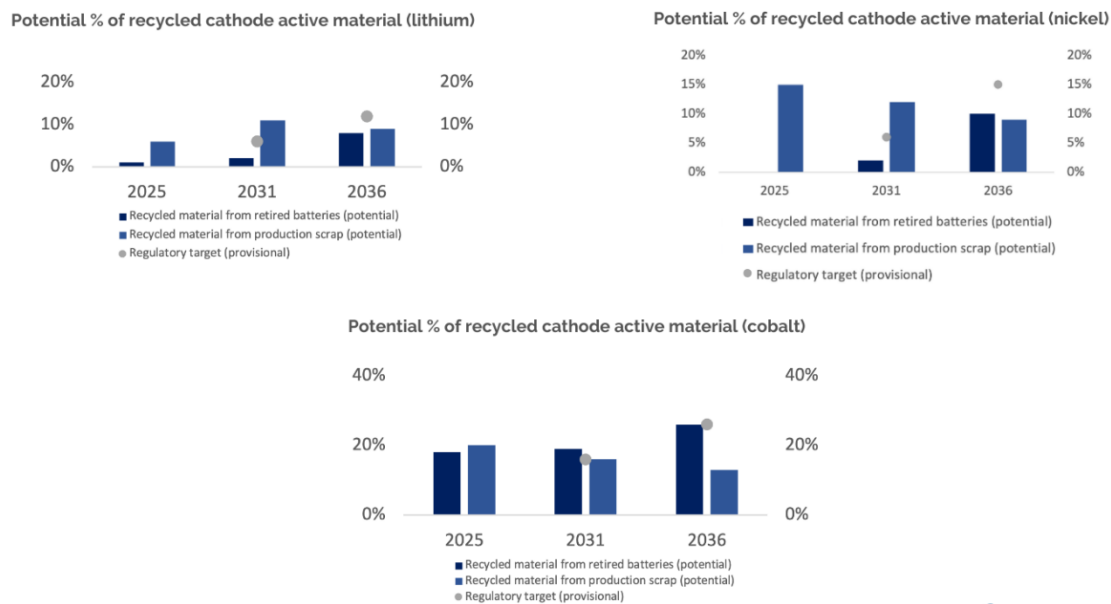
Benjamin Krieger, CLEPA's Secretary General  
CLEPA Data Digest #12 | January 2024

## 4 - Battery recycling in Europe will play a marginal role until mid-thirties

The Critical Raw Materials Act foresees recycling covering 25% of the EU's material consumption. However, the longer lifetime of vehicles and batteries poses a challenge, limiting the availability of recycled materials over the next 15 years, leading to lower battery-specific recycling targets. A recent study by BCG, a consultancy, suggests that these targets may only be achievable if production scrap is used.

Even with this inclusive approach, the maximum obtainable percentages by 2036 for lithium, nickel and cobalt, key critical minerals for battery production, are restricted to 17%, 19% and 39%, respectively.

Figure 4  
 Source: Boston Consulting Group

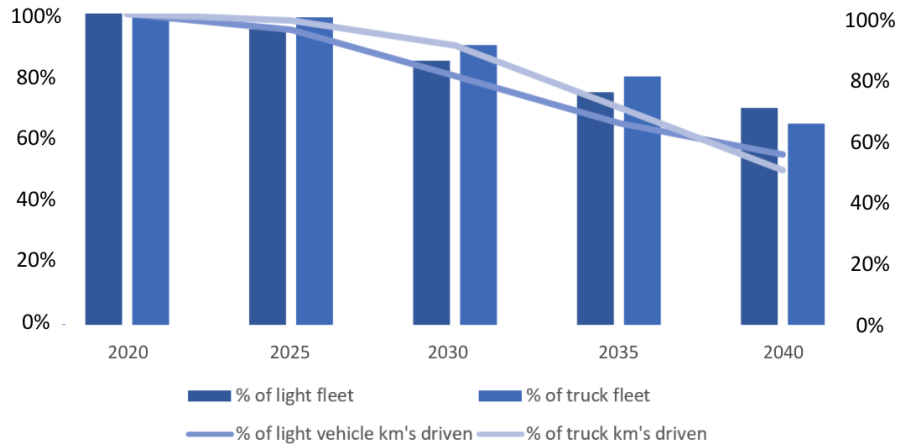


## 5 - Further development of combustion technologies and renewable fuels is needed

New vehicle sales represent just under 5% of the total vehicles on the road, meaning the composition of the fleet will change slowly. A recent study by PwC Strategy& and Fraunhofer suggests that by 2040, battery electric vehicles are projected to represent only around 30% of the light vehicle fleet and 35% of the truck fleet, accounting for less than half of the total mileage in Europe.

Despite the growing presence of EVs, achieving climate neutrality and pollution reduction objectives in the transport sector will continue to depend on combustion technologies in the years to come, thus investments in the production of climate neutral fuels, including hydrogen, is essential.

Figure 5  
**Prevalence of combustion technologies in EU**  
Source: PwC Strategy&, Fraunhofer ISI



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*Are you interested in knowing more?*

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