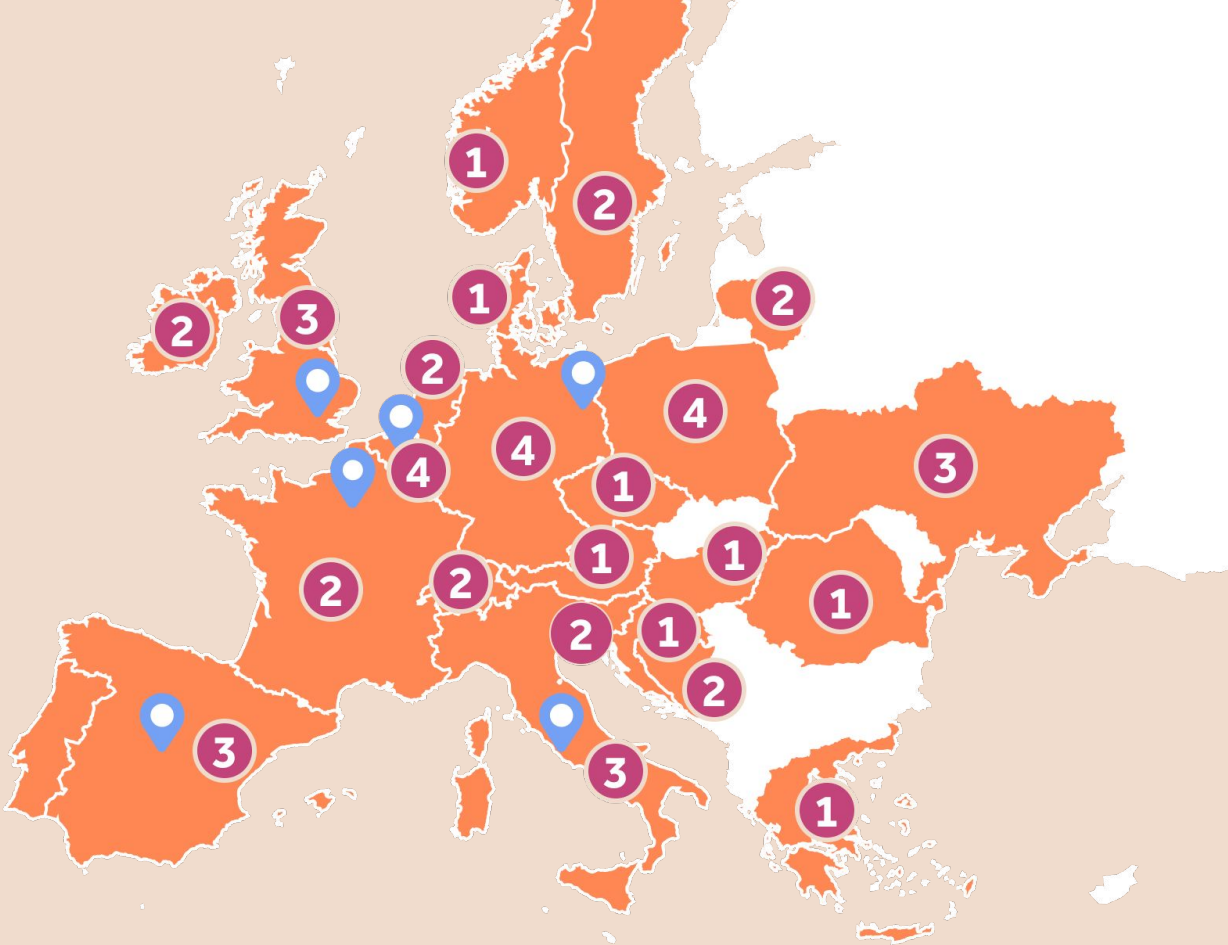


Batteries: EU potential & policy

Julia Poliscanova
Senior Director, T&E



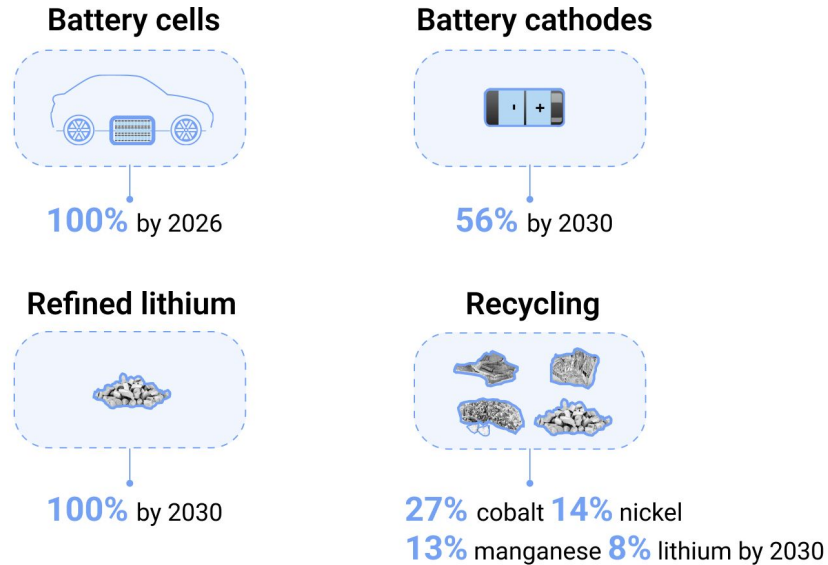
T&E
6 offices
60 members



Batteries supply chain :EU potential

Lost of potential exists, but will be hard to realise

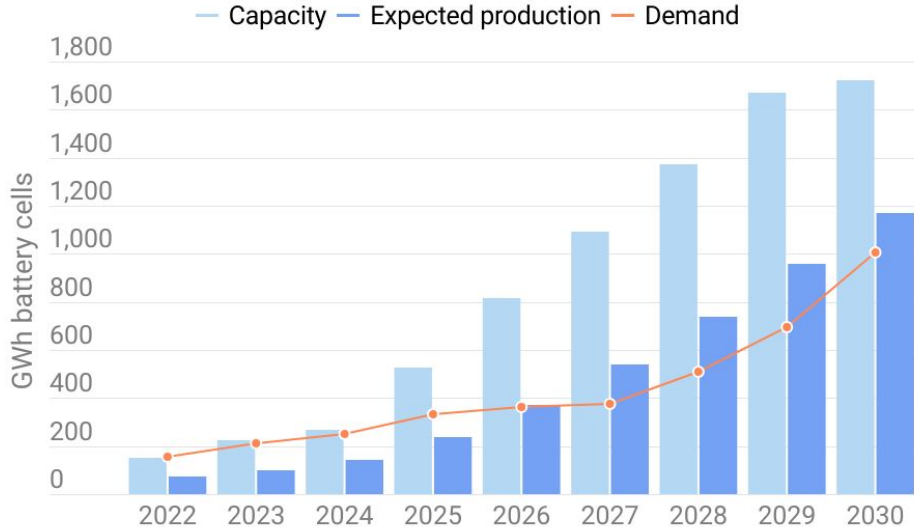
The potential for Made in Europe EV battery value chain



Source: Transport & Environment, 2024. The analysis includes EU, UK, Switzerland and Norway.

EU can be self-sufficient in battery cells by 2027

Europe can become self-sufficient in battery cell production



Largest projects include:

- Tesla in Berlin
- LG ES in Poland
- CATL in Hungary
- Northvolt in Sweden
- ACC in France

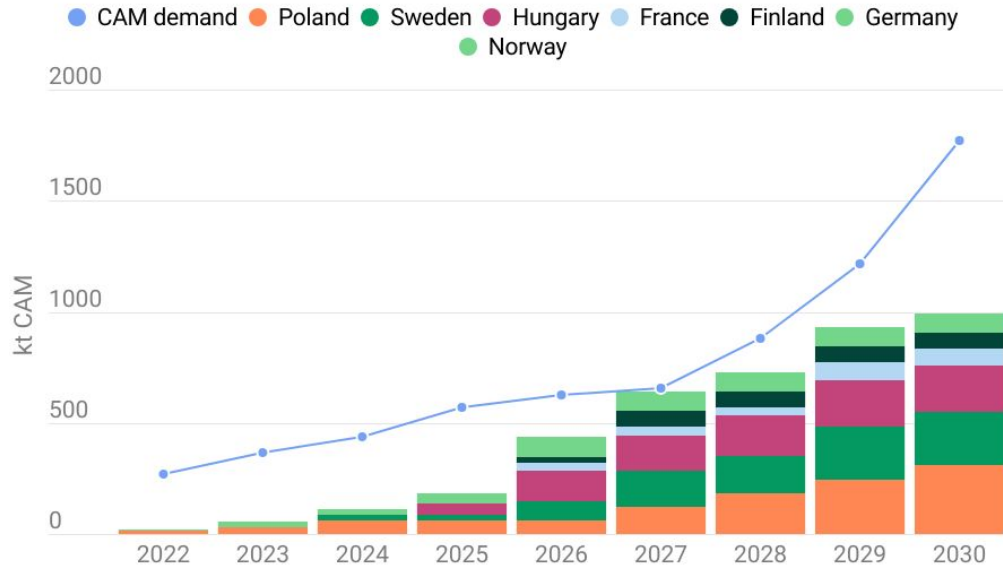
Note: Demand in Regulatory Scenario follows the EU regulations on CO2 emission standards for light and heavy duty vehicles. Expected production was calculated based on varying capacity utilisation and scrap rates, depending on the maturity of each plant.

Source: T&E analysis of publicly announced battery cell projects



Some potential in midstream/components

Announced CAM capacities could cover over half of the European demand in 2030



Note: Nameplate capacities compared to demand; actual production output may vary and could be lower than the stated capacity.

Sources: T&E analysis, company reports, publicly available information on projects

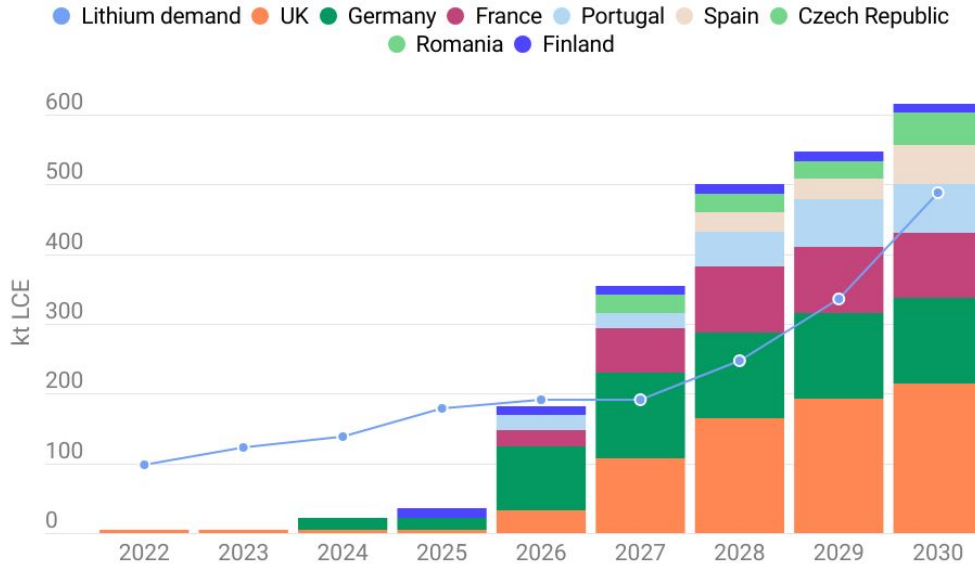
Most projects are in:

- Poland
- Sweden
- Hungary

But high execution risk

A LOT of potential in lithium

Announced lithium refining capacities could potentially meet the future European battery demand from EVs & ESS



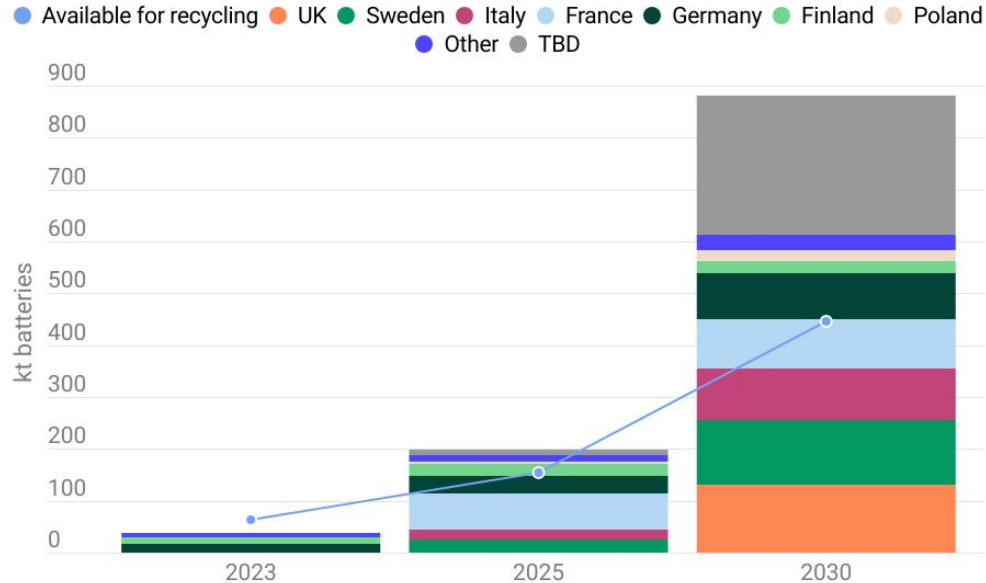
Note: LCE denotes lithium carbonate equivalent. The currently operating plant mainly caters to non-battery applications.

Sources: T&E analysis, company reports, publicly available information on lithium projects



Recycling is a growing opportunity, but is another industry

Announced material recovery capacities could cover Europe's needs by 2030 if going ahead



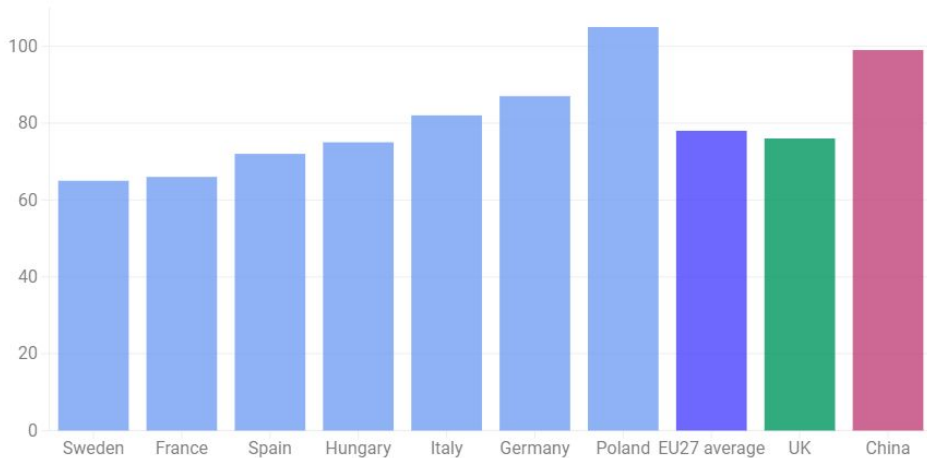
Sources: T&E analysis, Circular Energy Storage



Grid CO2 emissions an advantage to reward local manufacturing

Battery carbon footprint per country

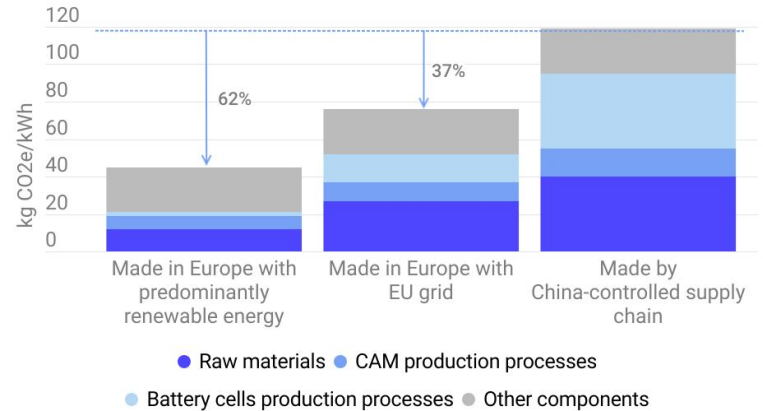
Battery carbon footprint (kgCO2e/kWh)



Source: T&E analysis based on the average carbon intensity of the grid in 2023



The climate benefits of onshoring the battery supply chain to Europe



Note: Emissions from precursor production are included in cathode active materials (CAM) production emissions. For other components, which are beyond the current study's scope, average industry emissions were considered.

Sources: T&E analysis, Eunji Yoo et al. (Argonne National Laboratory), Minviro



EU battery policies to date

A raft of policies has been adopted

European Battery Regulation

- Carbon footprint reporting (& thresholds) to reduce manufacturing emissions
- Recycling efficiency targets (Li, Co & Ni) and recycled content for new batteries
- Environmental and human rights due diligence across supply chain

Net Zero Industry Act

- Batteries as one of key strategic net zero technologies: 40% local supply by 2030
- Strategic projects & simpler permitting
- Resilience & sustainability criteria to advantage EU bids

Critical Raw Materials Act

- 2030 benchmarks for mining, processing and recycling of Critical Raw Materials
- Strategic projects & faster permitting
- Circular materials & environmental footprint reported

What's missing?

Local business case

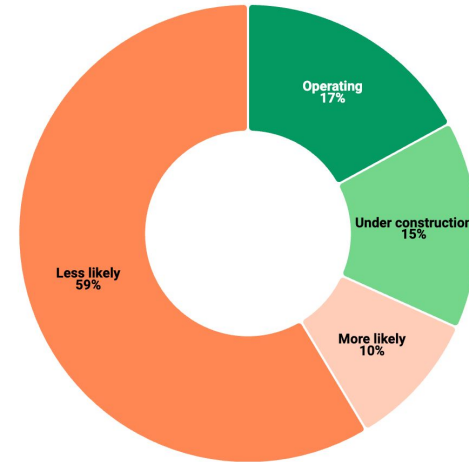
- 2035 car targets/Green Deal being questioned
- Carbon footprint methodology delayed
- Import tariffs at 1%...
- Higher energy, etc costs and no commercial expertise yet

Investment support

- No "US IRA" in Europe, only state aid in Germany & France
- EU Battery Fund - delayed...
- EIB or other green loans & guarantees insufficient

European gigafactories: project status overview

Capacity 2030: 1.6 TWh (September 2024 assessment)



Source: T&E analysis of publicly announced battery cell projects by 2030 • Percentages may not add up to 100% due to rounding

Policy recommendations

- 1** Clear vision & market certainty: 2025-2035 car CO2 targets must remain unchanged
- 2** Launch EU Battery Fund asap, focusing on scale & diverse technology mix
- 3** Carbon Footprint method finalised asap to reward local manufacturing
- 4** Bigger EU Green Investment Plan to support projects EU-wide
- 5** Local sourcing rules: EU and national funds, public procurement, etc
- 6** EU-UK Battery Partnership for EVs, batteries, components and EV minerals

Thank you

Name, Title

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