









Acknowledgements

This Battery Deal for Europe is a co-creation by RECHARGE and BEPA.









RECHARGE is Europe's industry association for advanced rechargeable and lithium batteries, representing a 360° value chain poised to tackle today's and tomorrow's challenges. We advocate for the sustainable development of an innovative and competitive rechargeable and lithium batteries value chain in Europe – one that empowers European industries and innovation, fosters a circular economy, and secures long-term prosperity and global competitiveness for all stakeholder along the battery value chain.

Read more:

https://rechargebatteries.org/

BEPA is the voice of European research and innovation across the battery value chain. We set technological priorities, advocate for funding and financing policies, and foster collaboration, with the goal to accelerate research and innovation and its industrialisation for a competitive Europe.

Read more:

https://bepassociation.eu/about/



Foreword

Defining Common Goals for a Joint Vision-No Gain Without Commitment

Europe stands at a critical juncture in defining its role within the global battery sector. What is needed is a clear articulation of goals, matched by a coordinated effort and strategic commitment. The relationship between effort, opportunity, and value creation must guide these decisions. The choices ahead vary in scope, impact and risk, each reflecting a different level of dedication and potential return.

One option is to maintain the status quo, continuing with battery operations and research centres focused on servicing and certification. This path offers minimal industrial ambition and limited strategic impact. It is safe but stagnant and will not elevate Europe's position in the global battery race.



Another option is to occupy niche segments of the value chain. This may offer some technological sovereignty, but without full integration, long-term competitiveness remains out of reach. Fragmented capabilities leave Europe vulnerable to external dependencies and market volatility.

A third path involves building a protected value chain. While this may shield certain segments from global competition, it does not eliminate underlying vulnerabilities. Supply chain risks - especially in raw materials and intermediate components - continue to threaten Europe's competitiveness and industrial resilience.

A more ambitious route aligns with the EU's 2018 objective of launching large-scale battery cell manufacturing projects. These projects are essential for scaling up industrial

capacity, but without a broader ecosystem, including the upstream and midstream sectors, infrastructure, innovation, and skilled labour they risk becoming isolated efforts with limited systemic impact.

The most transformative option is to build a complete, self-sufficient, and competitive battery ecosystem. This would span raw materials, cell production, recycling, and innovation, backed by substantial public investment and strategic protection. Achieving this vision requires coordinated funding, regulatory alignment, and targeted industrial policy. It could become Europe's next defining goal, not merely to participate in the global battery race, but to shape it.

Defining these goals collectively, across EU institutions, Member States and industrial sectors, is essential. Without shared commitment and strategic clarity, Europe risks falling short. However, with the right ambition and coordinated effort, the continent can build a battery industry that is competitive, sovereign, and future-proof.

Europe is not short on battery-related initiatives. What it lacks is strategic coordination. Across institutions, Member States, and industry platforms, numerous programms and actors are working toward the development of a European battery ecosystem, but too often in isolation, on different timelines, and with divergent objectives. Only through unity of purpose can Europe turn ambition into lasting industrial leadership.

The Battery Deal for Europe proposes a holistic approach to developing a domestic battery industry with long-lasting benefits for Europe's economy and its citizens - but its success hinges on coordinated action across multiple EU Directorates-General, Member States, industrial stakeholders, and civil society. Only through joint ownership and cross-sector collaboration can Europe deliver a competitive, sustainable, and socially inclusive battery ecosystem.



Executive Sumary

A Battery Deal for Europe presents a unified vision by RECHARGE and BEPA to build a competitive, resilient, and sovereign European battery ecosystem — one capable of anchoring Europe's industrial renewal, climate leadership, and strategic autonomy.

Europe's battery sector stands at a crossroads. Despite strong research and industrial foundations as well as world-class expertise, the continent faces a widening competitiveness gap with China and the United States, both of which combine massive state-backed investment with strategic industrial coordination. Without decisive, collective action, Europe risks losing control of a value chain that underpins its multi-faceted transitions.

The Battery Deal calls for a coordinated industrial strategy built around four interdependent pillars — INNOVATE, PRODUCE, BUY, and SECURE — guided by the cross-cutting principles of Scope, Scale, Speed, and Sustainability. Together, these pillars form a coherent framework to turn Europe's ambition into enduring industrial strength.

1. INNOVATE in Europe

Europe must reinforce its R&I framework to remain at the technological frontier. Innovation should cover the entire value chain — from advanced chemistries to recycling, process digitalisation, and sustainability.

• The proposed **BATT4EU 2.0 partnership** (2028–2034) will serve as the cornerstone of this effort, fostering a continuum from low-TRL research to high-TRL industrial projects through sandbox, foundation, and flagship tracks.

2. PRODUCE in Europe

Industrial scale-up is Europe's Achilles' heel. To bridge the competitiveness gap, the Battery Deal proposes:

- Output-based production support ensuring predictable, performance-linked revenues during ramp-up.
- Targeted CAPEX support for capitalintensive projects along the battery value chain.
- Deployment through a European Battery Ecosystem Fund of €500 billion over 15 years, leveraging the EU Competitiveness Fund as a "Battery Booster" for sustainable industrialisation.

3. BUY European

"Buy European" is not protectionism — it is purposeful, strategic industrial policy. Public procurement and strategic demand must drive industrial sovereignty.

• By embedding local content requirements (LCRs) and sustainability-weighted tenders across EU instruments (Innovation Fund, Corporate Fleets Directive, CRMA, NZIA), Europe can ensure that public investments translate into local jobs, value creation, and resilient supply chains.

4. SECURE Europe's Industry

Europe must safeguard its industry against unfair competition and excessive dependency. This includes:

- Stronger FDI screening, customs enforcement, and trade defense measures.
- Strategic partnerships with like-minded nations for raw materials and components.
- Incentives for domestic processing, recycling, and next-generation technologies.
 Sustainability becomes a competitive advantage — Europe must lead in lowcarbon, traceable, and circular battery production.



Click on the specific Pillar to jump to the right section







Introduction

This Battery Deal for Europe is a pact with the people who power the continent's clean energy future - engineers, chemists, technicians, miners, recyclers, and factory workers- shaping the transition from raw material to recycled cell. It recognises the hands and minds behind every stage of the battery value chain: from extraction and processing to manufacturing, integration, and reuse. These individuals are not just building batteries, EVs, or other electrified products, they are building Europe's industrial renewal.

But this deal is also based on a sobering diagnosis. **Europe's battery sector**, rich in talent and ambition, **is at a crossroads**. Despite remarkable efforts to build a domestic value chain, the industry is struggling to keep pace in a global race where others sprint ahead with clear vision and determined state support. Without coordinated action, Europe risks watching world-class know-how slip through its fingers, not because it lacks knowledge, but because it lacks strategic foresight and execution.

Building a European battery industry begins with a clear-eyed understanding of the global landscape. Europe is entering a fiercely competitive arena where China dominates the battery value chain - from raw materials and cell manufacturing to recycling and process innovation. This industrial supremacy is increasingly leveraged for geopolitical influence, shaping global standards and market dynamics.

Recognised by the **European Commission** as a strategic value chain, batteries are central to the future of the economy, decarbonisation and digitalisation. And batteries are not only about cars: they are the backbone of Europe's shift to electrification. From public transport and energy storage to construction, maritime, defense, and digital infrastructure, batteries enable lowemission mobility, grid stability, and industrial resilience. They power everyday devices like smartphones and medical equipment, and safeguard critical assets like data centres and nuclear plants.

This shift to electrification is transforming entire industries, and, with them, the lives of millions of workers. To harness its full potential, we need a coherent strategy that safeguards existing jobs, supports reskilling, and turns disruption into opportunity.

Europe has the tools: a strong research base, a large internal market, and deep industrial

expertise. But it lacks scale, supply chain control, and strategic autonomy. The challenge is not whether Europe can build a battery industry - it's whether it will act fast enough to turn the tide.

It sets out urgent priorities to revive and strengthen Europe's battery value chain: driving innovation, attracting investment, and delivering real value to workers, communities, and industries undergoing profound transformation. Europe's position in the global race towards electrification is at stake. This is not a moment to stand on the sidelines, but to shape the future from the front.

Only by securing a meaningful share of the fast-growing battery market, Europe can translate its technological leadership into industrial strength and quality jobs. This Deal is about preserving our industrial base while opening the door to future-oriented sectors that offer hope and purpose to the next generation. Only by building a resilient and sovereign battery ecosystem can Europe turn disruption into renewal - and ambition into lasting prosperity.

This Battery Deal is about choosing to lead, not to follow.





The battery value chain situation in Europe today

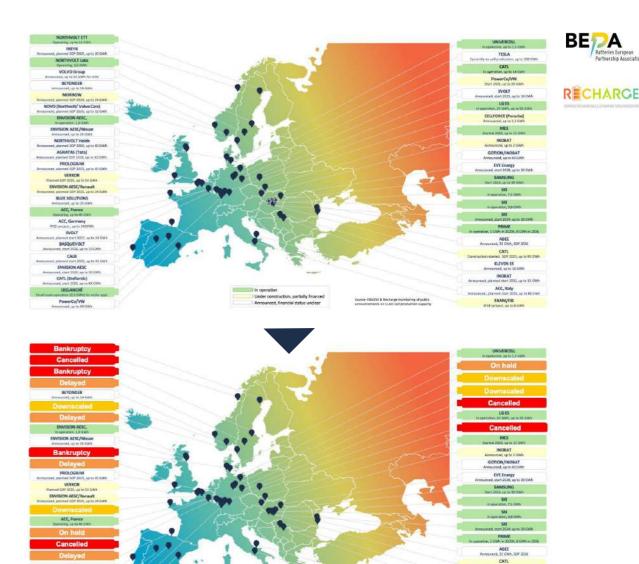
The European battery industry stands at a critical inflection point. As the **global race** towards electrification accelerates, 2025 is shaping up to be a "make or break" year for Europe's ability to compete. Despite years of strategic planning and investment, the continent faces mounting pressure. China now controls over 80% of global battery production, up from 50% in 2015, dominating not only manufacturing but also raw material processing, precursor and active materials production, recycling, and innovation. This industrial supremacy is increasingly leveraged for geopolitical influence, setting global standards and shaping market dynamics.

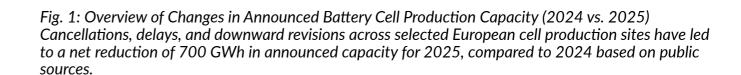
European manufacturers are struggling to scale. Gigafactories face high ramp-up costs, slow deployment, and insome cases, closure, highlighted by the recent bankruptcies of Northvolt, Custom Cells and MANZ. Announcements, like from Porsche, to discontinue the scale-up of cell production have further eroded investor confidence, signalling a retreat from previously ambitious targets and casting doubt on Europe's ability to build a competitive domestic battery industry. Meanwhile, state-backed competition from the U.S. and China leaves European firms at a disadvantage, as existing European support frameworks remain fragmented and outdated.

The EU's current state aid frameworks are outdated and fragmented, lacking the agility and scale needed to support rapid industrial growth.

In the past year alone, over 700 GWh of announced cell production capacity in Europe has been rolled back or cancelled. A global oversupply of battery cells, projected to reach 30% in 2030, is driving down prices, making it harder for European producers, still in scale-up mode, to gain market traction. Unlike software, battery manufacturing demands years of iteration, deep technical expertise, and precise process control. These capabilities cannot be imported overnight.

These setbacks are not confined to cell producers. Upstream material suppliers and equipment providers face stalled demand and cancelled offtake agreements, while downstream sectors depending on European cells, from automotive to stationary storage, experience uncertainty that delays product launches and investment decisions. The collapse of manufacturing projects has thus disrupted the entire value chain, weakening Europe's credibility as a location for battery investment.





Europe's challenges are both **structural and strategic**. High energy and labour costs, limited subsidies, and slow EV adoption weaken the investment case for domestic production. At the same time, rising imports of low-cost Chinese batteries intensify competition and threaten the viability of local supply chains. **Financing** remains a major hurdle, with many ventures lacking long-term capital, offtake agreements, or sovereign guarantees.

Battery **manufacturing** is inherently complex, involving intricate chemical processes, long qualification timelines, and steep learning curves. Long-term and sustained industrial support is therefore needed to overcome high scrap rates during production ramp-up and to avoid commissioning delays.



RECHARGE



Securing Jobs in Europe's Battery Transition

Without urgent and coordinated action, Europe risks falling into strategic dependency at the very moment batteries are becoming mission-critical infrastructure. These technologies are no longer confined to electric vehicles, they now underpin energy grids, construction equipment, maritime transport, and defense systems. As recent crises have shown, from the COVID-19 pandemic to geopolitical shocks, resilience begins with control over key supply chains. Losing ground in battery production would not only compromise Europe's industrial base but also its economic and geopolitical security.

According to **Draghi's report**, ECB simulations warn that if Chinese EV subsidies mirror those used in the solar PV sector, EU electric vehicle production could drop by as much as 70%, with a 30-point loss in global market share . The consequences would be severe. The automotive sector alone supports 14 million European jobs, and the ripple effects would extend across cleantech innovation, manufacturing, and regional economies. Without a strategic foothold in these emerging industries, Europe risks hollowing out the very sectors that anchor its prosperity and sovereignty.

Recent developments in Germany offer a stark warning. In just one year, the country's automotive industry shed over 51,000 jobs, nearly 7% of its workforce, amid falling revenues, rising energy costs, and intensifying global competition. Across the broader industrial sector, 114,000 jobs were lost, with total employment down

14 million jobs
supported by the automotive sector

51,000 jobs

lost in German automotive in one year (-7%)

114,000 industrial jobs lost overall (-2.1% in a year)



2.1% year-on-year. Since 2019, the sector has shrunk by 245,000 jobs, a 4.3% decline. Major manufacturers like Mercedes-Benz, Volkswagen, and suppliers such as Bosch and Continental have announced intense cost-cutting programms. These decisions reflect deeper structural pressures: overcapacity, weak foreign markets, and declining profitability.

Tradetensions and tariffs have further strained the sector. Exports to the U.S. have dropped sharply, and competition from Chinese manufacturers continues to grow. High energy costs, regulatory complexity, and sluggish domestic demand compound the challenge. Young professionals face a tightening job market, particularly in automotive and mechanical engineering. Hiring has slowed, and many graduates may need to rethink their career paths. Rising unemployment among university-educated workers is no longer a distant risk, it is becoming a reality.

This current trajectory is troubling. If the path to electrification leads to de-industrialisation, the political viability of the transition, and public support for it, may erode. The Battery Deal must therefore ensure that climate and electrification goals are pursued in tandem with industrial strength, innovation leadership, and economic security. The transition must be inclusive, offering pathways for workers, communities, and young professionals to thrive in the new economy.

A Battery Deal for Europe must therefore do more than advance climate and electrification goals; it must anchor them in industrial strength, innovation leadership, and economic security.

This means building a future where battery materials, batteries, and battery-powered products are made in Europe, by European workers, for European markets. It means ensuring that the shift to electrification creates, and not displaces, opportunities across regions and generations. From factory floors to research labs, from mining communities to urban mobility hubs, the transition must be inclusive and empowering.

245,000 jobs

lost since 2019 (-4.3%)

EU EV production risk

-70% if Chinese subsidies escalate

30-point loss

in global EV market share (ECB simulation)



RECHARGE



Building a Competitive Battery Industry: From Vision to Execution

Europe faces a defining challenge: to build a high-performance battery industry that supports climate neutrality, strengthens economic sovereignty, and secures long-term industrial competitiveness. This is not simply a technological ambition: it is a strategic necessity. Batteries are central to the future of mobility, energy systems, and clean technology. Yet despite Europe's strengths in research, innovation, and market scale, it still lacks the industrial depth, manufacturing capacity, and strategic control over critical raw materials needed to compete globally. Dependence on third countries, especially China, is a reality that must be considered when shaping Europe's industrial strategy for the battery industry.



Fig. 2: A holistic approach grounded in four strategic pillars is essential to grow Europe's battery ecosystem through an integrated framework where each pillar reinforces the others and delivers clear European value.

To overcome these barriers and translate ambition into action, Europe needs a strong enabling framework that supports the full journey, from lab to industrialisation. That framework is the Battery Deal.

The Battery Deal builds on four strategic pillars that together form a holistic and coordinated approach to ensure a resilient and competitive battery industry in the EU. These pillars - **Innovate in Europe**, **Produce in Europe**, **Buy European**, **and Secure the European Industry** - must advance together across the shared dimensions of Scope, Scale, Speed, and Sustainability.

Innovation must be supported not only in battery chemistry and design, but also in recycling technologies, supply chain diversification, and manufacturing process efficiency. Production must be scaled rapidly, with targeted support for manufacturing and processing capabilities, and the development of industrial clusters that can compete globally. Demand must be stimulated through procurement policies and standards that reward sustainability, circularity and traceability, without increasing regulatory burdens, ensuring that European-made batteries have a strong foothold in domestic markets. And Europe's industry must be protected, through robust trade instruments and strategic raw material partnerships, to reduce exposure and enhance autonomy.

To meet this challenge, Europe must act with clarity, determination, and strategic coherence. Four foundational steps are essential: acknowledging the current industrial landscape, defining clear and realistic objectives, integrating fragmented strategies, and acting swiftly to close the gap with global competitors. These steps must be pursued in tandem with a deep understanding of the structural challenges facing the battery value chain—challenges that can be grouped into four interdependent dimensions: **Scope** of operations, investments and technologies, **Scale** of investments and profitability, **Speed** of scaling-up, industrialisation and innovation, and **Sustainability** of operations and products.







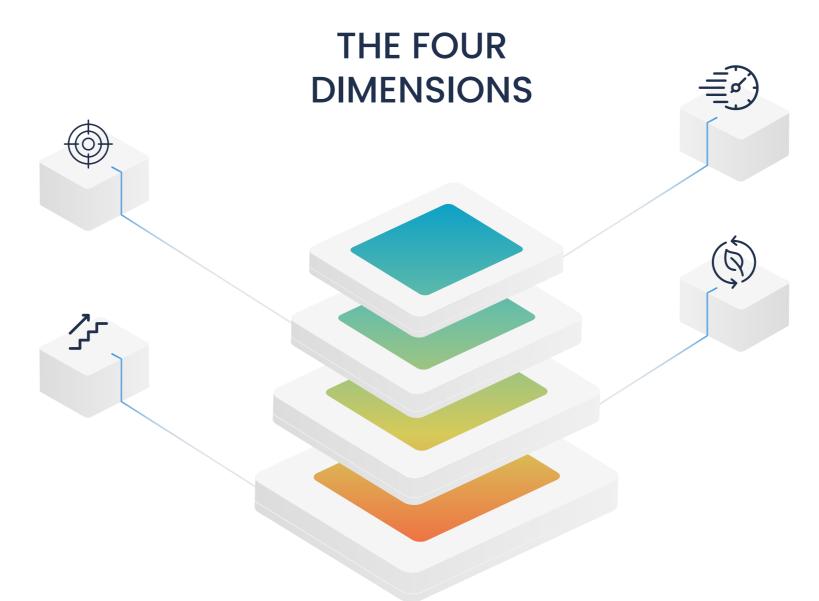
SCOPE

Each part of the value chain, from mining and refining to cell production and integration, has distinct capital needs, lead times, and technological constraints. A coordinated ecosystem is essential to ensure end-to-end development and avoid bottlenecks. Scope also reflects the growing diversity of applications that batteries enable — from automotive and grid storage to emerging sectors such as aviation and defense — all vital for Europe's industrial and strategic future.



SCALE

Is equally critical. The battery market is expanding rapidly, and maintaining competitiveness requires massive investments to achieve economies of scale. Yet European producers face high energy and labour costs, lack of accumulated manufacturing know-how, intense global competition, and limited access to affordable raw materials.





SPEED

Remains a major constraint. Industrial projects are often slowed by bureaucratic hurdles, regulatory uncertainty, and talent shortages. Faster permitting and more efficient execution of public support are essential - but speed also means simplification. Simplifying and streamlining regulations is key to accelerating industrial deployment—cutting red tape, boosting innovation, and enabling faster execution, including through initiatives like the Omnibus proposals.



SUSTAINABILITY

While a shared goal, presents its own challenges-across the battery value chainfrom the cost of renewable electricity to ethical sourcing and waste management. Sustainability must be understood in all its dimensions: not only environmental, but also economic and social. A truly sustainable battery industry requires viable business models, fair labour practices, and responsible resource use—ensuring competitiveness, inclusiveness, and long-term resilience.

INNOVATE

Innovate in Europe: Exploring the Supporting Instruments



For Europe to remain competitive in a rapidly advancing global arena, it is not about innovating less, but about innovating more, innovating better, and innovating faster.

Otherwise, Europe will be out-innovated.

Leveraging innovation to tackle the 4S challenges faced by the European battery value chain will require among others to explore the following thematics:



SCOPE

Europe still lacks sufficient diversification of types of battery technologies (i.e., battery chemistries) across and within applications. Batteries are a central enabling technology for a growing diversity of applications — from EVs, to stationary storage to aviation, aerospace, defense, and beyond. This calls for innovation capacity to broaden the technology base, developing affordable solutions for large-scale deployment alongside next-generation systems such as solid-state batteries, therefore following both design-to-performance and design-to-cost approaches.

SPEED

Europe is slower than its competitors in leveraging digital tools to accelerate innovation. Materials discovery, process optimisation, and industrial ramp-up take longer than in regions where AI, modelling, and digital twins are mainstream. The challenge is to deploy digitalisation more effectively — transforming it into a driver for shorter development cycles and faster commercialisation.



SUSTAINABILITY

Europe's battery value chain still relies on external sources for much of its raw materials. At the same time, recycling offers a strategic pathway to strengthen supply security and reduce Critical Raw Material dependencies. To minimise the supply risk, the key challenge is to develop cleaner and more cost-efficient processes for raw material conversion and chemical refining, while simultaneously advancing recycling technologies capable of recovering complex feedstocks at scale and reintegrating them into the European value chain.



SCALE

Battery manufacturing in Europe remains too capital-intensive, rigid, and energy-hungry to secure competitiveness against global leaders. The challenge is to innovate towards less capital-intensive, more modular, and cleaner production models that can be rapidly scaled and adapted across sites, reducing both cost and environmental footprint.









Taking it Forward: Unlocking Europe's Battery Innovation Potential

Compared with global players, Europe has made significant strides in the battery arena—especially since the launch of the European Battery Alliance by the European Commission. Initiatives such as Important Projects of Common European Interest (IPCEIs) have mobilised public and private investment, strengthened cross-border collaboration, and accelerated industrial innovation. Yet the scale of global competition demands more.

China's largest battery producer—currently the global leader across the value chain—spends more on R&I each year than all European public funding combined. This gap underscores the urgency of reinforcing Europe's innovation capacity. To fully unlock the potential of Europe's battery R&I ecosystem, we must ensure that the right innovation-supporting instruments are in place. That includes a well-supported battery partnership

in the next MFF, expanding and simplifying access to IPCEIs, improving coordination across Member States, and addressing implementation bottlenecks that slow down project execution. Speed, scale, and strategic alignment are essential to ensure Europe can innovate competitively—and at the pace the global race requires.

Deep-dive on the next Battery R&I Partnership for Europe – BATT4EU 2.0

In late 2020, the European Commission set up under Horizon Europe a public-private partnership to support R&I across the battery value chain. This battery partnership (called BATT4EU - Batteries for Europe) co-run by the Batteries European Partnership Association (BEPA) and the EU Commission was recommended by the EU's Strategic Action Plan on Batteries prepared with the European Battery Alliance.



Building on solid foundations, **BATT4EU 2.0** will cover the entire battery value chain, and it will address multiple battery technologies for diverse applications. By tackling challenges under one roof, the battery partnership will ensure a coordinated and synergetic development of fit-for-purpose technology blocks needed for the Clean Industrial Deal.

To cover the technology development from the lab to fit-for-deployment, BATT4EU 2.0 is expected to include:

- A sandbox track (lower TRL, fewer partners, smaller projects, less prescriptive),
- A foundation track (replicating the success of BATT4EU).
- A flagship track (higher TRL, fewer partners, bigger projects, more prescriptive).

BATT4EU 2.0 will also build strong interfaces with relevant innovative partnerships such as application-specific partnerships (e.g. a future automotive partnership) which rely on batteries as one of the key enabling technology blocks to integrate into applications. Robust upstream and downstream interfaces will reduce fragmentation, unlock synergies, and deliver a high return on public investment.







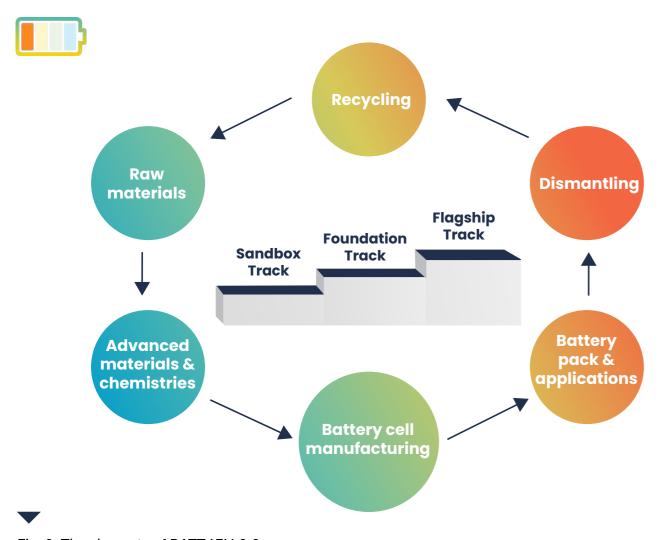


Fig. 3: The elements of BATT4EU 2.0

BATT4EU 2.0 will empower applicationspecific Partnerships

- Automotive
- Waterborne
- Grid storage
- Electronics
- Aviation
- Defence
- Rail

BATT4EU 2.0 will empower EU policies and initiatives

- Industrial Action Plan for the Automotive Sector
- Action plan for Affordable Energy
- Clean Industrial Deal
- Critical Raw Materials Act
- Net Zero Industry Act
- SET Plan
- Chips Act

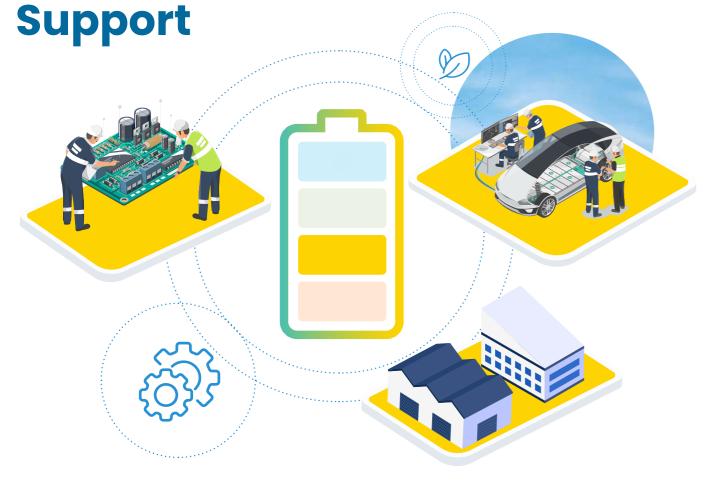






PRODUCE

Produce in Europe: Scaling Industrial Strength with Output-Based and CAPEX



Europe's battery sector does not just need innovation in labs: it needs a paradigm shift in how we support industrial scale-up. To close the competitiveness gap and build a resilient, high-performing battery ecosystem, Europe must deploy smart, targeted instruments that reflect the realities of manufacturing and infrastructure investment. This pillar calls for a dual approach: Dedicated CAPEX support for capital-intensive projects, as well as temporary output-based production support across the entire battery value chain, tailored to the development stage of each industrial project.



SCOPE

Support must extend beyond cell manufacturing to encompass the entire battery value chain from critical raw materials, precursor and active materials, to recycling infrastructure. A coherent policy toolbox should enable industrial learning and expansion across all segments, ensuring Europe builds not just gigafactories, but the foundational systems that support future battery technologies.



SPEED

To unlock these instruments, Europe must modernise outdated concepts like "Start of Work" in the EU State Aid framework. Battery manufacturing involves long commissioning phases and unstable early yields, these should be recognised as industrial learning, not commercial activity. Redefining eligibility thresholds based on stable production metrics will enable timely support and prevent premature disqualification of strategic projects.



SCALE

Unit-based production support (€/kWh) tied to verified production output offers a pragmatic mechanism to help manufacturers survive the "valley of death", reduce marginal costs, and attract investment. This model improves bankability by providing predictable, performance-linked revenue streams. Complementary CAPEX support is essential for capital-intensive projects which face long payback periods and global competition backed by aggressive subsidies.



SUSTAINABILITY

All support mechanisms must be anchored in strong sustainability and resilience criteria. Output-based aid should reward low-carbon production, ethical & local sourcing, and circularity. CAPEX support should prioritise projects that reduce environmental impact and strengthen Europe's autonomy and resilience. Together, these tools can stimulate demand for more sustainable and circular EU-made batteries and drive the growth of a sustainable supply chain.







Taking It Forward: The Role of the EU Competitiveness Fund

The proposed Competitiveness Fund under the next Multiannual Financial Framework (MFF) could become the strategic engine behind Europe scaling up its battery value chain, serving as the key vehicle to deploy unit-based production support and evolve into the full-fledged Battery Booster the industry urgently needs. A total investment of €500 billion over 15 years is needed to build a competitive, resilient, and sovereign European battery ecosystem. To support this ambition, a dedicated European Battery Ecosystem Fund should be established, with an annual public contribution of €20–25 billion. Co-financed by the EU, Member States, and industry, this fund would provide the long-term capital needed to support infrastructure, supply-side incentives, and cohesive demand-side measures, laying the financial foundation for a robust and sovereign battery value chain.

Europe's industrial future depends on its ability to produce at scale, with speed and strategic depth. By combining output-based support for manufacturing with targeted CAPEX instruments (and leveraging the Competitiveness Fund to deliver them) the EU can build a battery ecosystem that is competitive, resilient, and ready to lead. This is not just about powering factories — it's about powering Europe's next industrial chapter.





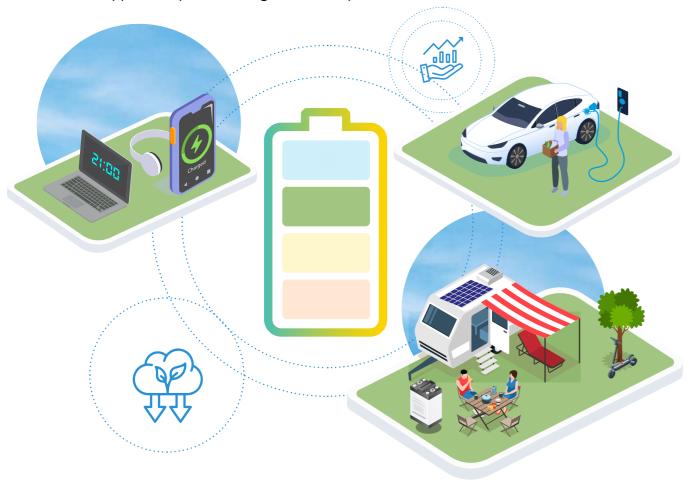






Buy in Europe: Turning Strategic Demand into Industrial Sovereignty

Promoting domestic production along the battery value chain is not protectionism — it is purposeful industrial policy. It ensures that public and private spending on electrification delivers lasting economic value across Europe's regions. This pillar of the Battery Deal transforms climate ambition into industrial opportunity and strategic autonomy.



Buy European must lead with integrity. EU-made batteries should be rewarded for low lifecycle emissions, ethical and local sourcing, and digital traceability. Sustainability and resilience criteria embedded in procurement and funding decisions ensure alignment with Europe's climate goals and social standards. This approach promotes circularity, transparency, and long-term supply chain robustness—while anchoring industrial value creation in Europe..



SCOPE

Buy European policies must cover the full battery value chain, from raw materials and components to recycling and digital infrastructure. Local Content Requirements (LCRs) should incentivise secure and EU-based sourcing, processing, and manufacturing, while respecting trade rules. For raw materials, in line with the Critical Raw Materials Act benchmarks, a looser definition of local content could be foreseen to promote strategic alliances with like-minded countries. This broad scope strengthens Europe's economic and geopolitical resilience, reduces exposure to global disruptions, and anchors industrial activity in strategic regions. In parallel demand must be boosted through coordinated EU and national measures. Subsidies for EVs and clean fleet incentives can accelerate uptake, drive production, and secure long-term investment in EU-made batteries.



SPEED

Europe must act quickly to level the playing field. Other major economies already use procurement and subsidies to support domestic production. By introducing smart LCRs and weighted tenders now, the EU can accelerate market uptake of clean, traceable, and locally anchored battery technologies. A dedicated EU Toolbox for Sustainable Public Procurement can help Member States implement these measures efficiently and consistently.



SUSTAINABILITY

Securing jobs and creating long-term value for the European workforce and citizens is central to making the green and digital transitions truly sustainable. Industrial policy must go beyond emissions—it must deliver economic and social returns. A competitive battery ecosystem should generate high-quality employment, foster regional development, and strengthen Europe's industrial fabric.



SCALE

Strategic demand must be matched with investment. LCRs and sustainability-weighted tenders act as magnets for capital, encouraging the development of interconnected industrial clusters. By embedding sustainability and resilience criteria into EU funding instruments, such as the Innovation Fund and EIB-backed programmes, Europe can channel taxpayer resources into projects that deliver tangible local value such as jobs, skills, and capacity.







To maximise industrial impact, EU content requirements must be gradually and systematically embedded across the Union's most influential policy and funding instruments. This integration is essential to ensure that strategic demand translates into tangible industrial growth and technological sovereignty. These include the Corporate Fleets Directive, Innovation Fund, Battery Booster, Public Procurement rules, the Industrial Decarbonisation Accelerator, FDI screening, and strategic project eligibility under NZIA and CRMA.

Strategic demand is Europe's most underused industrial lever. With Buy European policies, the EU can turn electrification into a driver of industrial sovereignty. Requirements should be simple, harmonised, and enforceable, designed to boost domestic production, not block market access. With coordinated implementation, local content rules can turn strategic demand into industrial sovereignty, strengthening Europe's competitiveness and sustainability.







SECURE

Secure Global Competitiveness - Securing Europe's Strategic Position in the Battery Industry



Building a European battery industry begins with a clear-eyed understanding of the global landscape. Europe is entering a fiercely competitive arena where China dominates the battery value chain, from raw materials, advanced materials, and cell manufacturing to application development, recycling, and process innovation. This dominance is no longer purely economic: it is increasingly wielded as geopolitical leverage, shaping global standards and market dynamics. For many Chinese companies, access to the European market is a lifeline. The surge in imports of subsidized EVs (including PHEVs) and batteries from China is putting significant pressure on the EU battery industry and its value chain. Meanwhile, weak demand and aggressive competition are placing European manufacturers under growing pressure.

This pillar of the Battery Deal calls for a proactive approach to international partnerships, trade policy, investment screening, and local content requirements (LCRs).



SCOPE

Europe must define clear boundaries for value creation. Foreign investments can play a constructive role, provided they meet minimum EU content requirements, supporting jobs, technology transfer, and supply chain control. Strengthened FDI screening and consistent customs enforcement are essential to prevent unfair competition and duty circumvention.



SUSTAINABILITY

Sustainability must strengthen Europe's industrial competitiveness - not to add to its regulatory burden. Europe should invest more in next-generation technologies, such as sodium-ion and solid-state batteries, and integrate AI into manufacturing. Policies must promote recycling and low-carbon production, with consistent criteria across funding, procurement, and trade instruments.



SCALE

Reducing dependency on Chinese imports requires scaling domestic production of raw materials, chemicals, and cathode active materials, and cooperation with like-minded countries. CAPEX support and local content incentives can unlock investment. Export restrictions on strategic materials like black mass, classified as hazardous waste, will help build circularity and autonomy. At the same time, Europe must unleash the strength of its Single Market by removing barriers, harmonising standards, and developing a Single Market for Waste to boost scale and competitiveness. In addition, trade defense measures and tariff reviews are needed to level the playing field.



SPEED

Europe must build strategic alliances with like-minded countries to diversify supply chains and accelerate growth. Regulatory alignment with global standards is critical: European industry should not face stricter rules than international competitors. Harmonised safety and transport regulations will support fair competition.









Taking It Forward: Securing Europe's Battery Future through Reciprocity, Resilience, and Rules-Based Partnerships.

To secure Europe's position in the global battery race, the EU must combine the strength of its Single Market with strategic partnerships and robust industrial policy. Embedding non-price criteria—such as sustainability and resilience—into procurement and fleet renewal policies can drive industrial cooperation and joint ventures that anchor value creation in Europe.

Partnerships with like-minded countries are essential to building a stable, scalable, and secure battery supply chain, while cooperation with Chinese firms may remain necessary but must be subject to strict regulatory oversight. To protect Europe's emerging battery industry, the EU must establish fair competition and investment rules, including minimum value creation requirements for foreign investments. Strengthening and aligning FDI screening and investment defense tools across the EU and with allies is essential to safeguard strategic interests.

Export restrictions on strategic materials like black mass can support circularity and strategic autonomy, while removing internal barriers, harmonising standards, and developing a Single Market for Waste will unlock scale and competitiveness.

Together, these actions reinforce Europe's autonomy, resilience, and global competitiveness.



Financial needs to develop the EU battery value chain

Developing a competitive and resilient European battery value chain requires substantial, sustained investment, across both innovation and industrial deployment. Between now and the next Multiannual Financial Framework (MFF), targeted financial instruments must be scaled to match the strategic importance of the sector.

The Battery Booster initiative is designed to accelerate industrial deployment, particularly in cell manufacturing and upstream processing. Building on the earmarked € 3bn it should be expanded to include output-based production support and CAPEX incentives for refining, recycling, precursor materials, and advanced materials ensuring Europe builds not just gigafactories, but the full ecosystem behind them.

Our estimates show that a total investment of €500 billion over 15 years is needed to build a competitive, resilient, and sovereign European battery ecosystem. To support this ambition, a dedicated European Battery Ecosystem Fund should be established, with an annual public contribution of €20-25 billion. Co-financed by the EU, Member States, and industry, this fund would provide long-term capital for infrastructure, supply-side incentives, and cohesive demandside measures—laying the financial foundation for Europe's strategic autonomy in the battery value chain.

From Draghi report on sectoral analysis:





Shares of required global investment between 2022 and 2030 in manufacturing of selected clean technologies

9% Fuel cells

4% Solar PV

2% Electrolysers

3% Heat pumps

13% Wind

69% EV Batteries







Mario Draghi's report calls for €750-800 billion in annual investment to safeguard Europe's competitiveness in clean tech and strategic sectors. Our estimate, €500 billion over 15 years for the establishment of a domestic battery ecosystem, represents roughly 4-5% of Draghi's annual target. This is a significant investment, but will position the battery industry as a critical yet proportionate pillar of Europe's broader industrial transformation.







The way forward

Proposal of priority actions for implementation



INNOVATE

Recommendation

Impact

On innovation-supporting instruments

Launch an expanded battery R&I partnership (BATT4EU 2.0), covering the entire value chain, all relevant chemistries and all relevant applications, with 2+ Billion Euro of funding

Fast tracking Europe towards battery technology leadership through strengthened collaboration between industry, universities and research institutions

Dedicate funding to battery R&I in EIC instruments

Unlocking the power of startups & scaleups in driving the technology race

Support establishment of European Centers of Excellence / Technology Infrastructures on battery R&I

Equipping Europe with world-class infrastructures to support ecosystem's R&I efforts

Top up a future, streamlined IPCEI on Batteries with EU funds

Unlocking "first-of-a-kind in Europe" massive investments in R&I and first industrial deployment at national level

Recommendation

Impact

On implementation of instruments

Commit to an ambitious funding across battery value chain and & technology readiness levels (from Horizon Europe to the Competitiveness Fund to the EIB)

Bringing EU's portfolio of projects to higher technology readiness level while feeding innovation funnels with new ideas / concepts

Keep industry at the centre of defining R&I priorities in collaboration with universities and research institutions

Ensuring public funds are channeled to strategic needs with potential to unlock future investments in Europe

Communicate outcomes of funded R&I projects within the ecosystem

Ensuring outcomes are known, can be further valorized, and can accelerate industrialization

Break away from annual / biennial Work
Programmes at the EU level

Ensuring public funds are effectively channeled to key R&I needs (in a dynamic business and technology context)

Simplify criteria for evaluation of grant proposals and reduce significantly time-to-grant

Faster access to funding, reduced administrative burden, and increased participation of innovators







stakeholders



Recommendation

Action

Channel and earmark funds for the development of a domestic battery industry under the Battery Booster umbrella for in the upcoming MFF

- Channel available finance effectively by operationalising the EU Competitiveness Fund through the creation of a dedicated European Battery Ecosystem Fund, earmarked to ramp up industrial production across the entire battery value chain.
- Simplify and improve existing initiatives, such as the IPCEI instrument, and complement them with additional measures to make full use of their potential to support this infant industry in scaling up.
- Leverage public funding to mobilize private investment.

• Accelerate the disbursement of funds.

Launch Performance-Based Production Support for Battery Scale-Up under the Battery Booster

• Introduce temporary output-based production support across the entire battery value chain for ramping up of industrial production , tailored to each project's development stage and tied to verified industrial output (e.g, €/kWh).

Boost EU Recycling, Refining and Midstream Production Capacity

- Deploy targeted CAPEX grant schemes for capital-intensive battery value chain segments, prioritizing projects with long payback periods and high strategic value such as local sourcing, circularity, and environmental impact reduction.
- Introduce targeted incentives to scale up EU-based recycling, refining and processing (and/or production) of battery raw materials and CAM (advanced materials).

Impact

Implementation Responsible and Involved

- Co-financed by the EU, Member States, and industry, an annual public contribution of €20–25 billion would deliver long-term, scalable financing for Europe's battery value chain enabling strategic infrastructure, supply-side incentives, and cohesive demand-side measures to build a competitive and sovereign ecosystem.
- Leveraging public funding to mobilize private investment enables Europe to unlock significantly larger pools of capital especially from institutional investors while reducing risk for early-stage industrial projects. This accelerates the deployment of strategic technologies like batteries, strengthens market confidence, and ensures that public funds act as a catalyst for long-term, scalable growth.
- Lead DG Grow in close coordination with DG
 COMP to enable necessary reforms (e.g. redefining "Start of Work")

• This performance-driven approach will help emerging European battery value chain champions scale competitively against heavily subsidized global rivals, reduce marginal costs, and reinforce long-term industrial resilience and sovereignty. It particulary helps manufacturers overcome early-stage cost barriers, improves bankability, accelerates industrial learning, and enables Europe to scale a resilient, sustainable battery ecosystem beyond gigafactories. Output-based incentives should promote low-emission manufacturing, responsible and local sourcing, and circular practices growth.

- Accelerates the build-up of a full European battery value chain by unlocking investment in capital-intensive segments such as raw material processing, active materials, and recycling.
- All support instruments should be firmly rooted in sustainability and resilience principles. CAPEX grants should focus on projects that minimize environmental footprint and reinforce Europe's strategic autonomy.







Invest in education and reskilling to close technology skill gaps, attract top talent, and build a resilient workforce that powers Europe's electrification.

Action

• Facilitate seamless integration of international experts into the labour market, including improved processes for the recognition of professional qualifications in the EU and encouraging labour mobility within the EU.

• Implement Incentives for Job Creation such as tax incentives and hiring subsidies and offer tax credits or temporarily lower corporate tax rates for companies that create new jobs in the electrification sector. Eligible roles may include workers involved in battery manufacturing, machinery and equipment operations, EV charging infrastructure, and related industrial activities.

Subsidies for hiring could be provided to companies that hire workers for electrification projects, especially in regions with high unemployment rates.

• Enhance consumer awareness: Educate consumers and raise awareness among consumers about the benefits of electrification and the job opportunities it creates.

Impact

- Facilitating the seamless integration of talent, both from outside the EU and within its borders, is essential to building a skilled workforce for clean tech and industrial transformation. This includes improving recognition of professional qualifications for international experts and streamlining work permit procedures. Equally important is enabling labour mobility within the EU itself through mutual recognition of skills and simplified administrative processes, allowing Member States to pool expertise and deploy talent where it's most needed across the battery value chain.
- Drives employment in future-proof sectors, strengthens Europe's industrial base for the green transition, and fosters inclusive growth by channeling investment into vulnerable regions and emerging clean tech clusters.

• Enhancing consumer awareness is critical in today's political landscape, where rising scepticism toward electrification—often driven by fears of job losses—is gaining traction. Clear, targeted education can counter misinformation, highlight the economic and employment benefits of the clean transition, and build public support for industrial transformation. By showing that electrification creates new, future-proof jobs across regions and skill levels, Europe can foster trust, reduce resistance, and ensure that the green transition is seen not as a threat, but as an opportunity for inclusive growth and long-term prosperity.

Implementation

Responsible and Involved stakeholders

Lead at EU Level: DG EMPL with support of DG HOME, DG
 GROW and DG EAC

Member States are expected to collaborate closely with DG EMPL through structured coordination platforms or targeted funding calls as they are responsible for executing recognition procedures, issuing work permits, and tailoring labour market integration to national and regional contexts.

• Joint effort at EU and MS level needed to ensure that those incentives support fair transition, regional cohesion, and workforce development in the electrification and clean tech sectors.

At EU level, **DG EMPL** and **DG TAXUD** would be responsible for guiding and coordinating incentives for job creation, including hiring subsidies and tax-related measures.

At **Member State level**, implementation falls to national ministries of labour, finance, and economic affairs, which design and administer tax credits, hiring subsidies, and regional employment programs, that could be co-financed through EU instruments such as the European Social Fund Plus (ESF+) or Recovery and Resilience Facility (RRF).

These actors jointly ensure that incentives support fair transition, regional cohesion, and workforce development in the electrification and clean tech sectors.

- Lead on the narrative: Private Sector & Civil Society At Member State Level:
- National ministries of energy, labour, and education Lead domestic campaigns and integrate messaging into curricula and employment services.
- **Regional and local authorities** Tailor outreach to community needs and local job markets.
- **Public employment services** Inform jobseekers about electrification-related opportunities.







stakeholders



Recommendation

Action

Launch gradual and sectorspecific Phase-In of Local Content Requirements to Stimulate "Made in Europe" without delay

- Introduce sector-specific local content thresholds with tailored requirements to the maturity and scalability of each segment of the battery value chain to ensure feasibility and avoid penalizing EU OEMs during the transition.
- Embed resilience and sustainability benchmarks into public procurement rules for EVs and battery systems, using a staged approach that reflects sector readiness; align with Innovation Fund criteria and allow flexibility for emerging technologies, ensuring that environmental and social standards—evolve alongside industrial capabilities.
- Incentivise European machinery and equipment to further strengthen local industrial capacity.

Align EU regulatory frameworks with industrial policy to remove barriers and enable clean tech investment.

- Align EU regulation with industrial strategy by ensuring predictable substance rules and harmonized product standards—safeguarding investment, competitiveness, and access to essential materials for battery manufacturing.
- Streamline EU permitting procedures to accelerate clean tech deployment and safeguard industrial competitiveness.

Accelerate the uptake of EV demand through the Green Fleets initiative and purchase incentives for EVs based on EU local content requirements and by setting more ambitious AFIR targets

 Develop the Green Fleets initiative and purchase incentives for EVs based on EU local content requirements and by setting more ambitious AFIR targets. Expand the Green Fleets Initiative to prioritize procurement of locally produced EVs for public and commercial fleets.

Impact

Implementation
Responsible and Involved

- \bullet Investment certainty for domestic production across supply chain.
- Investment certainty for domestic production across supply chain.

- Strengthen local industrial capacity, making it possible to co-engineer and codevelop machinery and equipment alongide a growing battery industry. This will help joint knowledge development, increased possibility for certification of European machinery, and keep jobs and industry in Europe.
- EU manufacturers face regulatory uncertainty that hinders investment in clean technologies. Key issues include substance restrictions under REACH, such as the potential PFAS or Li-salt ban, and fragmented national standards for products and infrastructure. These misalignments create delays, increase costs, and undermine Europe's industrial competitiveness. A coordinated effort is needed to ensure regulatory clarity, harmonize standards, and safeguard access to essential materials for clean tech deployment.
- Streamlined permitting is essential not only for competitiveness but for the survival of strategic industries in Europe's clean transition.

• DG GROW in cooperation with DG MOVE







Action

Accelerate European Storage Integration by removing regulatory barriers

- Incorporate battery storage and V2G (Vehicle-to-Grid) technologies into the Electrification Action Plan and European Grids Package.
- Prioritize European-made storage solutions in public procurement and infrastructure upgrades.
- Support pilot projects across Member States to demonstrate grid flexibility and reduced infrastructure costs through storage.
- Establish EU-wide rules for integrating storage from household to transmission level.
- Promote interoperability standards for V2G across EU to enable crossborder services and scalability.

Make EV Charging Affordable and Profitable

- Harmonize grid fee structures and ancillary charges to ensure EV charging is consistently cheaper than fossil fuels.
- Incentivize bidirectional charging capabilities in all new EVs sold in Europe.
- Enable EV owners to earn revenue by feeding energy back into the grid, creating a new consumer-driven flexibility market

Unleash the Single Market
Strength to increase
economies of scale and
Europe's competitiveness as
a business region

- Identify and remove barriers, hand in hand with increased harmonisations and standardization efforts to make use of the single market strength.
- Develop a Single Market for Waste to simplify transport of waste within the EU

Impact

- Develop mechanisms ensuring that charging is consistently cheaper than petrol and diesel to make BEVs a cost-effective alternative.
- Implementation
 Responsible and Involved stakeholders
- DG ENER: Electrification Action Plan and European Grids Package announced under the Clean Deal Initiative.
- DG ENER
- DG ENER
- DG ENER
- Promote bidirectional capability will enable EV's to provide flexibility services (feed into the grid) at scale and interoperability.
- DG ENER
- DG ENER
- DG ENER
- DG ENER
- DG GROW: Single Market Strategy
- DG GROW







Action

Establish a minimum value creation requirements for foreign investments in the EU

- Ensure compliance with European standards and safeguard strategic interests in cooperation with non-European companies and enforce the EU Foreign Direct Investment (FDI) screening at EU level for select strategic technologies like EV batteries.
- Investigate implementing a policy requiring non-European companies operating in Europe to prioritize local employment both managerial and operational to facilitate technology transfer, create jobs, and maintain local control over the supply chain of EV batteries.

Close loopholes to prevent the Export of Strategic Materials

• Implement export control policies to prevent the outflow of strategic materials essential for battery recycling and production. Keeping these materials within the EU will enhance strategic autonomy and supply security.

Establish Strategic Partnerships for Supply Chain Resilience

• Facilitate partnerships with reliable suppliers from like-minded countries to build a stable and more resilient battery supply chain, gain expertise, facilitate technology transfers, and achieve scalability. These collaborations leverage the reliability and strategic alignment of like-minded countries with Europe's interests.

Level the Playing Field for European Battery Producers by including the battery sector in the EU ETS Indirect Cost Compensation mechanism

 Recognize battery manufacturing, including material production, as an energy-intensive strategic industry.

Impact

Implementation

Responsible and Involved stakeholders

- DG TRADE in close cooperation with DG GROW
- DG TRADE in close cooperation with DG GROW

DG TRADE in close cooperation with DG GROW

- Establishing strategic partnerships with reliable, like-minded countries strengthens access to critical raw materials, reduces dependency on Chinese supply, and enhances the resilience of Europe's battery value chain. These collaborations support technology transfer, industrial scalability, and a more secure foundation for long-term competitiveness.
- Recognising battery manufacturing as an Energy-Intensive Industry (EII) would be a strategic boost to Europe's competitiveness and industrial resilience. It would level the playing field with other EIIs like steel and chemicals—unlocking access to public funding, energy cost relief, and innovation support. It would also enable faster permitting, grid prioritisation, and improve financing conditions by signalling long-term policy commitment. Under the Net Zero Industry Act, this recognition is essential to position batteries not just as a climate solution, but as a cornerstone

of Europe's energy sovereignty and industrial scale.

on industrial strategy and raw materials. **DG TRADE**: ensures alignment with trade policy, bilateral agreements, and strategic partnerships.

diversification and strategic partnerships through its mandate

• Lead: **DG GROW** leads implementation on supply chain

DG INTPA and **DG NEAR**: If linked to funding or external cooperation instruments (e.g. Global Gateway, NDICI)

- Lead: **DG ENER** on energy-related classifications and compensation frameworks, especially under the Electricity Market Design, State Aid Guidelines for Energy and Environment, and the Net Zero Industry Act (NZIA) implementation. Close coordination with: DG GROW (Internal Market, Industry, Entrepreneurship and SMEs) for industrial competitiveness and strategic value chain alignment
- DG CLIMA (Climate Action) to ensure coherence with decarbonisation and climate objectives
- DG COMP (Competition) regarding eligibility for state aid and compensation schemes
- DG RTD (Research and Innovation) if linked to innovation funding and R&I priorities









Level the Playing Field for European Battery Producers by including the battery sector in the EU ETS Indirect Cost Compensation mechanism

Action

• Offset electricity-related costs to improve competitiveness of European producers versus global rivals.

Simplify and Ease Regulatory Burdens and Address Single Market Barriers

- Streamline overlapping regulatory frameworks in the battery sector, particularly between the Batteries Regulation, REACH, and CSDDD, to reduce double regulation and administrative burden.
- Advance the Single Market Strategy by harmonizing rules and reporting requirements across Member States, removing remaining barriers that hinder the growth of the battery value chain.

Impact

• Improve European cost competitiveness in terms of energy prices by including the battery sector under the list of sectors eligible for the indirect cost compensation mechanism under the EU ETS (Emissions Trading System). Including batteries in the ETS compensation list would significantly lower electricity-related manufacturing costs, boosting the competitiveness of European producers. Aligning this list with net-zero industries reinforces strategic coherence and supports the scale-up of clean technologies within Europe's industrial base.

Implementation

Responsible and Involved stakeholders

• Lead: DG CLIMA (Directorate-General for Climate Action)

in lead overseeing he EU Emissions Trading System (ETS),

- including the rules for indirect cost compensation and the list of eligible sectors.

 DG COMP: The Commission Guidelines on State Aid for Climate, Environmental Protection and Energy (CEEAG) define how Member States can compensate energy-intensive industries for indirect carbon costs under the EU ETS, and are subject to approval by DG COMP (Competition).
- Enhances policy coherence, lowers compliance costs, and provides greater market stability through clear, consistent rules especially on chemical management and material classification
- DG ENVI in clopse cooperation with DG GROW

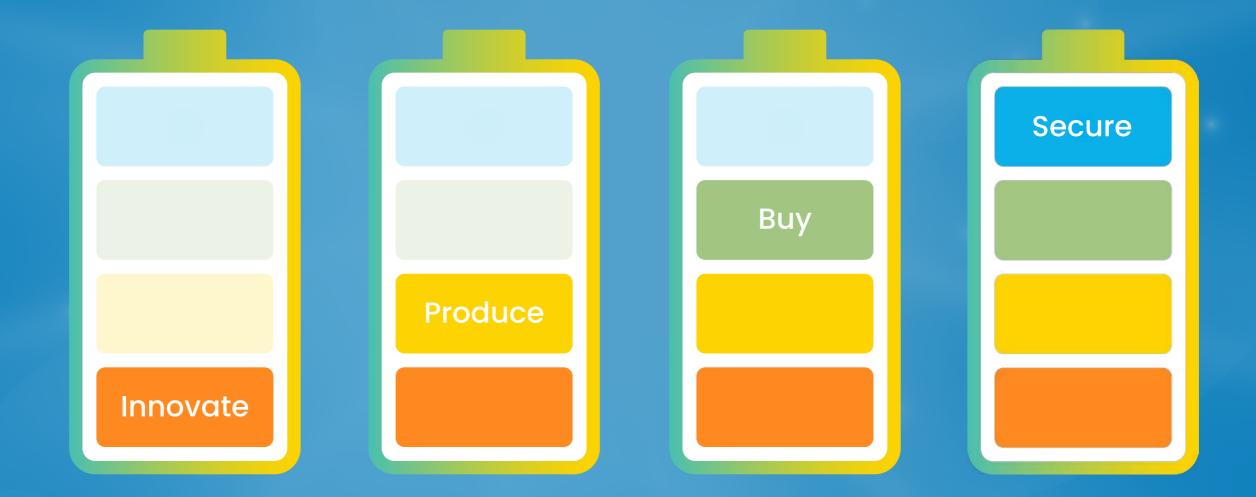
- Streamlines operations, reduces cross-border compliance costs, and enables full use of the Single Market's scale — accelerating deployment, investment, and transport across Europe's battery ecosystem.
- DG GROW

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