Europe's Battery Value Chain at a Turning Point: Competitiveness, Resilience and the Road Ahead

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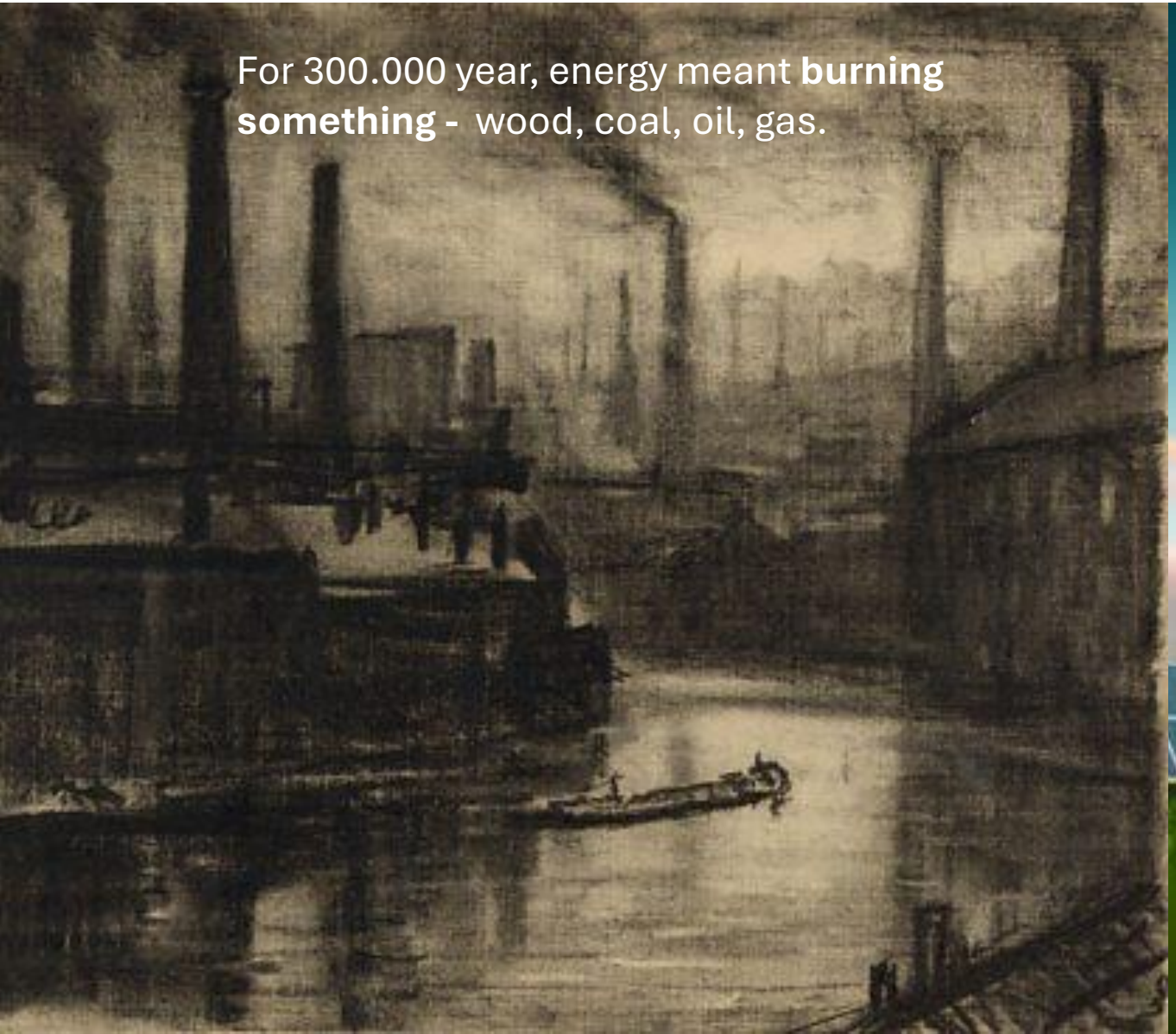
Batteries are a the centre of a paradigm shift



For 300.000 year, energy meant **burning something -** wood, coal, oil, gas.



Now, for the first time, we can **generate and store energy without combustion**.

But are we embracing this paradigm shift?

Political Acceptance

- **2035 ICE phase-out revision**: impact on demand?
- **Trade tensions**: navigating EU–US–China battery dynamics

Social Dimension

- **Affordability**: Can consumers realistically switch to EVs? And do they want to?
- Support Landscape: **Uneven EV demand incentives** across EU Member States

Legal & Regulatory Framework

- **Charging infrastructure**: Fragmented and insufficient
- EU (battery) regulation: **Unclear, inconsistent, and rapidly evolving**

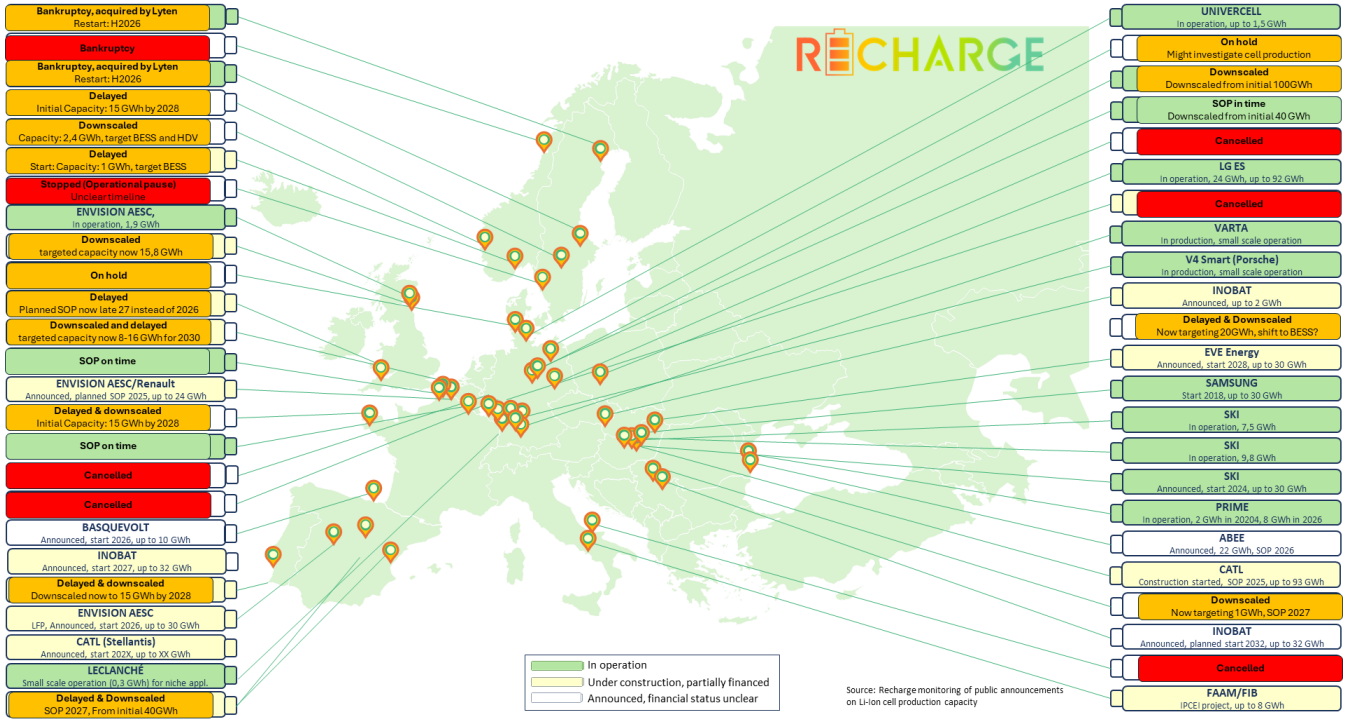
Economic Conditions

- **Fragmented support**: EU-level ambitions vs national implementation gaps
- **Lack of joint vision: Member States still competing with each other**, rather than positioning the EU collectively against global rivals
- **Funding shortfalls** for scaling industrial capacity and innovation

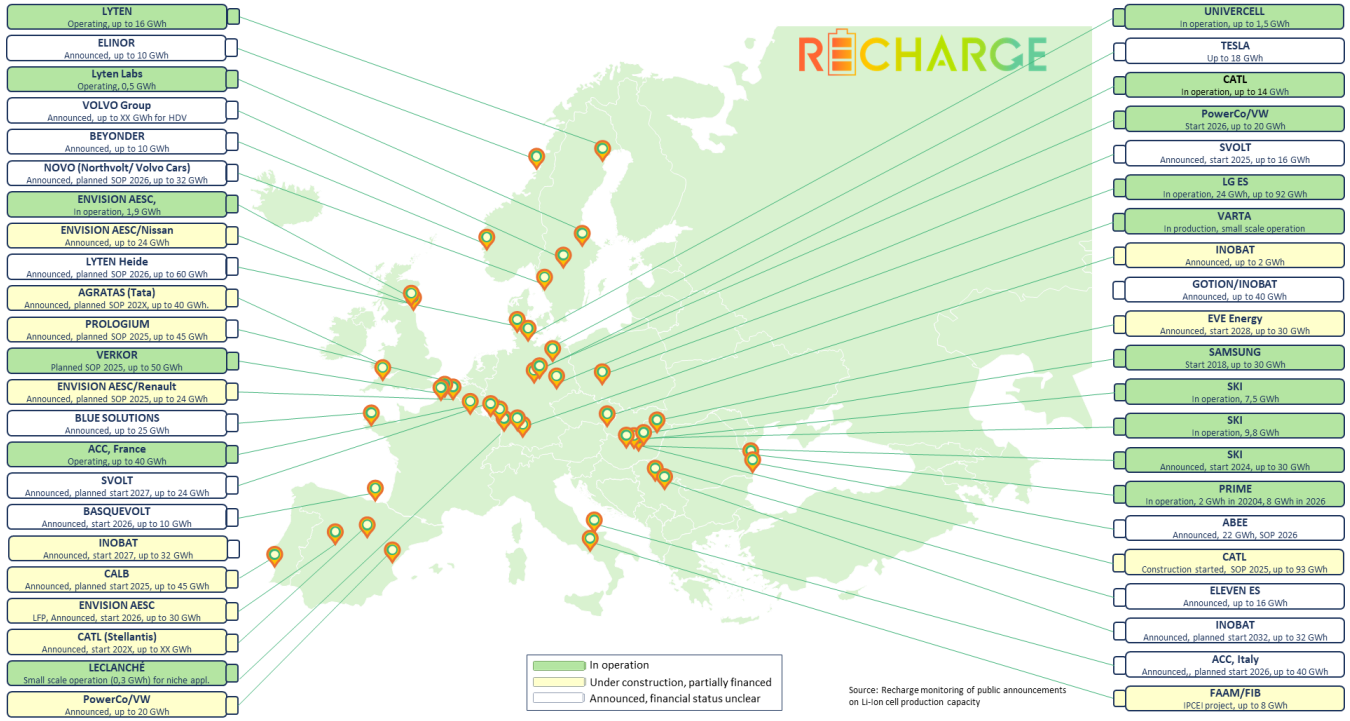
Technology Choices

- Innovation gap: **EU vs Asia** in battery R&I and scaling
- **Chemistry trade-offs**: Design-to-Cost vs Design-to-Performance
- **Next-gen tech**: Advanced Manufacturing for Advanced Chemistries

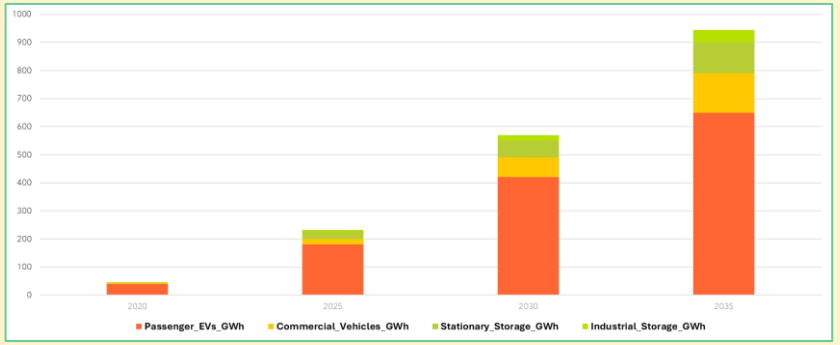
Is all lost?


Bankruptcy, acquired by Lyten
Restart: H2026
Bankruptcy
Bankruptcy, acquired by Lyten
Restart: H2026
Delayed
Initial Capacity: 15 GWh by 2028
Downscaled
Capacity: 2,4 GWh, target BESS and HDV
Delayed
Start: Capacity: 1 GWh, target BESS
Stopped (Operational pause)
Unclear timeline
ENVISION AESC,
in operation, 1,9 GWh
Downscaled
targeted capacity now 15,8 GWh
On hold
Delayed
Planned SOP now late 27 instead of 2026
Downscaled and delayed
targeted capacity now 8-16 GWh for 2030
SOP on time
ENVISION AESC/Renault
Announced, planned SOP 2025, up to 24 GWh
Delayed & downscaled
Initial Capacity: 15 GWh by 2028
SOP on time
Cancelled
Cancelled
BASQUEVOLT
Announced, start 2026, up to 10 GWh
INOBAT
Announced, start 2027, up to 32 GWh
Delayed & downscaled
Downscaled now to 15 GWh by 2028
ENVISION AESC
LFP, Announced, start 2026, up to 30 GWh
CATL (Stellantis)
Announced, start 202X, up to XX GWh
LECLANCHÉ
Small scale operation (0,3 GWh) for niche appl.
Delayed & Downscaled
SOP 2027, From initial 40GWh
RECHARGE
In operation
Under construction, partially financed
Announced, financial status unclear
Source: Recharge monitoring of public announcements on Li-ion cell production capacity
UNIVERCELL
In operation, up to 1,5 GWh
On hold
Might investigate cell production
Downscaled
Downscaled from initial 100GWh
SOP in time
Downscaled from initial 40 GWh
Cancelled
LG ES
In operation, 24 GWh, up to 92 GWh
Cancelled
VARTA
In production, small scale operation
V4 Smart (Porsche)
In production, small scale operation
INOBAT
Announced, up to 2 GWh
Delayed & Downscaled
Now targeting 20GWh, shift to BESS?
EVE Energy
Announced, start 2028, up to 30 GWh
SAMSUNG
Start 2018, up to 30 GWh
SKI
In operation, 7,5 GWh
SKI
In operation, 9,8 GWh
SKI
Announced, start 2024, up to 30 GWh
PRIME
In operation, 2 GWh in 20204, 8 GWh in 2026
ABEE
Announced, 22 GWh, SOP 2026
CATL
Construction started, SOP 2025, up to 93 GWh
Downscaled
Now targeting 1 GWh, SOP 2027
INOBAT
Announced, planned start 2032, up to 32 GWh
Cancelled
FAAM/FIB
IPCEI project, up to 8 GWh

Or are we still in the game?

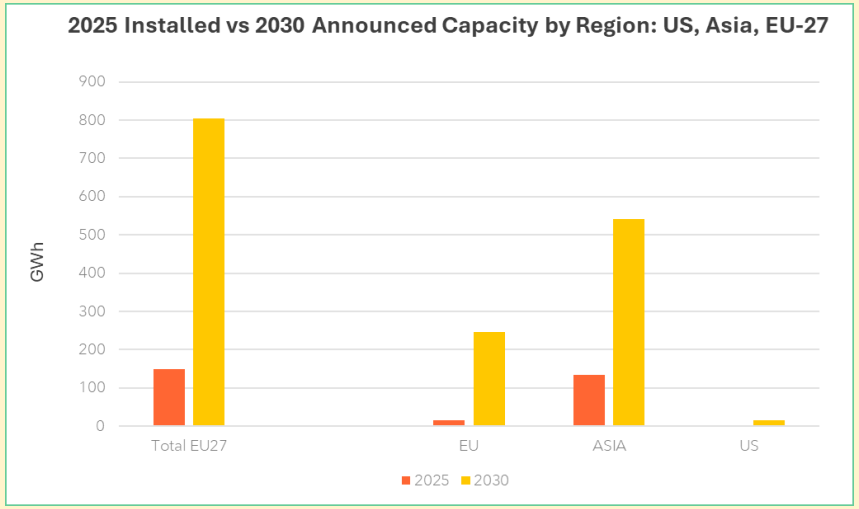


EV's are still driving the demand for batteries in EU- but new applications starting to grow



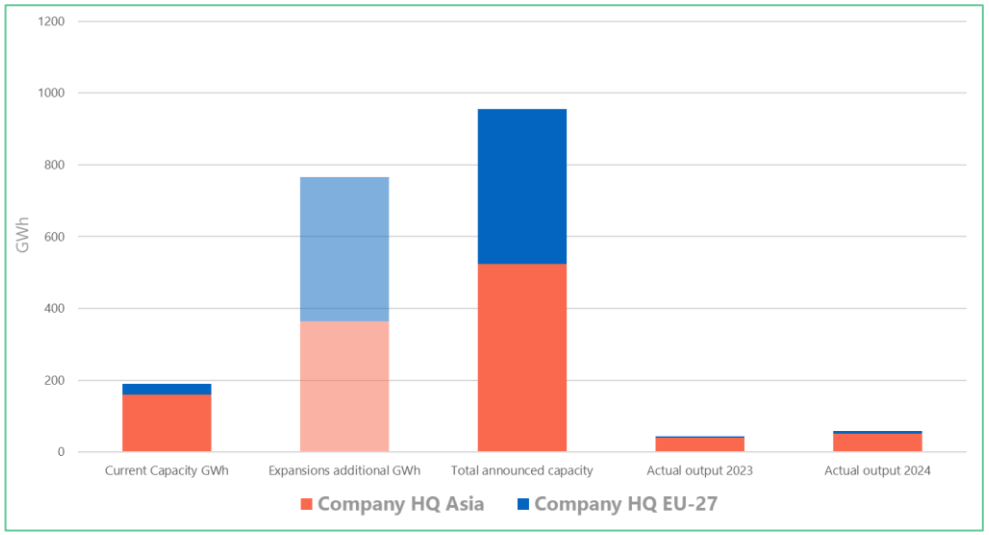
Source: Indicative EU demand trajectories based on IEA, SolarPower Europe, ACEA and EU policy modelling; values are stylised estimates.

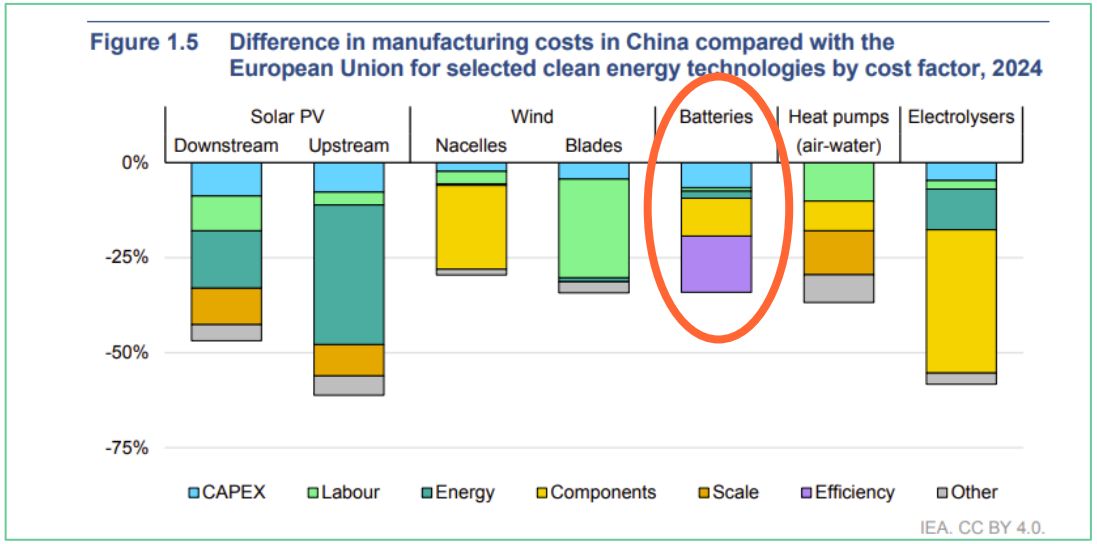
Estimation of announced cell production capacity EU-27



Source: Indicative estimation based on monitoring of public announcements

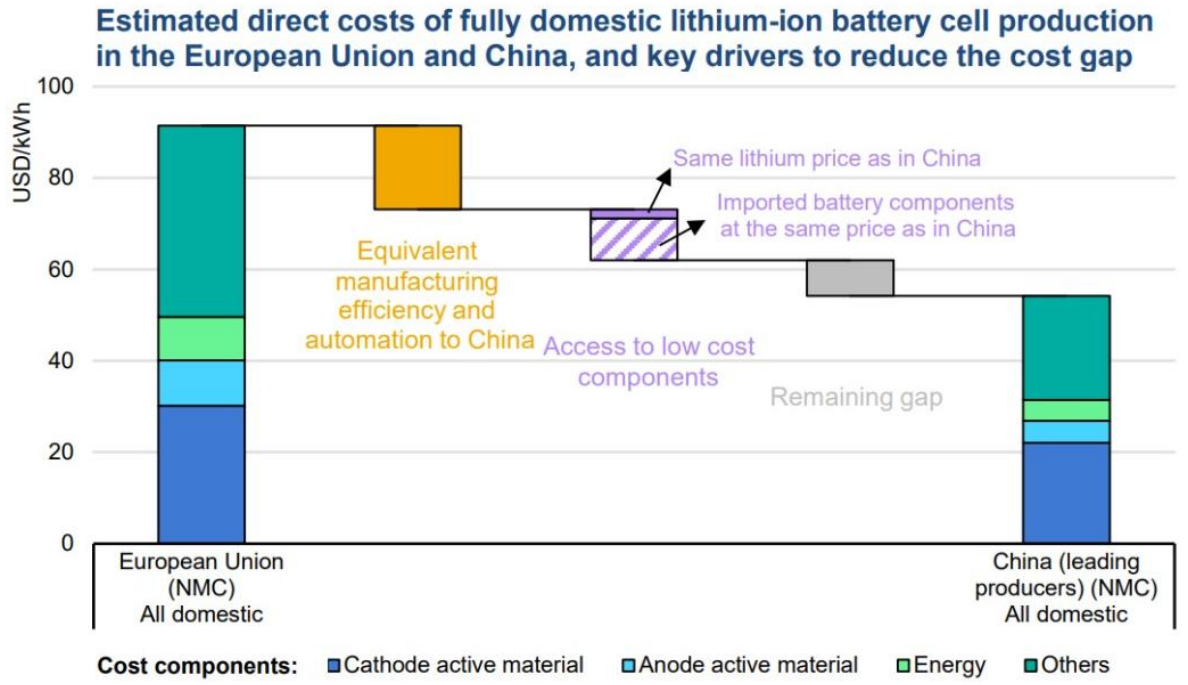
A steep and costly learning curve of mastering a new technology





Source: IEA

...but there are realistic pathways to cost reduction, through location choice, factory automation, higher yields, and cheaper materials [2]



Source: IEA

Learning by Doing – Experience is measurable

How production experience alone drives cost reduction

35.5%

of the decline in battery costs between 2014 and 2020 is attributable to production experience-alone!

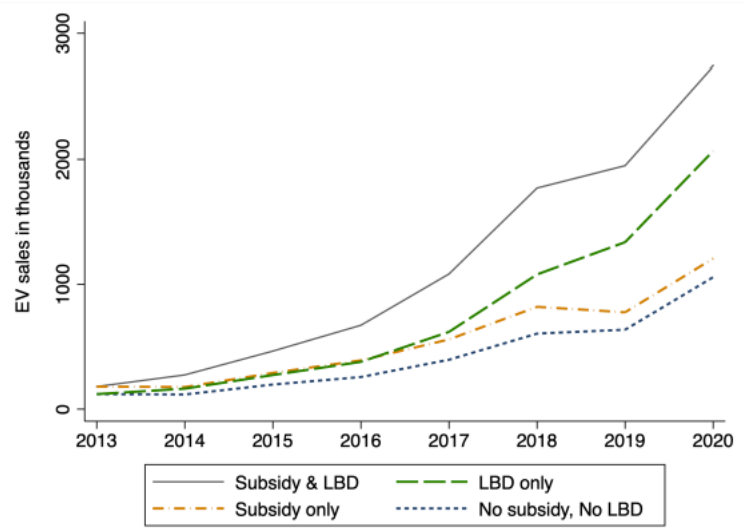
7.5%

is the learning rate for EV battery production, meaning **costs drop by 7.5% when production experience doubles**- after controlling for technology, economies of scale, and input costs.

Technical progress becomes a powerful lever once scaling begins. During the scaling phase, experience effects are statistically significant - and Europe is currently in this scaling phase.

Europe must push through the battery learning curve now - because **experience, not just innovation, is what drives cost competitiveness**.

Figure 4: Effect of Subsidies and LBD on Global EV Sales



Source: Barwick, Kwon, Li & Zahur (2025), NBER Working Paper No. 33378.

The Battery Booster Strategy



- Published on 16 December 2025 as part of the Automotive Package.
- Aims to boost competitiveness of EU-made battery cells and components.
- Combines direct financial incentives with additional industrial support measures.

- Expanding European value added in electric vehicles to over 50% by 2030.
- Strengthening the competitiveness of European battery manufacturers.
- Reduction of raw material dependencies by 30–50% by 2029.
- Promoting research, innovation, and training.
- Coordinated EU-wide implementation of all measures.

- No fresh money, instead EUR 1,5b interest free loans and EUR 300m from the Innovation Fund for critical raw materials projects

- Provides **bridging finance** (2026–2028) but lacks a **long-term, dedicated ecosystem fund**.
- Gap to Battery Deal: Strategy is short-to-medium term, missing the Deal's long horizon and systemic financing architecture.

- Focuses heavily on **manufacturing ramp-up and raw materials**, less emphasis on **ecosystem integration** (clusters, infrastructure, workforce reskilling) and **other applications**
- Gap to Battery Deal: Still missing systemic approach

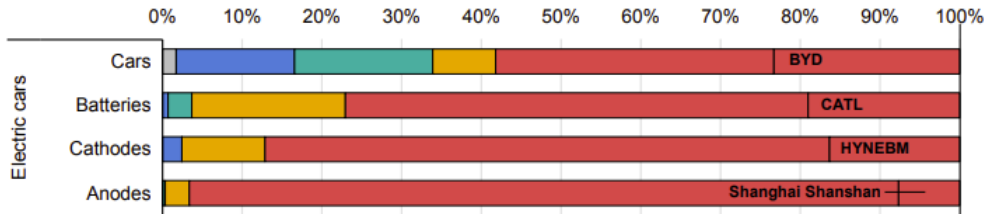
- **Still no unit-based production support,** but links to other upcoming legislation: IAA, CO2 Standards and Corporate Fleets, MFF

➢ **MFF and Article 18!**

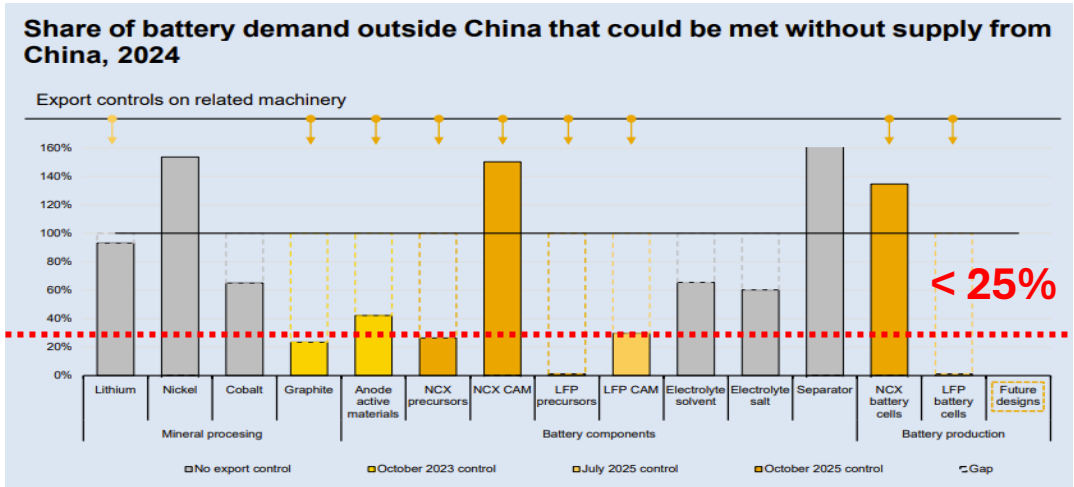
Europe's Place in the Battery Race Depends on One Choice: Build Capabilities or Stay Dependent - Strategic demand as a Driver of Sovereignty

Nearly all battery energy storage systems and over 70% of EV batteries used outside China could not be produced without Chinese-made batteries or components.

Figure 6.2 Production capacity of selected clean energy technologies and components by region of company headquarters, 2024

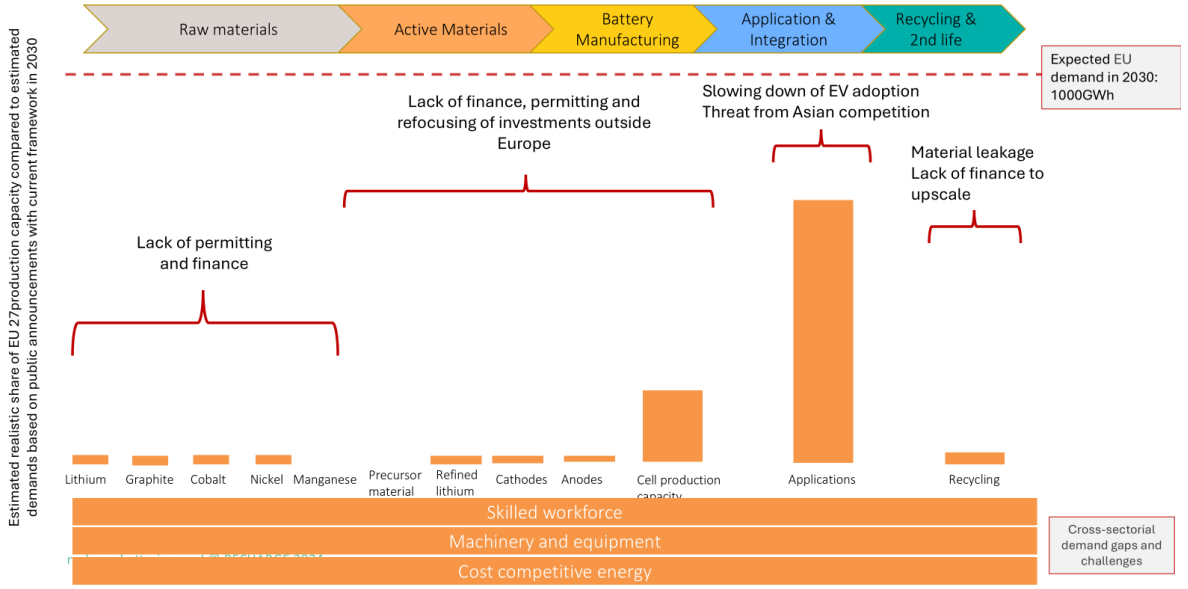


Share of battery demand outside China that could be met without supply from China, 2024



IEA Analysis, data from April 2025

The EU battery industry under pressure – impacting the entire value chain



According to IEA analysis, a one-month halt in Chinese battery supply-chain exports could jeopardise the production of EVs worth USD 17 billion!

Europe's Evolving Battery Landscape

1. Good things first: Europe's industrial battery manufacturing capacity is growing !!!

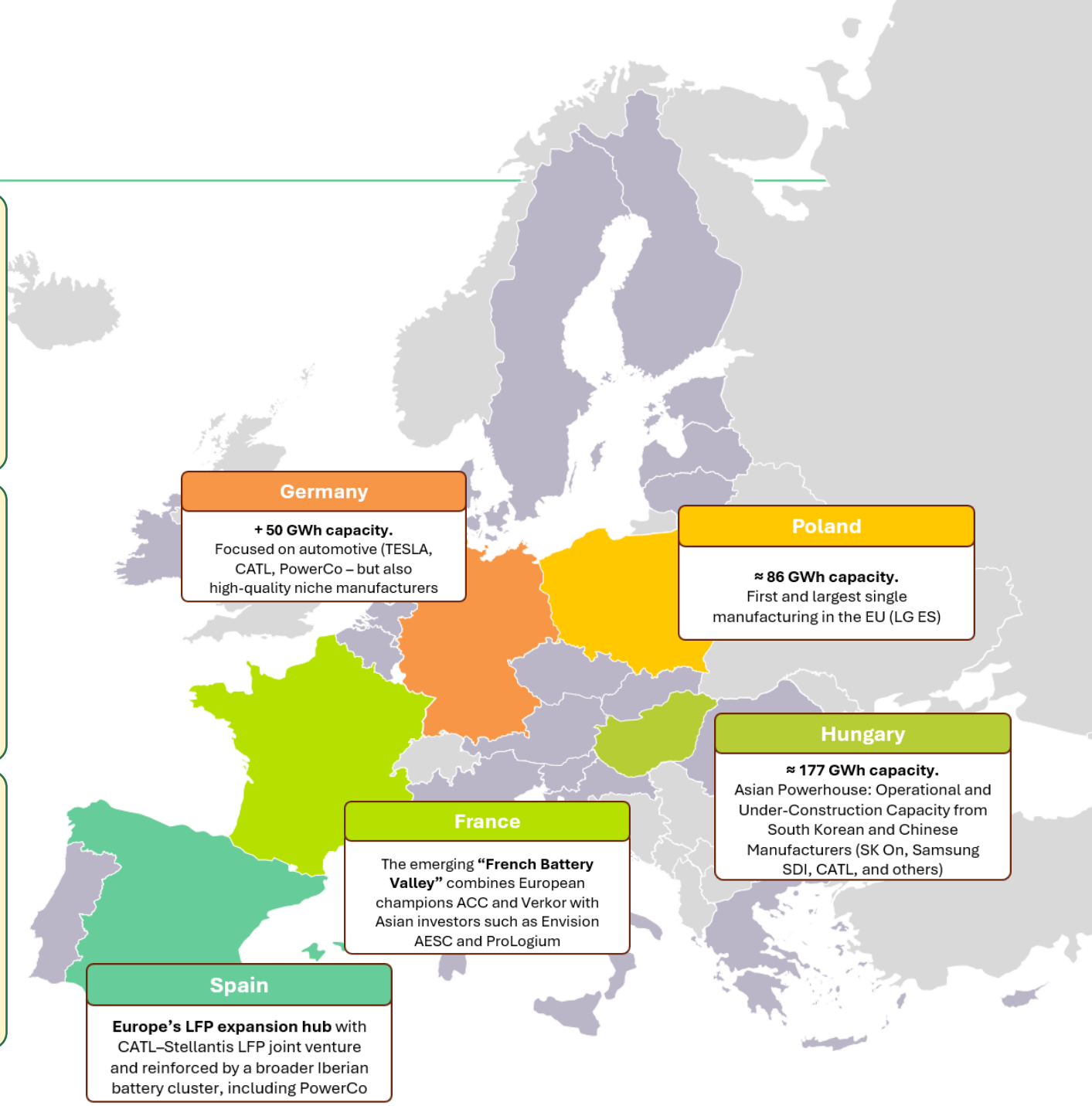
Europe is shifting from ambitious announcements to **real, scalable production,** Operational capacity continues to rise, led by major clusters in **Germany, Poland, Hungary, France, and Spain**, with additional momentum in **Sweden, Finland, Norway, Italy, and Portugal**..

2. Manufacturing capacity is concentrating into regional clusters

Growth is uneven across the continent, with capacity increasingly **concentrated in key hubs** (DE, PL, HU, FR, ES). Increasing clustering in key hubs may deepen **uneven Member State support** and, combined with high foreign ownership, expose Europe to external influence and **lower European value capture**.

3. Europe's battery output remains foreign-driven - with limited domestic industrial sovereignty.

In 2025, Europe accounted for only ~9% of global battery production; 95% of that output came from five manufacturers, all foreign-owned. Europe's capacity is expanding, but **ownership**, technology leadership and **value capture remain overwhelmingly non-European**, underscoring the **need to strengthen a domestic ecosystem and develop strategic partnerships**.



RECHARGE

The European industry association of the advanced rechargeable & lithium batteries value chain in Europe



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Join us to strengthen the European battery ecosystem!

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