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The art of turning the corner: Towards a competitive comeback for Europe's EV battery sector

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INTRODUCTION

Caught up in a perfect storm, the European electric vehicle (EV) battery industry has been struggling to ramp up production and innovate. Many approaches, including State aid, direct financial support and collaborative efforts, have been tried and have failed or have not made enough of a difference. The situation has been made worse due to the **EV market experiencing demand-related headwinds**. Although battery electric vehicles have accounted for a rising market share, up from 10.9% in January 2024 to 15% in January 2025[1], the dynamic has been underwhelming.

Admittedly, **battery production is a highly complex process** in which it is particularly difficult to regain a competitive position that has been lost. One must move quickly, given the dynamic of global manufacturing capacity, which has grown speedily and reached 2.5 terawatt-hours (TWh) in 2023, with the added capacity being 25% higher than what was added in 2022.[2]

It is almost impossible to imagine greening the mobility sector without replacing the internal combustion engine with an electric motor.

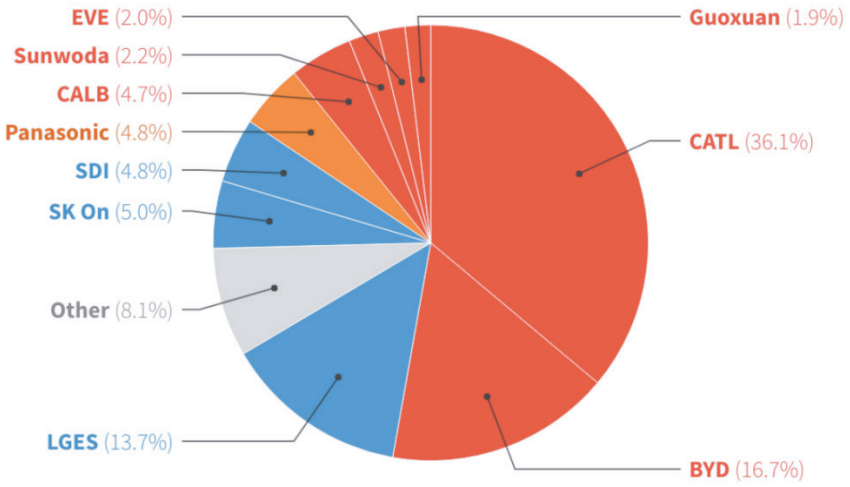
The issue is strategically significant given the importance of EV batteries for the success of the green transition. While other technologies may offer greater usability in the future, **it is almost impossible to imagine greening the mobility sector without replacing the internal combustion engine with an electric motor**. Battery-powered EVs are more energy efficient given their significantly lower heat loss. As a result, they consume less than one-third of the energy per km compared to internal combustion engine cars.[3] Batteries are key for vehicle performance and sustainability. **Battery packs account for a significant share of an EV's total cost**, regardless of the fact that there have been rapid decreases in battery prices.

1. CHINA'S METEORIC RISE TO STRENGTH

Today, the EV battery sector is largely dominated by Asian, mostly Chinese producers. Although South Korean LG Energy Solution, SK On and Samsung SDI are significant players, as is Japan's Panasonic, China's dynamic is unrivalled. Led by Contemporary Amperex Technology (CATL), BYD, and a range of smaller producers, Chinese companies account for two-thirds of the global market (Figure 1). Importantly, the growth dynamic in China remains spectacular. CATL, BYD, CALB and Guoxuan grew more than a fifth in the first half of 2024, compared to 2023, while SVOLT Energy Technology more than doubled its production.[4]

Figure 1

CHINA'S DOMINANCE OF THE GLOBAL EV BATTERY MARKET



Note: Data for first six months of 2024.

Source: Bernstein, K.Hamlin, Breakingviews, August 19 2024. Reuters Graphics.

China's strength across the EV value chain can be traced back 20 years or more, to the time of the country's entry into the World Trade Organisation, when Beijing decided to put its auto industry on a new trajectory and launched the so-called '863' plan for New Energy Vehicle[5] (NEV) research and development.[6] At the time of the Beijing Olympics in 2009, the government launched a three-year Ten Cities and Thousand Vehicles promotion project, with the goal of supporting 10 new cities and 1,000 new energy vehicles for each city per year. These developments provided **the Chinese EV industry with unstoppable momentum**. "Before most people could realise the extent of what was happening, China became a leader in making and buying EVs".[7] When the 863 Programme was launched, China was not perceived as a leader in high-tech industries. As a result, **Western policymakers largely underestimated China's ability to leapfrog** legacy internal combustion engine technology to dominate the EV market.

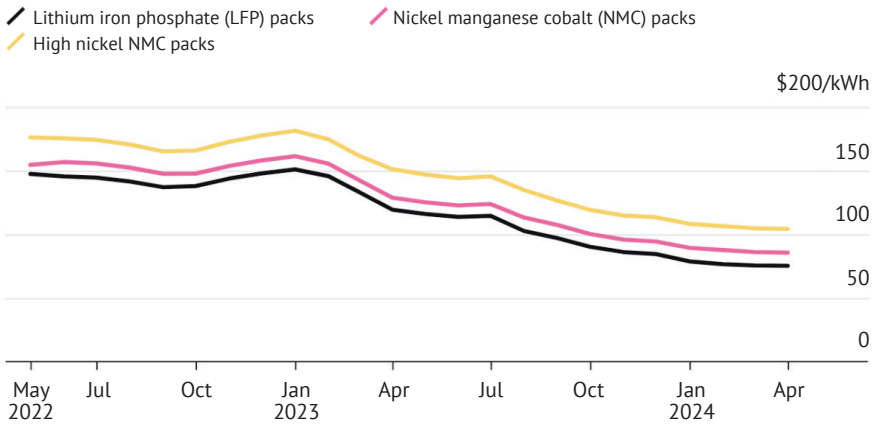
When the European Union had set off to turbo-charge its EV battery industry, it should have carefully studied the Chinese experience. Further to prioritising research into NEVs, **China invested heavily in key technologies, including lithium-ion battery development and funded EV infrastructure**, especially **charging networks**. It has also established integrated supply chains, thus creating the right conditions for scaling up production. By contrast, **the insufficient density of charging infrastructure in Europe has been a major stumbling block for greater EV adoption**. To increase EV adoption, installing larger, more expensive batteries is needed to address the 'range anxiety issue' (i.e. the limited range of EVs compared to combustion engine vehicles) and compensate for gaps in the charging network, which inevitably leads to higher vehicle prices.[8]

China is now technologically more advanced; it can produce at greater scale and at a significantly lower cost than Europe (see Figure 2). As a result of several factors, including the falling costs of raw materials, lower energy costs and overcapacity, prices for China-produced batteries have fallen sharply in the recent period, from an average global price of USD 95 per kilowatt-hour in 2023 to USD 53/kWh in 2024.[9] This means that Chinese batteries can cost 40-50% less than European ones. As a result, almost two-thirds of EVs available on the Chinese market are already cheaper than internal combustion engine cars, partly due to lower battery costs and partly because many Chinese EVs use smaller battery packs compared to European models.

China is now technologically more advanced; it can produce at greater scale and at a significantly lower cost than Europe.

Figure 2

BATTERY PACK PRICES IN CHINA



Note: NMC = Nickel manganese cobalt and includes prices for NMC111, NMC532 and NMC622 batteries. High-nickel NMC includes NMC811, NMC955 and NCA.

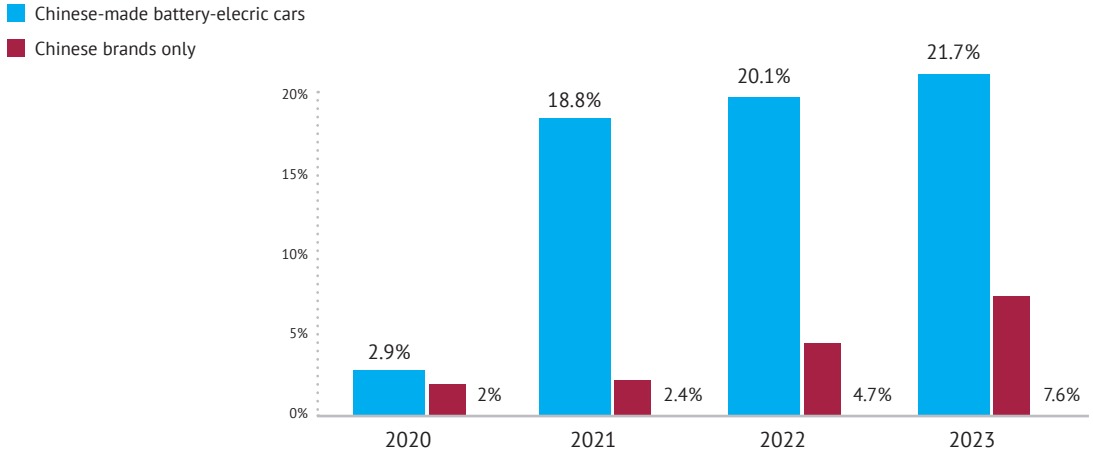
Source: BloombergNEF, ICC Battery.

The **choice of the battery technology** has not been insignificant, with European producers often prioritising nickel manganese cobalt (NMC) cells, which enable longer range, while China has focused on lithium iron phosphate (LFP), with a 20% lower cost per kilowatt-hour at 20-30% lower energy density.[10] Reliance on NMC is partly a function of the scarcer charging infrastructure in Europe but translates into higher costs. In addition, there has been significant investment in technology and in the manufacturing process in China, with new products being launched in a frenzy of activity.

China is now **expanding strongly into Europe**, with 438,034 battery-electric cars imported from China into the EU in 2023, at a value of €9.7 billion. China's share in the EU battery-electric sales has grown from 3% to over 20% since 2020, with Chinese brands accounting for around 8% of the market share (some European Original Equipment Manufacturers manufacture in China but import into the EU). Given that it is being targeted with US tariff and non-tariff barriers, China is likely to direct its overcapacity ever more strongly towards the EU market, only increasing the pressure.

Figure 3

CHINESE-MADE CARS' SHARE IN THE EU BATTERY-ELECTRIC CAR SALES



China also benefits from direct **access to critical raw materials** and vertical integration across the battery supply chain. Although leading in lithium mining and processing, it has pursued an active acquisition policy for lithium assets internationally.[11] This approach has been based on an understanding that demand for minerals will outstrip supply, despite battery chemistry innovations and density improvements.

Graphite and rare earth elements suffer from particularly severe market concentration issues, with over 90% of battery-grade graphite and 77% refined earths foreseen to originate from China in 2030.[12] The International Energy Agency (IEA) forecasts a significant gap between prospective supply and demand for lithium, with the announced projects meeting only 50% of lithium requirements in 2035.[13]

2. EUROPE'S QUEST FOR RELEVANCE

The EU has been markedly slow to fully embrace the EV transition, in part due to its focus on maintaining a competitive edge in combustion engine technology. This has resulted in insufficient investment in innovation and a reluctance to take the necessary risks to secure leadership in the emerging EV market. Today's weakness of Europe's EV vehicle production is exemplified by the fact that only 65% of EVs sold in the EU are produced domestically, compared with 73% in the North American Free Trade Area (NAFTA) and 99% in China.[14]

In his flagship competitiveness report, Mario Draghi poured a lot of cold water over the lack of foresight and preparedness on the EU side, saying that **"the automotive sector is a key example of lack of EU planning, applying a climate policy without an industrial policy"**. He identified the lack of ambition for "a synchronised push to convert the supply chain" as the main culprit.[15] He also recalled the European Commission calculations estimating that Chinese subsidies for clean tech manufacturing have long been twice as high as those in the EU as a share of Gross Domestic Product (GDP), while trade protection has been writ large in China's policies. This has contributed to the cost of manufacturing battery cells being 20-35% lower in China. What Mario Draghi could also have emphasised is that **China's position today is the result of a 20-year strategy**. Similarly, the EU needs to brace itself for a long, determined and consistent effort to regain its competitive position in the battery space.

The automotive sector is a key example of lack of EU planning, applying a climate policy without an industrial policy.

The starting point is a position of weakness, but with several anchor points on which a revamped approach can be built. Today, **the EU has a 6.5% share in the market for lithium-ion batteries, with the output of around 65 Gigawatt-hour (GWh) in 2023**, an increase of around 20% over 2022. The Chinese output equalled 670 GWh in 2023, with 50% year-on-year growth.[16]

The fact is that, **once the European Union began to treat the EV battery sector as strategic, it rolled out extensive policy support**. In 2017, it launched the European Battery Alliance, with the already challenging objective of making Europe "a global leader in sustainable battery production". The Alliance brought together all the relevant EU industrial and research stakeholders. The Battery Regulation, which came into force in 2023, aimed to promote a comprehensive approach to creating a more competitive and sustainable electric vehicle battery manufacturing industry in Europe. Important Projects of Common European Interest focussing on the entire battery value chain have been approved. In February 2022, the European Battery Alliance Academy was launched to train, skill, and upskill approximately 800,000 workers by 2025 and ensure talent retention. In addition, spending on research and development in battery technology in Europe has risen on average by 18% per year in the past decade.[17]

The reality of battery production, however, has proven to be highly complex. European start-ups and producers have struggled with high costs and challenges on the demand-side. As Lars Lysdahl of Rystad Energy noted, the 'valley of death' for start-ups trying to scale up is "deepest for battery cells. You are burning through a lot of cash very quickly".[18]

Northvolt, the Swedish battery producer that filed for Chapter 11 protection in November 2024 and for bankruptcy in Sweden in March 2025, has been an **emblematic company in the European effort to build a homegrown battery value chain**. It received substantial public and private support, including a €5 billion loan from the European Investment Bank and Volkswagen, which took a 21% stake in the company in 2019, and USD 3.8 billion in government support from Germany and Canada. The company registered more than USD 50 billion of orders from Europe's leading car makers. However, when Northvolt delivered less than 1% of its 16 GWh capacity in 2023 and made a net loss of USD 1.2 billion, four times higher than the year before, turning the corner became mission impossible. Low capacity production at its site in Skellefteå meant that it was not able to match the prices offered by Asian producers. Various failures account for this, including in corporate management, significant reliance on imports of Chinese material and machinery as well as overextending itself with simultaneous plans for cell production, cathode production, a plant delivering energy storage solutions and research into batteries for aeroplanes. Clearly, there could have been a point in time when the EU should have stopped throwing more good money after bad, with the aim of modulating support as a function of results.

One important lesson from Northvolt's experience is the need for **a fully-fledged life-cycle support system**, which goes all the way from R&D, through product development, to ramping up production. The EU offers various support schemes for these stages but often in a fragmented fashion. In addition, **the scale of the support tends to be suboptimal and significantly inferior to what Chinese competitors can count on**. Lastly, the **focus on supply chains** should have become much more central earlier on, reducing dependence on imported raw materials such as lithium and cobalt.

3. STRATEGIC APPROACH IN AN EMBRYONIC STATE

Reassuringly, **numerous projects are ongoing in Europe** (See Figure 4). France's Verkor, with the backing of Renault, has raised €3 billion to build a 16 GWh gigafactory in Dunkirk. The plant will produce batteries for 300,000 vehicles when completed in 2028. ACC, founded by Stellantis and TotalEnergies/Saft in 2020, with Mercedes-Benz becoming a partner in 2022, inaugurated its first gigafactory in May 2023 in Billy-Berclau Douvrin, France.

While China has already built the bulk of its manufacturing capacity and will rely on the expansion of current plants for over 40% of its future manufacturing capacity, **the EU and the US are projected to see 80% of their manufacturing capacity coming from new plants**.[19] This will include several new actors entering the markets.

Innovation remains strong in Europe. As Herbert Mangesius of Vsquared observes, "growth-stage startups now cover entire value chains - from battery cell development,[20] as seen in e-mobility with start-ups like Væridion, to recycling technologies pioneered by companies like Cylib.[21] Europe must ensure critical resources are retained locally, which requires coordination and collaboration".[22]

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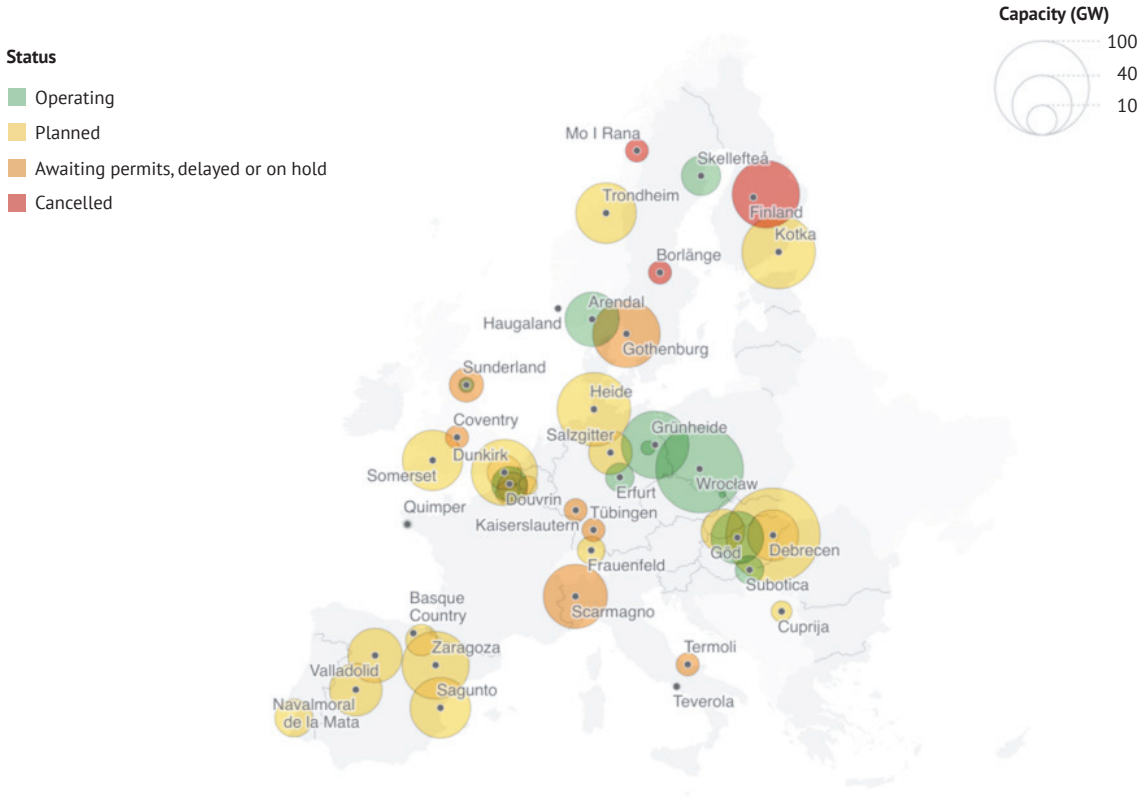
Nevertheless, there is still much to be done. The currently operational facilities and those under construction, with a high chance of reaching the announced output, could cover only 72% of demand by 2030, according to the

Figure 4

PLANS FOR EV BATTERY GIGAFACTORY NETWORK



Note: Capacity indicates plant current production capacity of earliest known capacity target.

Sources: Company websites, industry sources and Reuters calculations as of November 15 2024.
Alessandro Parodi and Marie Mannes.

International Council on Clean Transportation.[23] A substantial part of the announced investment comes from non-EU companies, often as greenfield investment, rather than joint ventures that can allow for the development of the relevant know-how on the part of European manufacturers.

When it comes to funding clean tech development, the EU launched its comprehensive Net Zero Industry Act (NZIA) in 2023. Aiming to **overcome the fragmentation of funding**, the European Commission announced that it would set aside specific **financial incentives of up to €3 billion over the period of three years, starting in 2024, for the EU's battery industry**.[24] The first dedicated call for proposals under the Innovation Fund was announced in December 2024, with €1 billion allocated to EV battery cells. When proposing the Fund, the European Commission singled out EV batteries from the broader category of clean tech manufacturing projects and offered the sector targeted support. The Battery Call (IF24 Battery) specifically aims to "incentivise the production of the most sustainable battery cells in Europe and increase the resilience of their European value chains".[25] It is meant to support innovative technologies, processes and products, while also aligning with the Battery Regulation. While the jury is out on the issue of the distribution of funds, **the outcome of an innovative EU battery industry offering global leadership becomes more likely if more funds are allocated to next generation technologies**.

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The scope of the call covers the **production of cells** that can be used in EV batteries, and optionally, the additional **production of upstream components** such as: cathode precursor material, cathode active material, anode active material, electrolyte, separator as well as battery or battery material recycling.[26]

Projects to be pursued under the Batteries Call, similarly to the Net Zero Technologies Call, are required to **demonstrate their contribution to EU industrial leadership and competitiveness**. They can score points by contributing to the creation of new industrial ecosystems, the development of energy infrastructure in the EU, the development of new technology or intellectual property rights in Europe, cooperation with universities in the European Economic Area, training and other actions to develop know-how in Europe during the project.

The call includes **resilience award criteria**, already present in the 2023 Innovation Fund Net-Zero Technologies Call. These criteria put a premium on the eligible projects' ability to support the European battery ecosystem, strengthen the supply chains and reduce the sourcing of critical raw materials or component materials. By including the new 'Security of supply and countering dependency' criterion, the call is meant to specifically address the risk of building dependency on China for cathode and anode active material. New patents originating from the project must be registered in an EU Member State or European Economic Area (EEA) country. In terms of the sustainability impact, the less greenhouse gas (GHG) emissions they envisage, the better the projects will score. Successful applicants can expect to sign grant agreements in the first quarter of 2026.

The **portfolio of financing instruments is growing systematically**. Even prior to the Batteries Call, in January 2024, EIT InnoEnergy, together with a private equity and venture capital company Demeter, launched a new fund dedicated to the development of resilient raw material supply chains for batteries. The fund aims to allocate at least 70% of investments to EU domestic production of Critical Raw Materials (CRMs) (mining, processing, refining, recycling).

The EU has also prioritised the aim of creating **a vibrant domestic recycling sector**. The Batteries Regulation, which was adopted in July 2023, defined a set of recycling requirements and mandated battery sustainability and due diligence standards with the aim of boosting the circular battery economy. It set the target of 65% for recycling efficiency by weight for lithium-ion batteries by 2025 and 70% by 2030. Recovery rates for critical materials and minimum recycled content were defined.

Achieving these targets comes with **significant challenges, starting with the limited capacity of the battery recycling infrastructure in Europe**. Establishing efficient collection systems and scaling up recycling plants will require substantial investment. In addition, there are technical barriers with regard to recovering high-purity materials from used batteries. Existing recycling technologies, such as pyrometallurgical and hydrometallurgical processes, can be energy-intensive and costly, hindering market competitiveness. Finally, the variability of battery chemistries makes standardised recycling more challenging as different battery designs and compositions require tailored processing methods. Nevertheless, building a strong recycling sector is an important objective to pursue.

On 30 January 2025, the Commission launched the **strategic dialogue with the automotive sector to design concrete strategies**. When preparing the meeting, regulatory streamlining and process optimisation were promised with the aim of ensuring coherence and consistency between different regulations, including the ones concerning safety and data protection. The dialogue is also meant to support industry self-organisation in areas such as common technical standards for charging or battery technology.[27]

4. TOO STRATEGIC TO FAIL. KEY RECOMMENDATIONS FOR EU BATTERY POLICY

As the new EU Competitiveness Compass makes clear, **mobility is "key for competitiveness"**. The recently launched strategic dialogue with the automotive sector and the Industrial Action Plan for the European automotive sector presented in March 2025 aim to design concrete strategies and solutions with **a renewed sense of urgency**. EV batteries are rightly at the core of Europe's revamped approach to green mobility. Success in strengthening the EV battery sector will not only transform transportation but also drive advancements in stationary energy storage as well as energy-dependent defence technologies. The issue is therefore a matter of strategic importance. The following recommendations are aimed at ensuring that the most pressing questions are addressed in a compelling way.

4.1. Create a favourable environment for competitive manufacturing

The revival of Europe's EV battery sector requires **radically improved ecosystem conditions**, including affordable energy, a stronger talent pool, a more conducive and simplified regulatory framework and funding to scale up production. Overlapping requirements from different regulatory measures and reporting requirements need to be reduced so as not to discourage access to market and make manufacturing in the EU more affordable. In parallel, less capital and energy intensive manufacturing processes should be designed.[28] Urgently addressing gaps across EU Member States in electric recharging infrastructure is essential for accelerating the uptake of EVs. Decisive action needs to be taken as part of the forthcoming Sustainable Transport Investment Plan to scale up the financing for the infrastructure.

4.2. Accelerate access to efficient and sufficient funding

Fragmented EU financial support and the fact that it has come from different programmes, added to the complexity of the funding challenge for battery producers. However, there has recently been significant progress in developing **a streamlined and strategic support mechanism**. The December 2024 announcement of up to €3 billion funding for EV battery manufacturing was a game-changer. However, given the dynamics of the sector, the timelines for implementation still need to be urgently shortened and additional resources (beyond the initial €1 billion call) need to be rapidly made available.[29] Given the scale of the required investment, **mobilising private capital through Public-Private Partnership schemes is essential**.

As indicated in the Industrial Action Plan for the European automotive sector, **a dedicated Joint-Undertaking for the automotive sector would be much needed** to build on the funding streams proposed to date.

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In addition, **funding should be directed at all levels of the supply chain**, including its upstream part, which often gets overlooked. **Support in the ramp-up phase is also needed.** Declarations in the Industrial Action Plan for the European automotive sector concerning plans to "look into possibilities for financing ramping up of European production lines" and to "look into EU direct production support to companies manufacturing batteries in the EU" **must be rapidly translated into actions**.

Deploying **a TechEU investment programme** would be highly relevant. Finally, **the scale and speed of funding are very important**. The recently launched and newly developed instruments need to be significantly beefed up to put Europe on a par with global competitors.

4.3. Launch a Sync360 platform

Over the past few years, the EU has put in place several initiatives and funding instruments to support the battery sector. What they mostly lack is a mechanism to weave the different actions together at sufficient scale and speed, while bridging the gaps in the product's life cycle. For this purpose, **a 360° synchronisation platform is needed**. Such a platform ought to become part of the future Competitiveness Coordination Tool that the European Commission has proposed, looking after all elements of a successful battery sector, from research, via access to critical raw materials, all the way to talent attraction and retention, to demand-creation. It should also oversee the alignment of State aid policies for the sector, including with respect to decisions to launch or continue Important Projects of Common European Interest, and bring together evaluation under the Innovation Fund and State aid assessment.

4.4. Create privileged access to the Critical Raw Materials Platform

As announced in the Competitiveness Compass, the Commission is proposing a mechanism for **demand aggregation or joint purchase at EU level of critical raw materials**. This proposal is not uncontroversial and many industry actors are sceptical about the technical and commercial feasibility of the approach for some of the crucial commodities.[30] However, given the strategic significance of the battery sector and the essential role that critical raw materials play in battery production, companies active in this sector should benefit from **premium access to the resources secured through the Platform**. They should also be included in the Strategic Projects to be announced as part of the Critical Raw Materials Act. Private sector investments into the

sourcing of critical raw materials should be de-risked by EU-level involvement. This will become more important as the demand for CRMs begins to significantly outstrip demand, which is expected in the next ten years.

4.5. Double down on the circular battery economy

The EU has been right to pin hopes on developing a battery recycling industry in Europe. However, for this vision to materialise, several steps are needed. First, it will be difficult to build an EU-based recycling industry if massive quantities of battery waste continue to leave Europe to be recycled elsewhere, often in less stringent labour and environmental conditions. Second, the **intermediates of the battery recycling process, such as black mass, need to be clearly classified as hazardous waste**. The latter must be accompanied by EU-wide simplification and harmonisation to reduce transportation costs and administrative burden. Today, requirements on the transportation of waste are not harmonised between the EU-27, making it challenging to ship across EU Member States. As a result, it is sometimes paradoxically easier and cheaper to ship hazardous waste from Germany to China than from Germany to the Czech Republic.

If improperly stored or transported, black mass can lead to heavy metals entering the soil and water. Strict hazardous waste classification is needed to ensure proper handling, transport, disposal protocols, storage, and processing to prevent pollution and harm to workers. **Waste classification should be enforced evenly throughout the EU with changes to the existing permits.** It would help recyclers comply with regulations and provide clear guidelines for licensing and permits. Conditions for standardised processing make it easier for recyclers to scale up operations and attract investors. In addition, strict enforcement of the waste shipment-related measures is needed to permit battery recycling outside the EU only under conditions equivalent to those inside the EU.

Waste classification should be enforced evenly throughout the EU with changes to the existing permits.

Finally, **sizeable investment is needed in recycling capacities and new recycling technologies**. The promises of the Industrial Action Plan for the European automotive sector in this area, concerning financing support for end-of-life vehicles and battery recycling facilities, should be rapidly brought to fruition.

4.6. Prioritise joint ventures over greenfield investment

Given Asian countries' leadership in battery technology, **technological joint ventures are a rational option to embark upon for the EU**. Some of them are now being pursued, like the Slovak InoBat's joint venture with the fifth-largest Chinese battery maker Gotion, or the Stellantis – CATL project in Spain. **They should be prioritised over greenfield investment, to mutual advantage.** Locating battery manufacturing close to EV manufacturing is to be recommended for several reasons, including lowering the insurance costs of shipping lithium-ion batteries. **Knowledge-sharing clauses and commitments to supply critical inputs should be part of joint venture contracts, encouraged by additional incentives, such as access to EU funding.** The Industrial Action Plan for the European automotive sector goes in the right direction by offering EU support for partnership projects with overseas players that ensure "sharing of skills, know how, technical expertise and technology, as well as sufficient added value for the EU".[31] In addition, **a diversification strategy should be pursued**, ensuring that new projects are developed not only with Chinese, but also Korean and Japanese partners.

Knowledge-sharing clauses and commitments to supply critical inputs should be part of joint venture contracts, encouraged by additional incentives, such as access to EU funding.

4.7. Invest in new generation batteries

Significant **advances in battery technology have the potential to provide the most tangible boost to the market position of European producers**. For this to materialise, the EU must invest in future capabilities, including next-generation batteries. The fact that the EU is not able to effectively compete within the current status quo points to the need to **leapfrog into new areas**.

Several new battery technologies are under development with the possibility of reaching market-readiness by the early to mid-2030s. The most promising among them include solid-state batteries, which rely on solid or quasi-solid electrolytes, through which ions pass during charging, to increase energy density and improve safety. Similarly, sodium-ion batteries use more widely available materials. The advantage is higher energy density, allowing the battery pack to be smaller and lighter. Both Toyota

and Volkswagen, partnering with the New York-listed QuantumScape, are investing significantly in this technology to power the next generation of EV vehicles.

Innovation is also needed in battery design: cell-to-pack and cell-to-chassis configurations may increase energy density by increasing cells directly into the battery pack or vehicle chassis. Finally, alternatives to today's battery-powered EVs may become feasible, such as fuel cell EVs generating electricity onboard using hydrogen.

Within the existing EU research programme, Horizon Europe, significant resources have already been allocated to this field, including by means of the European Partnership for an Industrial Battery Value Chain (BATT4EU), which was established in 2021. The Industrial Action Plan for the European automotive sector has confirmed **around €350 million to support the whole EU value chain of next generation batteries, including recycling**, as part of the Horizon Europe contribution to the automotive sector in the years 2025-2027.[32] The Batteries European Partnership Association is carrying out an innovative consultation process called 'Forward' to prepare the case for research and innovation investment in the battery sector in the upcoming Framework Programme.[33]

However, **the scale of the investment in R&D needs to be radically increased in Europe** for the effort to remain competitive. One should note that the Chinese success in the EV battery sector is strongly anchored in an impressive R&D performance. The country's leading producer, CATL, invested around €2.4 billion in R&D in 2023 and expanded its R&D personnel by 26% to 20,604.[24] This means an **ambitious level of resources is required to make sure that the EU becomes a leader in next generation batteries, bringing its portfolio of innovation projects to higher technology readiness levels** and industrialisation.

4.8. Apply trade defence in a measured way

China's overcapacity is a genuine challenge for European producers given the Chinese manufacturers' tendency to cut prices to maintain market share. Judging from the fact that the average capacity utilisation of battery plants in China keeps falling, the problem is only likely to get worse. The EU should also not shy away from **Trade Defence Instruments and the Foreign Subsidies Regulation to maintain sound prospects for companies engaged in fair competition**. However, the latter should be applied with **surgical precision, based on careful consideration of the impact on the entire supply chain and meticulous evidence**, as was the case with countervailing duties on imported EVs.

However, **the priority that needs to be attached to the resilience of the value chain** means that critical raw materials and battery components should be exempted from these considerations until a robust European supply chain is established.

Returning to the position of competitive strength in EV batteries is a challenging undertaking given the complexity of the sector and multiple dependencies which must be overcome. **Concerted action across the entire supply chain is needed to bring this about.** The recent Action Plan for the European automotive sector rightly defines the current moment as pivotal for the industry. Its 'Battery Booster' Package has many ingredients to make a sizeable difference to the prospects of European producers. Nevertheless, many of its announcements still need to materialise. **Leapfrogging other countries and regions in battery technology is the single most promising avenue for Europe** to regain a position of strength. No effort – in terms of funding, ecosystem support or talent pool - should be spared when it comes to this area.

This Policy Paper is part of the EPC's strategic project on the EU's economic security, currently running under the umbrella name of the Brussels Economic Security Forum. It reflects the discussion held during a dedicated roundtable on 'The Future of EU Battery Policy. Advancing Europe's Green Mobility Transition' in December 2024.

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A full list of economic security project partners can be found here: https://economicsecurity.epc.eu.

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[1] January 2025 ACEA data about car registrations: https://www.acea.auto/pc-registrations/new-car-registrations-2-6-in-january-2025-battery-electric-15-market-share/ (accessed 19 March 2025).

[2] *International Energy Agency*, Advancing Clean Technology Manufacturing, p. 40 (accessed 19 March 2025).

[3] *International Energy Agency*, Comparative life-cycle greenhouse gas emissions of a mid-size BEV and ICE vehicle, (accessed 19 March 2025).

[4] Hamlin, Katrina, "China's global battery ram will be hard to stop", *Reuters*, 12 September 2024

[5] The term NEVs included electric, hybrid, and hydrogen-powered vehicles.

[6] See Zhang, Lei; Liu, Yingqi and Pang, Beibei, "China's Development on New Energy Vehicle Battery Industry: Based on Market and Bibliometrics", IOP Conference series 2020.

[7] See: https://www.technologyreview.com/2023/02/21/1068880/how-did-china-dominate-electric-cars-policy/.

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[9] McKerracher, Colin, "China's Batteries Are Now Cheap Enough to Power Huge Shifts", *Bloomberg*, 9 July 2024.

[10] See: "The Road to a New European Automotive Strategy: Trade and Industrial Policy Options", Jacques Delors Institute, January 2025, p. 26 (accessed 19 March 2025).

[11] Erickson, Camille, "China mining, battery companies sweep up lithium supplies in acquisition blitz", S&P Global, 1 November 2021

[12] *International Energy Agency*, "Global Critical Materials Outlook", 2024, p. 8 (accessed 19 March 2025).

[13] *Ibid.*, p. 8

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[16] Draghi, Mario, *Ibid*, Part A, p. 43.

[17] Draghi, Mario, *Ibid*, Part A, p 43.

[18] Milne, Richard, "EU's great battery hope Northvolt faces high-stakes fight for survival", *Financial Times*, 21-22 September 2024.

[19] *International Energy Agency,* Advancing Clean Technology Manufacturing, p. 40 (accessed 19 March 2025).

[20] One example is the German start-up CustomCells: https://customcells.com.

[21] See: https://www.cylib.de.

[22] Cited in Schimroszik, Nadine, "Diese neuen Technologien interessieren Zukunftsinvestoren 2025", *Handelsblatt*, 8 January 2025.

[23] See Li, Eyal; Bieker, Georg; Sen, Arijt, "Electrifying road transport with less mining: A global and regional battery material outlook", International Council on Clean Transportation, December 2024 (accessed 19 March 2025).

[24] See: https://ec.europa.eu/commission/presscorner/detail/en/statement_23_6404.

[25] *European Commission*, Q&A on the Battery Call, https://climate.ec.europa.eu/document/download/fc664173-44ec-4dd5-bec6-1e23c0f15afa_en?filename=20241202_memo_if_calls_en.pdf.

[26] See: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/innovfund/wp-call/2024/call-fiche_innovfund-2024-batt_en.pdf.

[27] See *European Commission*, "The Concept Note. Strategic Dialogue on the Future of the European Automotive Industry", (accessed 19 March 2025).

[28] Stassin, Fabrice "To remain on the battery map, EU must run a sprint and a marathon", *Euractiv*, 7 March 2025.

[29] Apart from the recently announced Battery Call, EU financial institutions should support ongoing efforts to raise additional funds for the battery sector and join initiatives such as the European Battery Alliance (EBA) Strategic Battery Materials Fund, a €500 million project launched in January 2024 by EIT InnoEnergy and Demeter Investment Managers to develop a resilient and diverse battery raw material supply chain within Europe.

[30] Confidential business information infringements, often required as part of the aggregated demand approaches, are part of what makes this approach challenging.

[31] *European Commission*, "Industrial Action Plan for the European automotive sector", European Commission Communication, 5 March 2025, p. 12 (accessed 19 March 2025).

[32] *European Commission*, "Industrial Action Plan for the European automotive sector", European Commission Communication, 5 March 2025, p. 12 (accessed 19 March 2025).

[33] See: https://bepassociation.eu/fp10/.

[34] Pollard, Matt; Dong, Zuyang, "China' s Massive Investment into Cleantech R&D and Manufacturing is Catalysing the Global Energy Transition", Climate Energy Finance, 7 June 2024.

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