

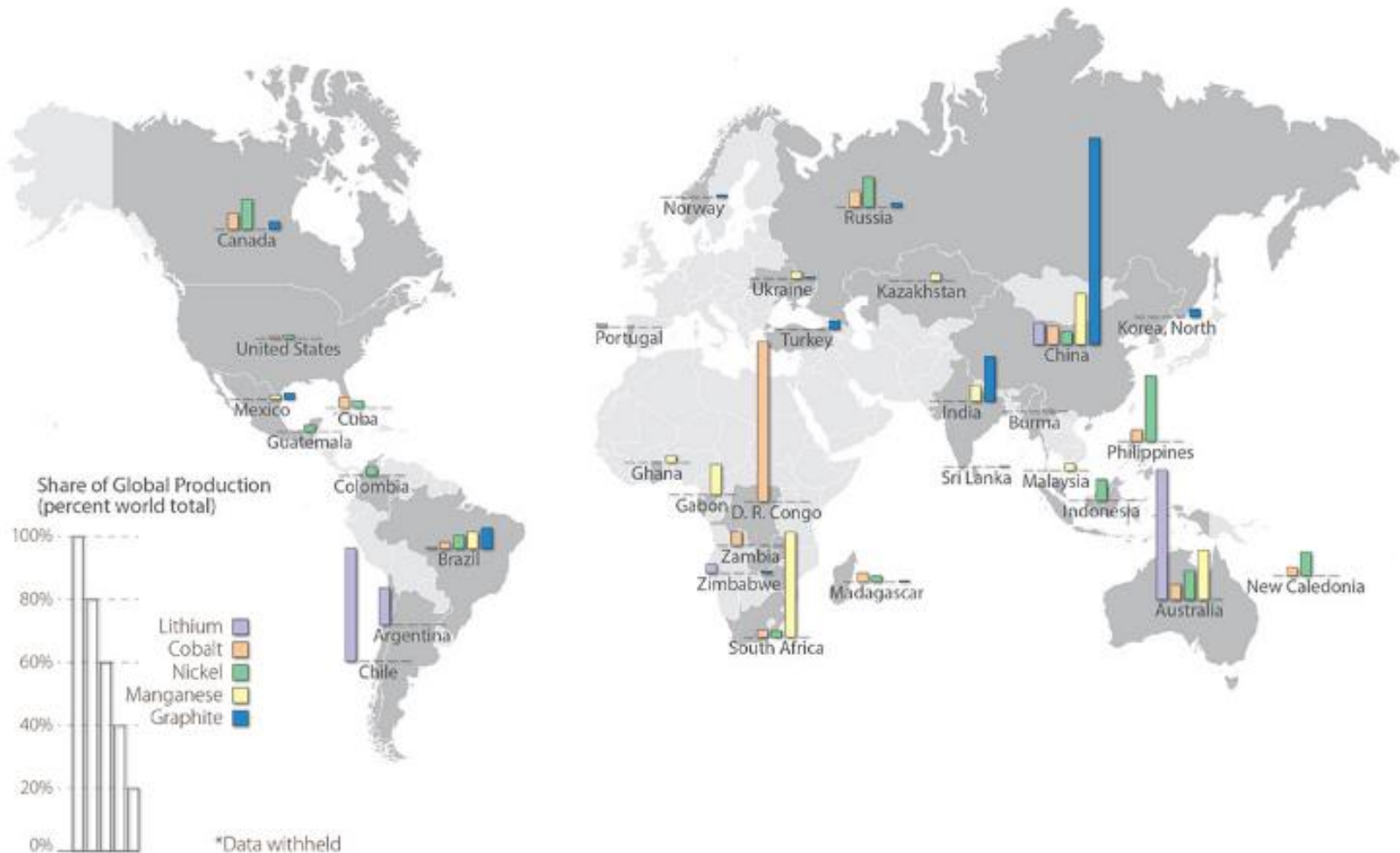
SUSTAINABLE BATTERIES: HOW CAN EU LEAD

OCTOBER 2018

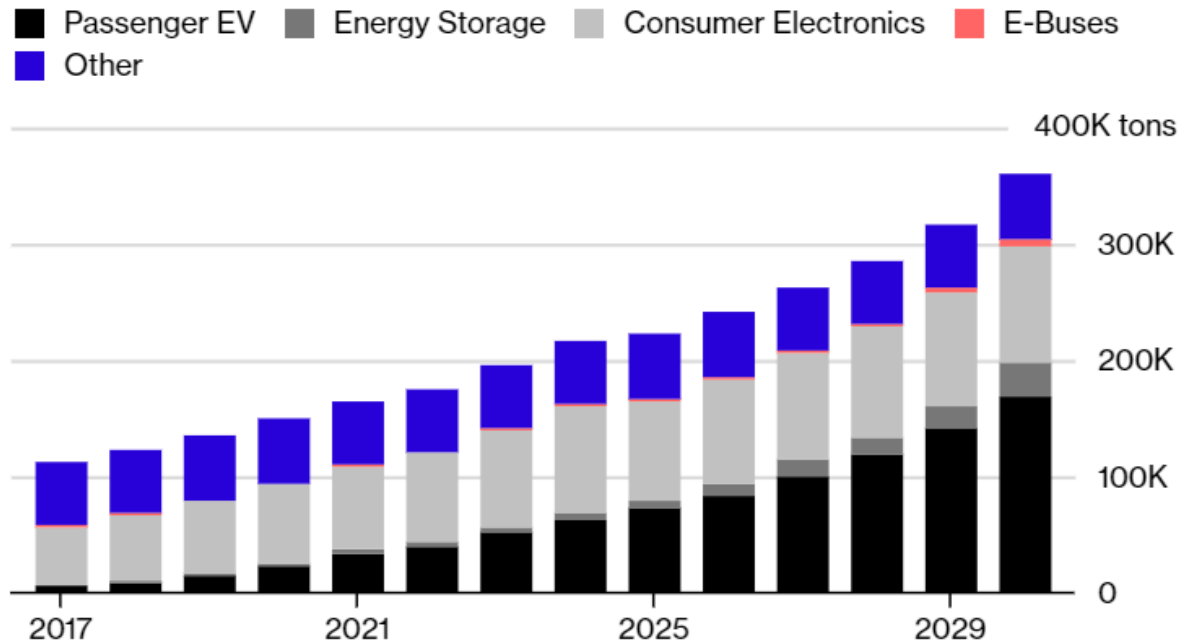
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SPREAD OF CRITICAL BATTERY MATERIALS



COBALT: STATUS QUO NOT AN OPTION





Source: Bloomberg New Energy Finance


MANY INITIATIVES: SUPPLY CHAIN TRACEABILITY IS A PROBLEM

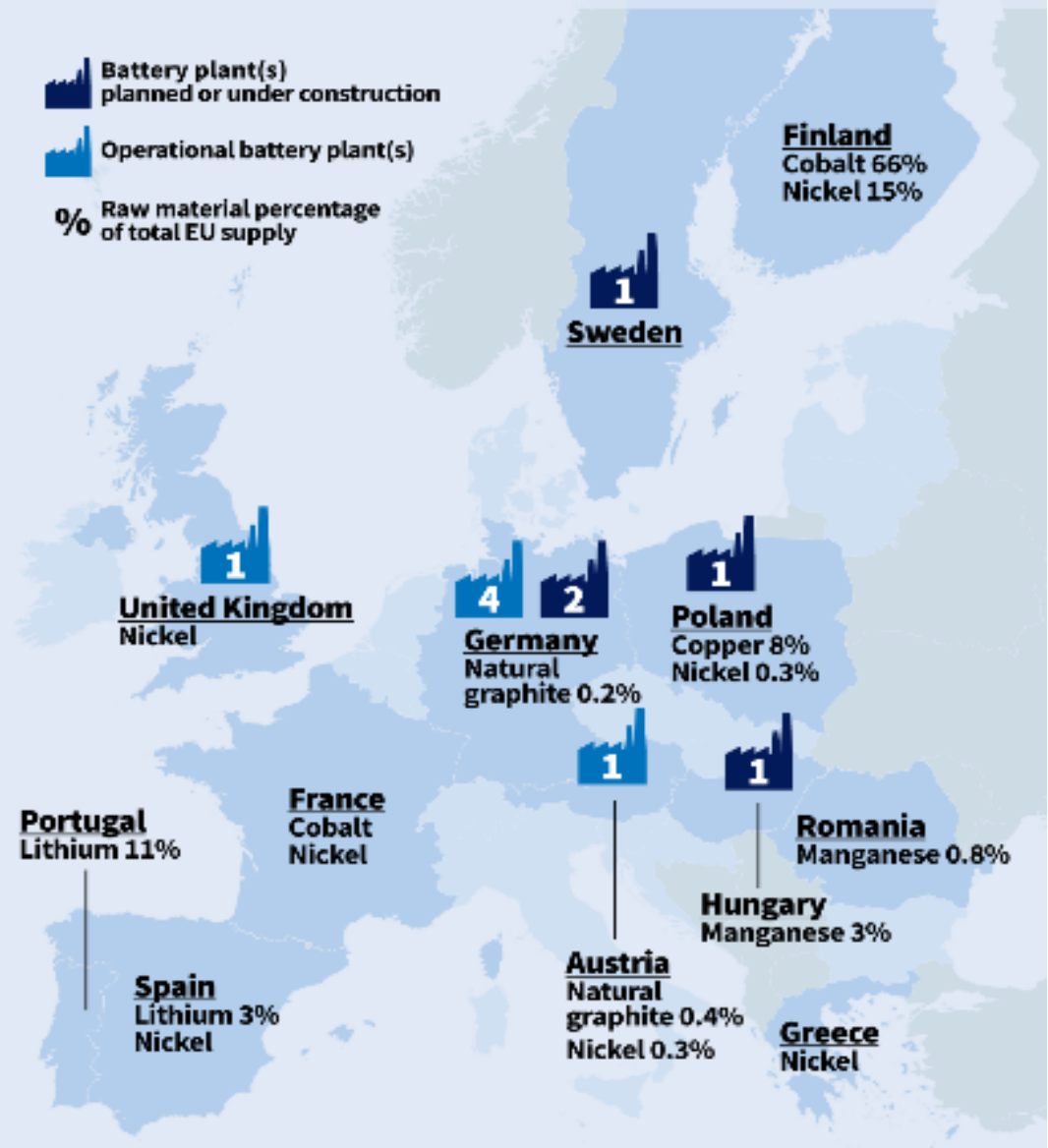


Batteries are now being manufactured in the EU too & raw materials are available

 Battery plant(s) planned or under construction

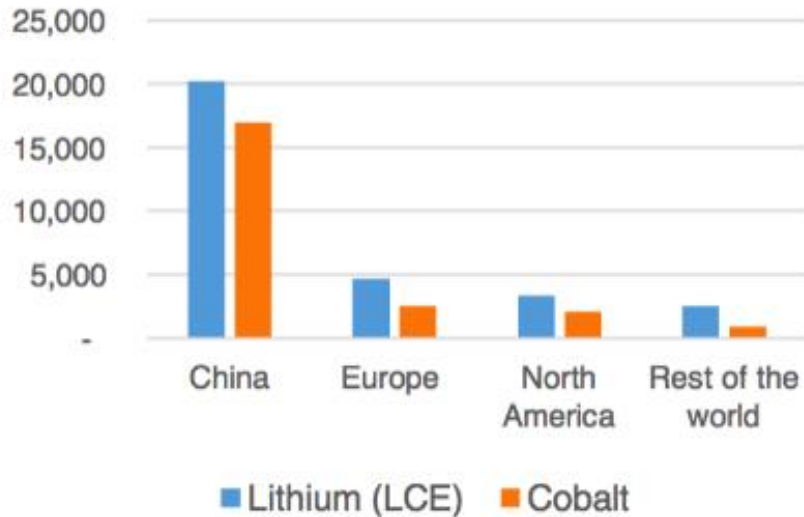
 Operational battery plant(s)

 % Raw material percentage of total EU supply

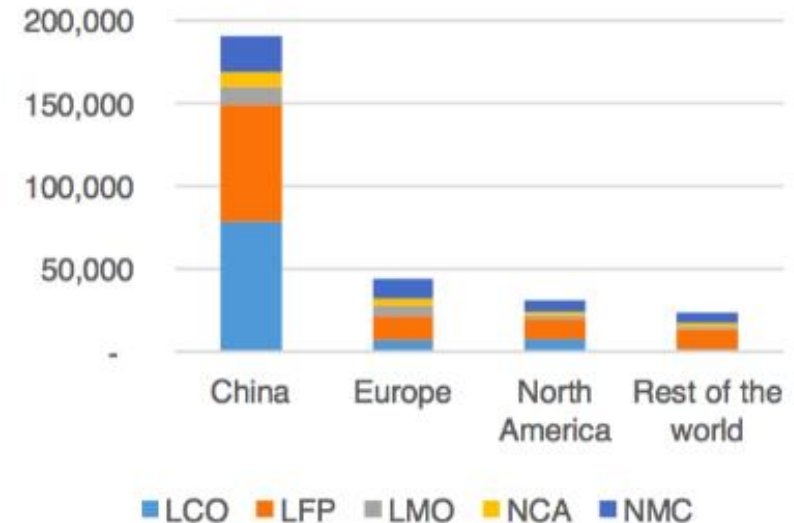


LARGE OPPORTUNITY TO RECYCLE IN THE FUTURE

Materials from recycled lithium-ion batteries in 2025 (tonnes)



Lithium-ion batteries available for recycling in 2025 (tonnes)



Source: Creation Inn

LI, CO & NI MOST CRITICAL

Co recycling
mature already;
10% of EU
demand in 2030

Ni mature
already (steel);
7% of EU
demand by 2030

Li least mature
process; 10% of
EU demand by
2030

BATTERY LABELLING: COMPETITIVE ADVANTAGE TO EU INDUSTRY

- Better safety rules
- Strong social safeguards
- Cleaner electricity
- Environmental framework

- Made in Europe



EU BATTERY DIRECTIVE REVIEW

Separate category for Li-ion batteries

Targets for collection of spent batteries

Recycling content targets for key battery materials

Battery design to facilitate battery disassembly & recycling

Define producer responsibilities and guarantee (to enable 2nd life)

Simplify Li-ion battery transportation rules