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Europe’s battery growth needs a closed loop system – from storage to recycling

Hungarian Battery Days

Simon Anita | 2026.11.4–5.

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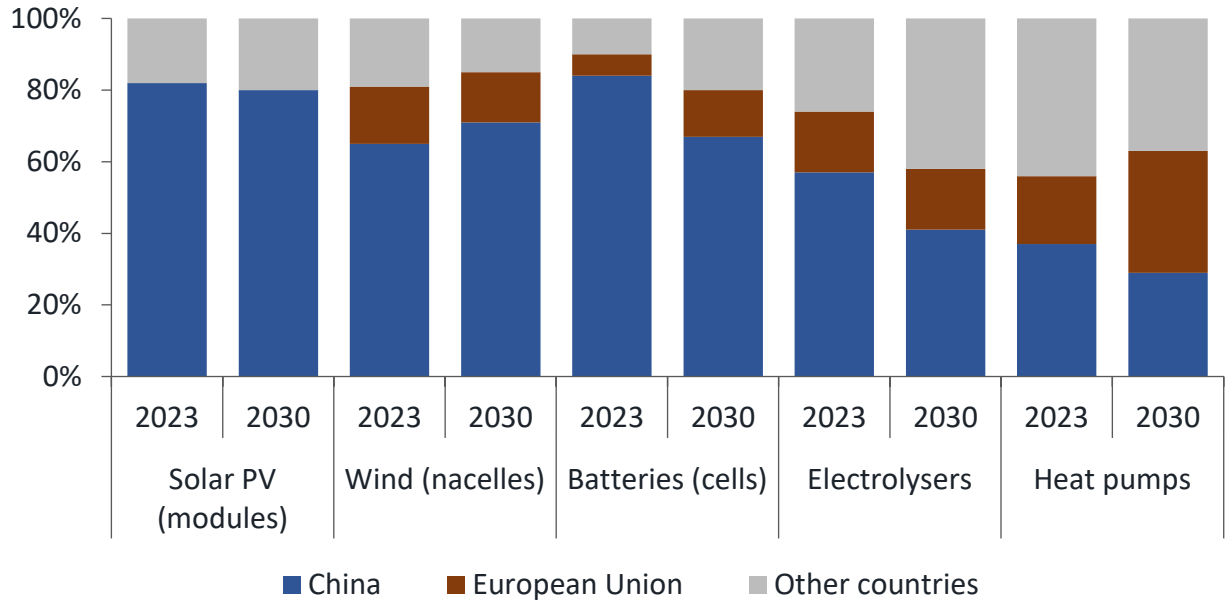
Europe aims to close China’s lead in net-zero technologies

Geographical concentration of current and announced manufacturing capacity, 2023–2030





2030

EU production targets

≥40%

of annual EU deployment needs for net-zero technologies to be met by EU-based manufacturing capacity by 2030 (Net-Zero Industry Act benchmark)

Significant shortfall: EU manufacturing capacity across the net-zero technologies (solar PV, wind, batteries, electrolysers, heat pumps) remains well below what is needed to reach this target

Europe is significantly behind: China dominates global battery cell manufacturing capacity, so Europe has a major gap to close to reach its 2030 targets

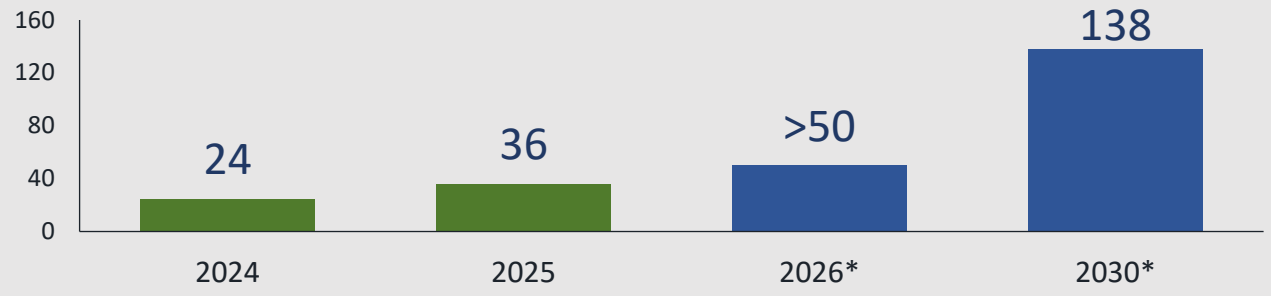
Source: IEA, Global EV Outlook 2026; European Commission – Net-Zero Industry Act; European Commission, SET Plan – Batteries, IEA, Advancing Clean Technology Manufacturing, 2024

Storage demand is growing faster than deployment – in Europe and in Hungary

Europe

Battery storage installed annually in Europe

GWh/year, priority years, from 2026 onwards mid-scenario



The expected capacity is not enough to meet the EU targets



≈130 GWh shortfall compared to the required capacity

Hungary

3 GW storage target 2030

1 GW installed battery storage capacity *(2026.10.)*

2 GW +200% expected growth by 2030

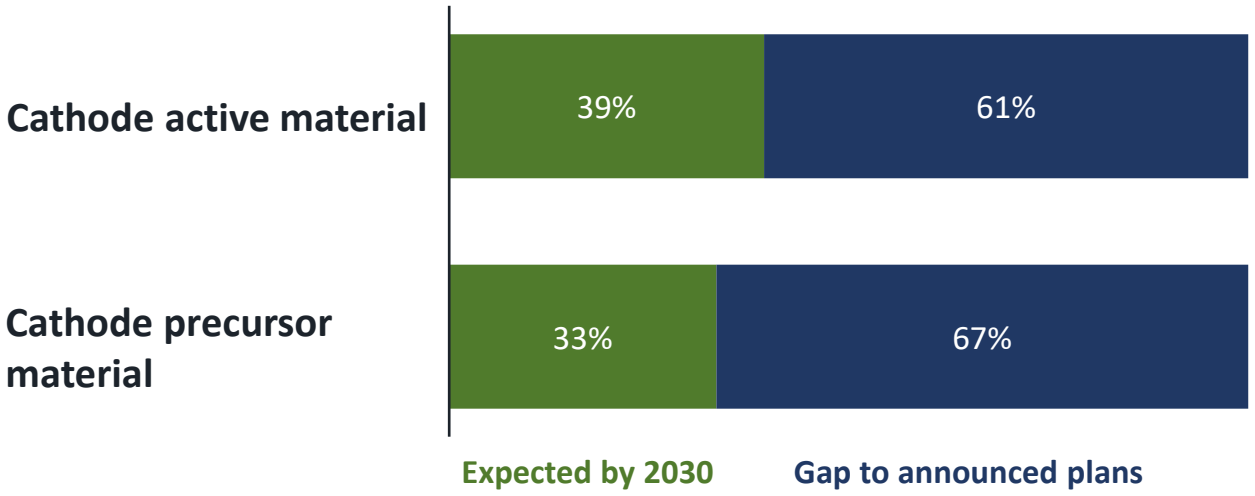
Deployment must accelerate: Europe faces a 130 GWh gap, Hungary will triple its capacity by 2030

Source: SolarPower Europe, European Battery Market Outlook 2026–2030, 2026; Reuters, 2026; Hungarian Ministry of Energy; EU Energy Storage Initiative / Kinstellar, 2026; MAVIR data, 1 Oct 2026; Telex, 2026.10.19.

New factories alone are not enough to meet Europe’s battery goals

Announced plans vs expected capacity in 2030

Share of announced capacity expected by 2030, %



Material gap puts Europe’s value chain at risk



Supply is the bottleneck

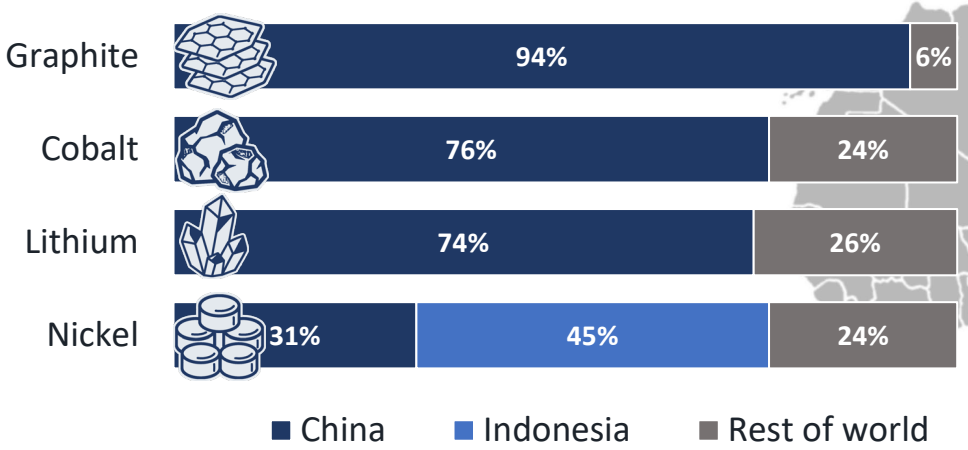
A reliable raw material supply is just as essential yet expected 2030 material capacity falls far short of what the announced battery plans would require.

Without raw materials, Europe only assembles and the value stays in Asia

Source: Transport & Environment, Leveraging the IAA to build Europe’s battery value chain, 2026

China has invested $120B since 2023 to secure critical minerals, while Europe remains dependent on external suppliers

Share of global refined production, 2025



African countries like DRC and Zimbabwe

Chinese companies have expanded their presence in **copper and cobalt mining and production**, while Chinese capital is supporting the rapid expansion of **lithium mining and processing capacity**.

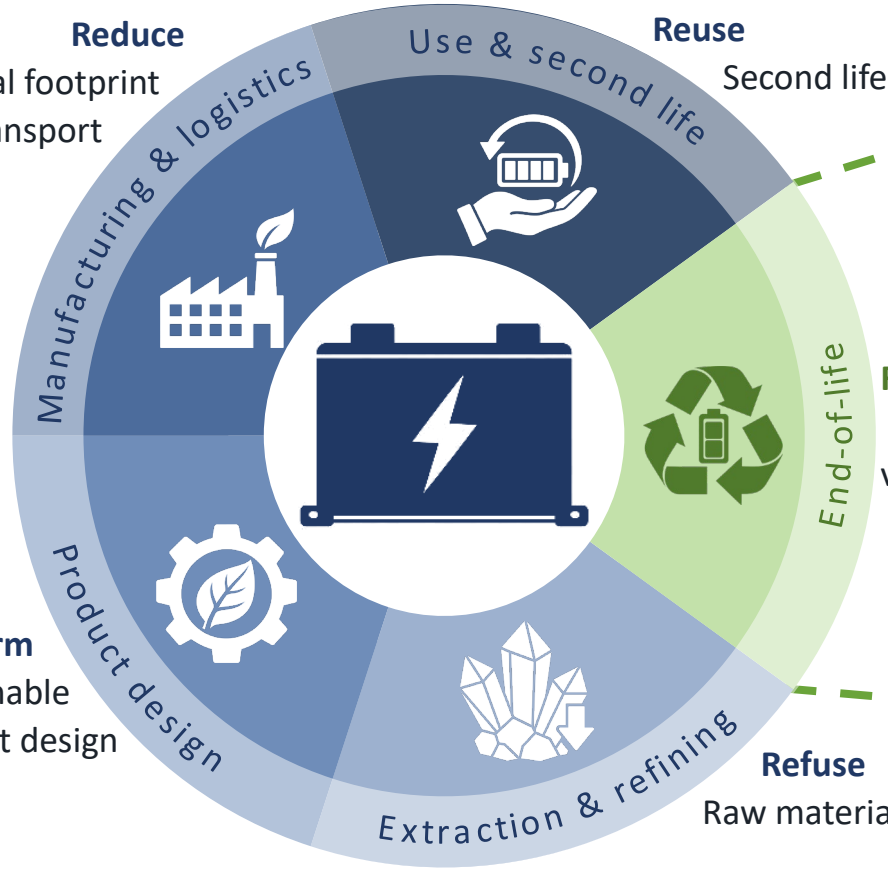
Indonesia

Chinese-backed investment has helped develop the country into the **world's largest nickel producer and processor**.

Source: IEA, Global Critical Minerals Outlook 2026, "Share of refined material production by country, 2023 versus 2025" (2025 data); Climate Energy Finance (CEF), Raw Power, 2026.

Recycling is key to securing Europe's raw material supply

The 5Rs of battery circularity



Reduce
Ecological footprint of transport

Reuse
Second life

Recycle
Growing waste volumes

Refuse
Raw material demand

Reform
Sustainable product design

EU regulation creates demand

Recycling efficiency

70% for lithium-based batteries by the end of 2030

Material recovery targets

By end-2027: Co, Ni, Cu, Pb 90%, Li 50%
By end-2031: Co, Ni, Cu, Pb 95%, Li 80%

Mandatory recycled content

Co 16% Li 6% Ni 6%

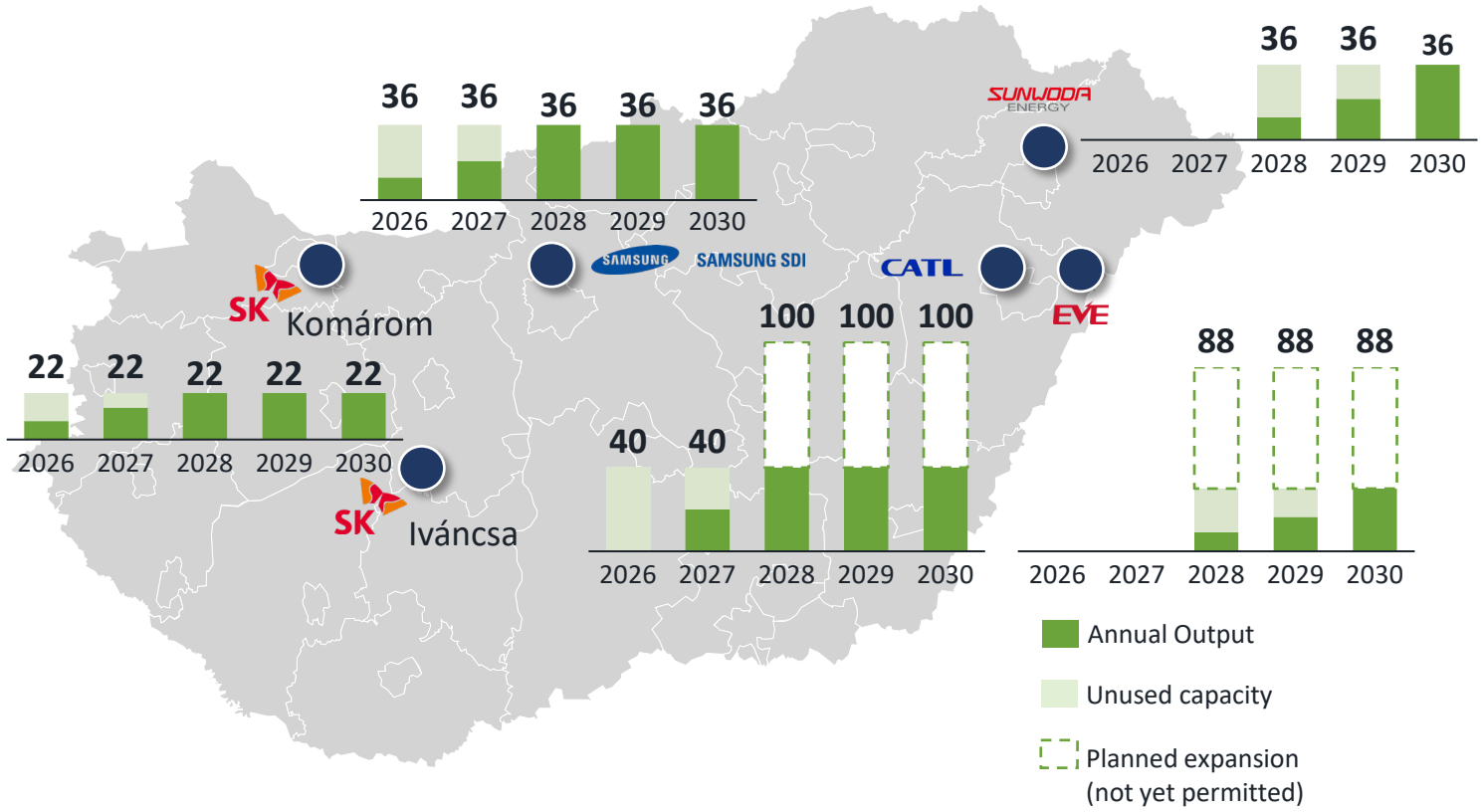
From 18 August 2031, in the active materials of new batteries covered by the regulation

Regulation guarantees demand for recycled materials, the bottleneck is treatment capacity

Source: Regulation (EU) 2023/1542 concerning batteries and waste batteries

Hungary’s battery manufacturing has grown faster than its waste treatment capacity

Capacity of battery production plants (GWh)



98 GWh — Installed production capacity today

164 GWh — 2030 production capacity Conservative estimate

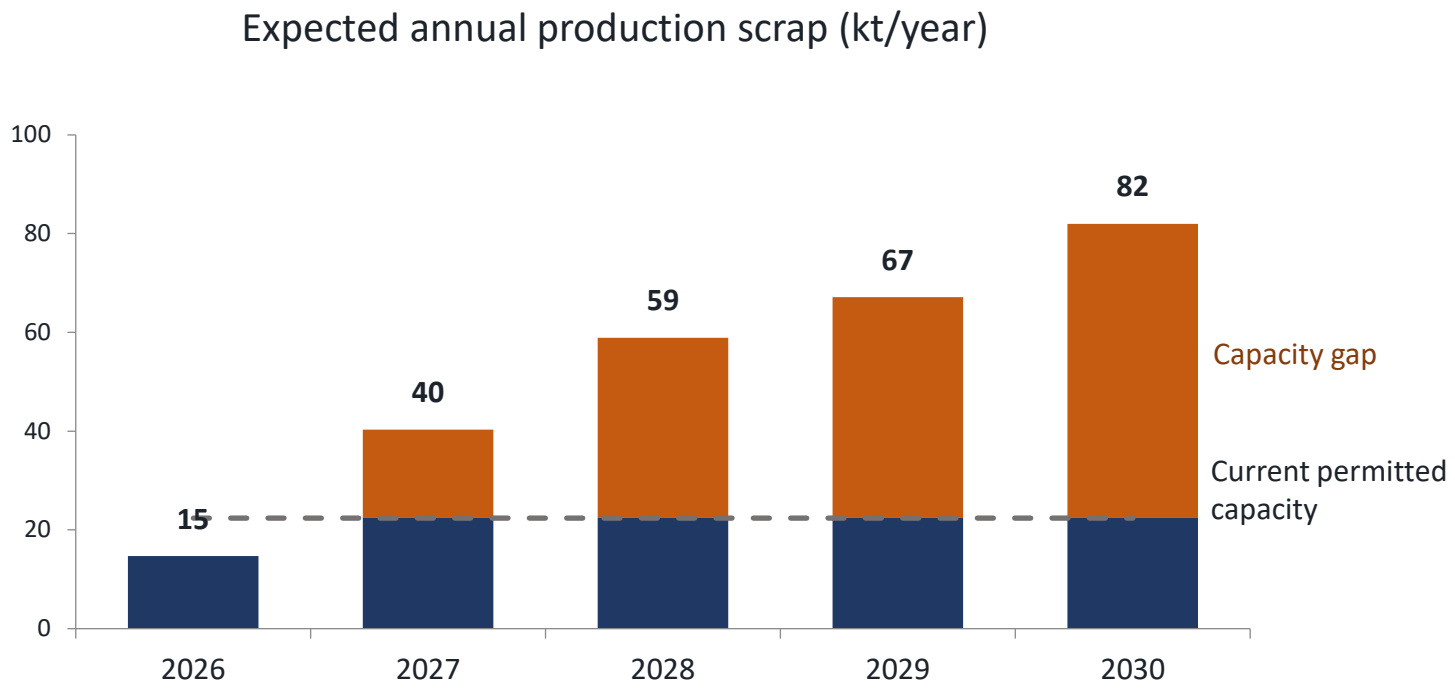
282 GWh — 2030 upper estimate Including projects not yet permitted*

0 plants — Domestic metal recovery plants in 2026

Battery production in Hungary is scaling fast – but there is still no domestic metal recovery

Source: ALTEO expert estimate

By 2030, production scrap may reach 3–4 times Hungary's pretreatment capacity



22 kt/year — Permitted domestic pretreatment capacity

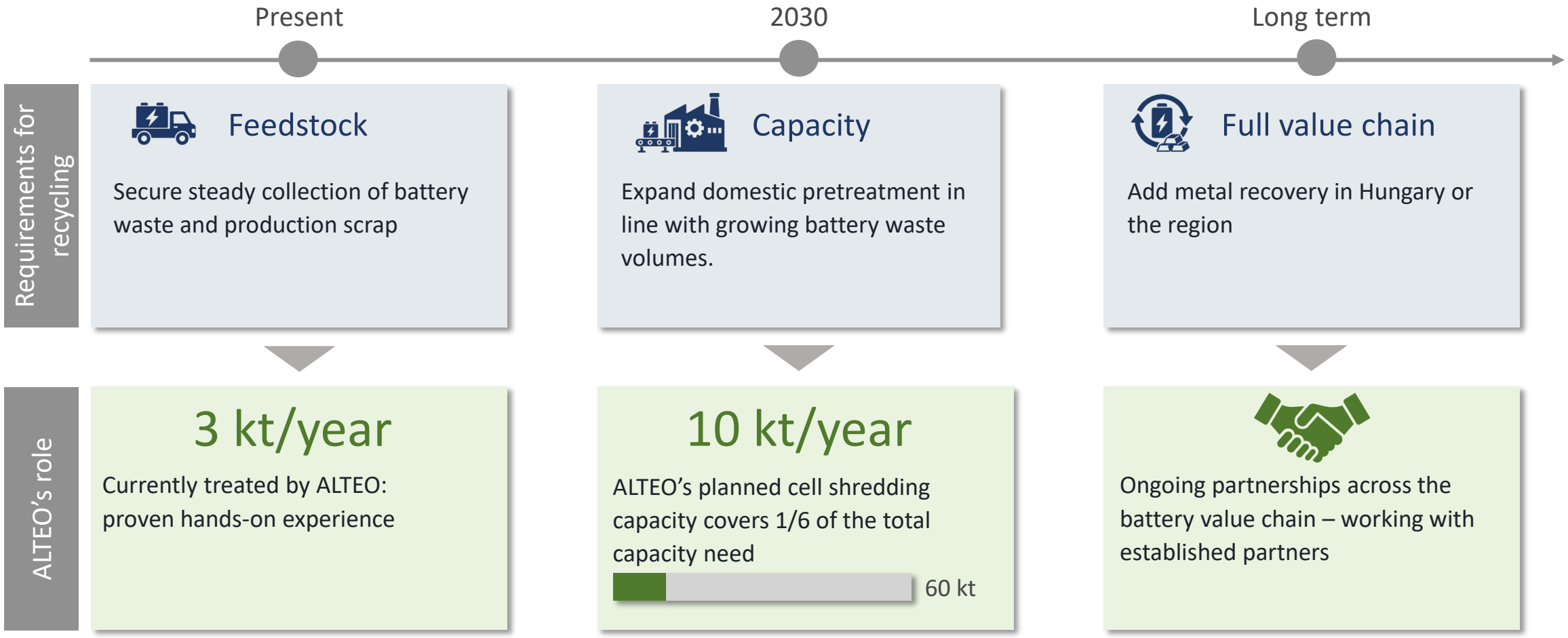
82 kt/year — Production scrap in 2030 at 164 GWh of production capacity

60 kt/year — 2030 capacity gap at today's pretreatment capacity, assuming 164 GWh of production capacity

Battery waste is inevitable. Where we treat it and how we control it matters.
Hungary faces a 59.6 kt/year gap by 2030 at current capacity, with end-of-life volumes rising thereafter.

Source: ALTEO expert estimate

Recycling is the missing link in Europe's battery value chain – turning waste into strategic feedstock



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Today’s battery waste is tomorrow’s raw material – closing the loop turns a disposal problem into a secure, local supply.