EUROPEAN RAW MATERIALS ALLIANCE | ERMA

Critical Raw Materials and the Green Transition: A European Perspective

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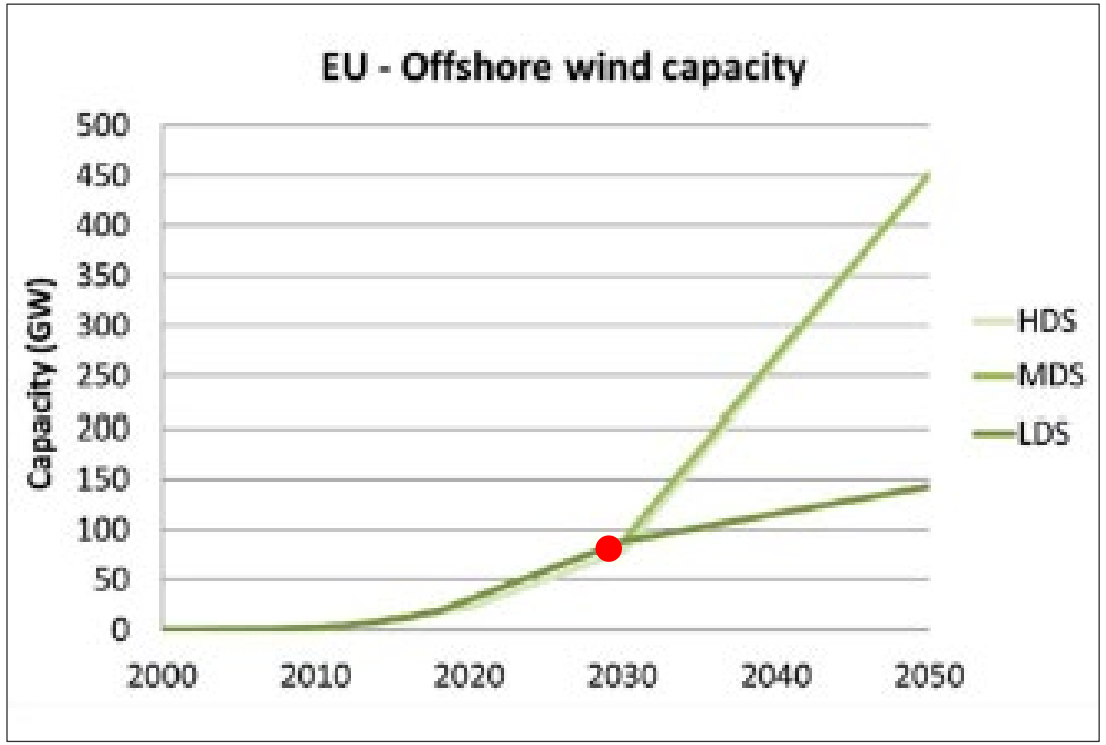
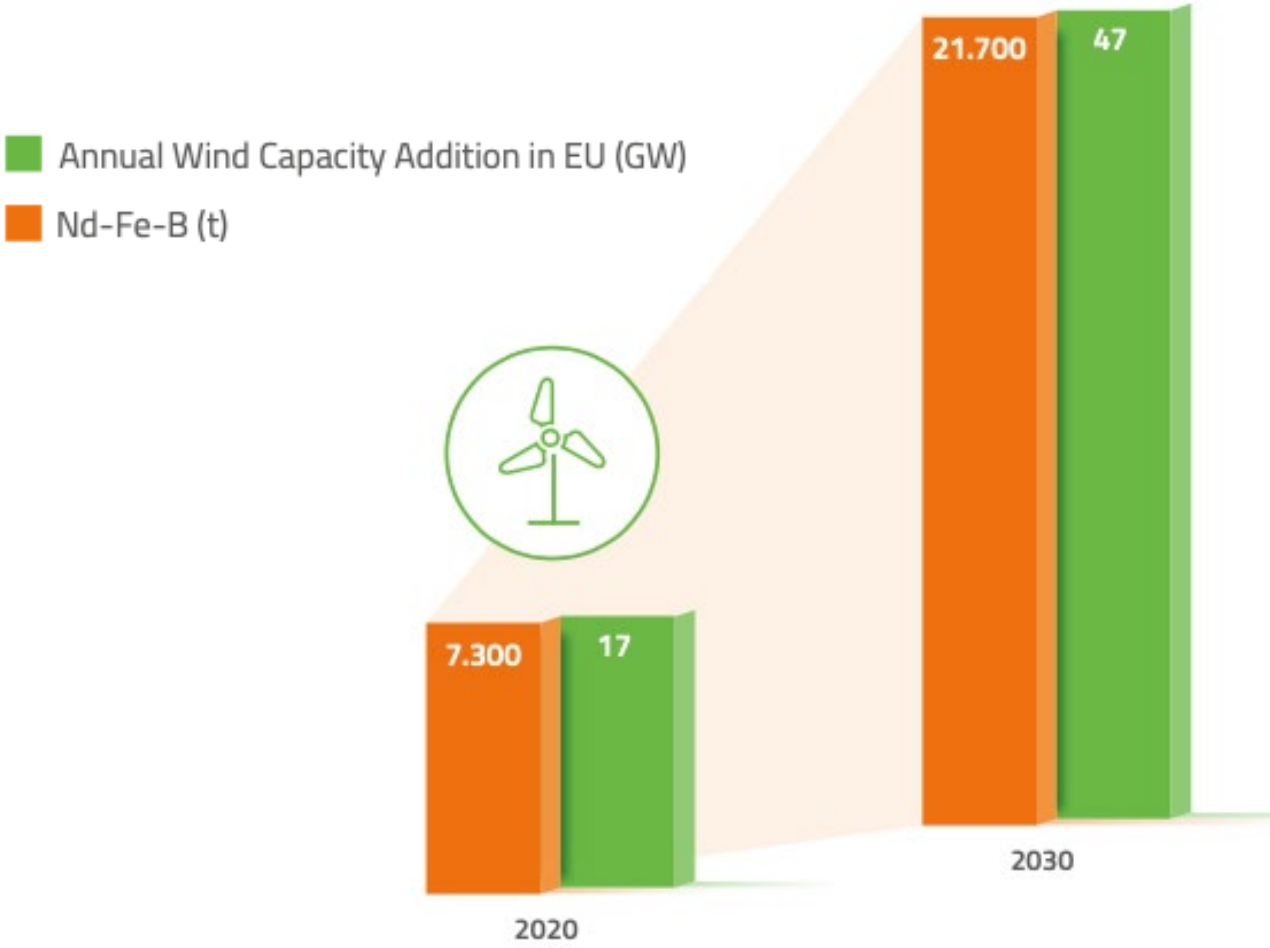
EIT RawMaterials is supported by the EIT, a body of the European Union

THE EUROPEAN UNION AIMS TO BE A GLOBAL LEADER IN THE GREEN TRANSITION.

Fit for 55 targets 2030: from 179 GW installed today to 361-374 GW onshore and 73-79 GW offshore





Sources: Gauß et al. 2021. erma.eu; JRC 2020

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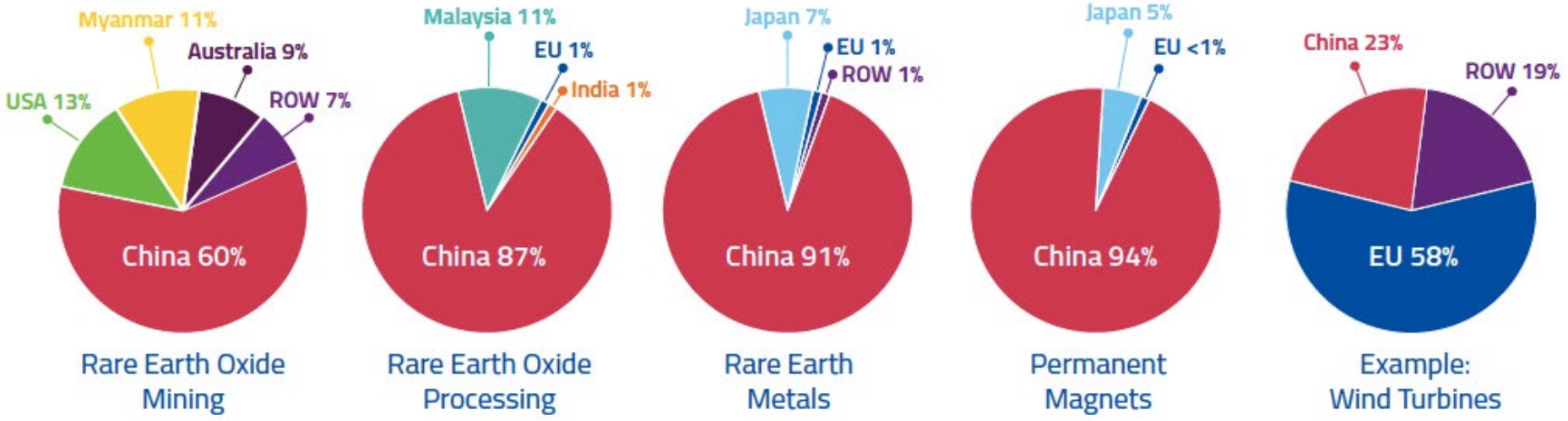
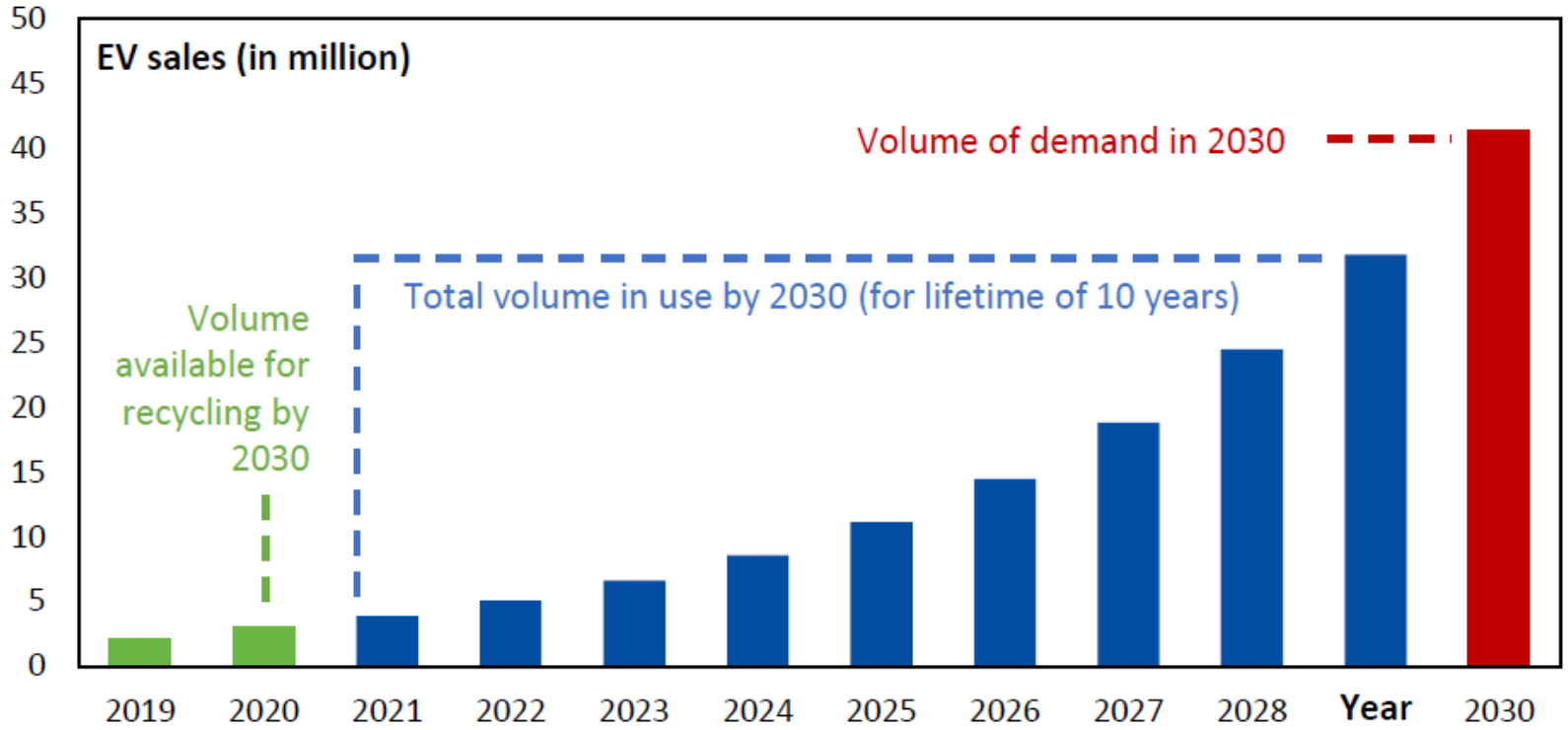
PRODUCTION IN THE RARE EARTH VALUE CHAIN IS HIGHLY CONCENTRATED IN ONE COUNTRY WHICH RESULTS IN A HIGH SUPPLY RISK AND SPECULATION (2019 DATA)



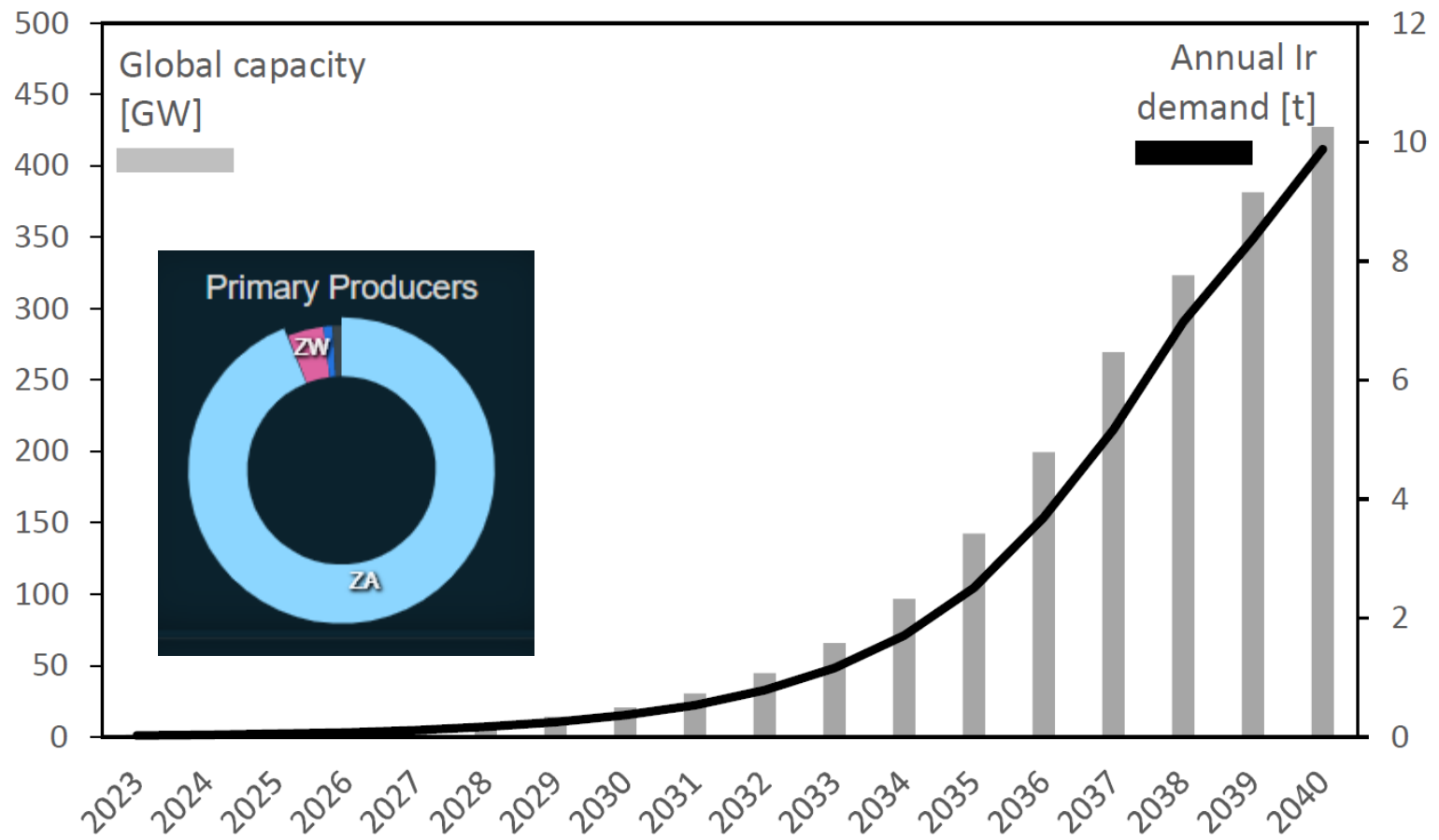
Source: Gauß et al. 2021.

THE CIRCULAR ECONOMY OF EXPONENTIALLY GROWING MARKETS



Source: Gauß et al. 2021.

HYDROGEN ECONOMY: TODAY, 1% OF H2 IS PRODUCED FROM RENEWABLE ENERGY. 94% OF IRIDIUM FOR ELECTROLYSERS IS PRODUCED IN ONE COUNTRY.



Sources: Gauß et al. 2021 and Gauß et al. 2023

TIME TO ACT: SHAPING THE CRITICAL RAW MATERIALS ACT. SUGGESTIONS BY EIT RAWMATERIALS

1. Strengthen Governance and stakeholder involvement
2. Accelerate and facilitate the permitting process
3. Review and monitor criticality to predict value chain disruptions
4. Launch regulatory measures to incentivize exploration, mining, and a circular economy of critical raw materials
5. Create raw materials investment facilities
6. Continue to promote supply and trade agreements with like-minded countries
7. Increase investment in the primary and secondary raw materials sector and ensure a robust R&D and innovation ecosystem
8. Secure reciprocity regarding state subsidies and the externalisation of social and environmental costs
9. Extend skills building and retention activities (through the EU Raw Materials Academy)

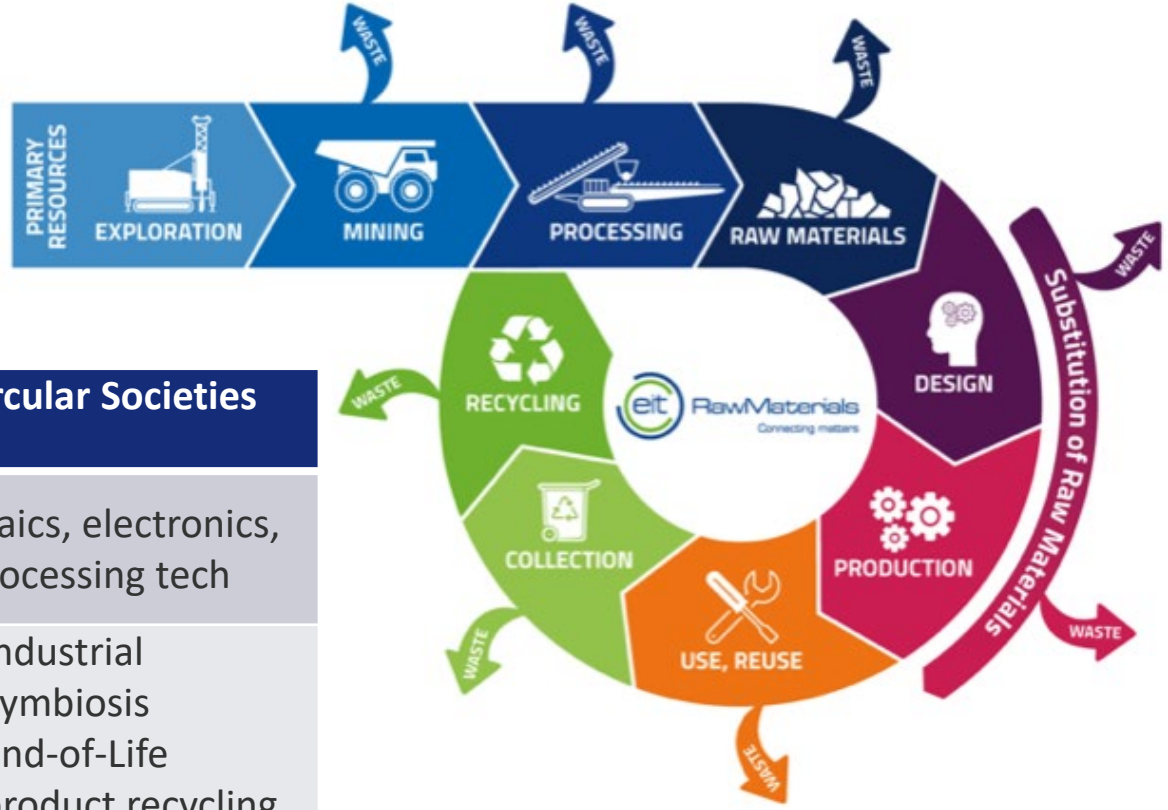
EUROPEAN RAW MATERIALS ALLIANCE. STAKEHOLDER ENGAGEMENT AND INVESTMENT PIPELINE

ERMA Rare Earth Magnets and Motors. A European Call for Action. Get your copy at erma.eu/european-call-for-action/

ERMA supports Norge Mining in securing finances for responsible sourcing of crucial minerals in Norway. 13 Feb 2023

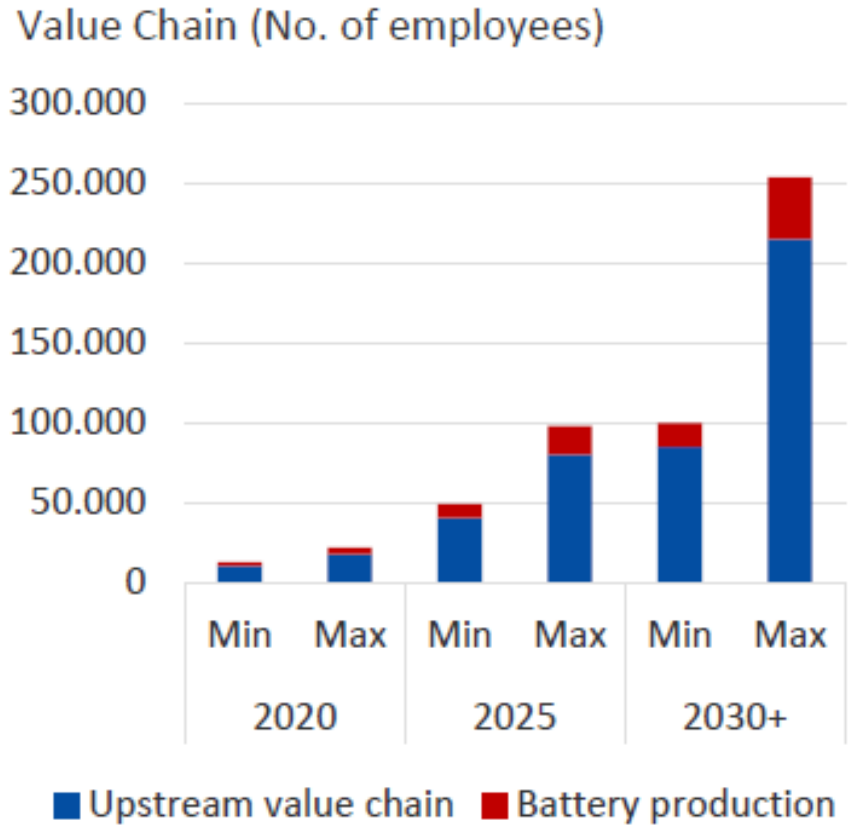
EIT RAWMATERIALS PROJECT PORTFOLIO

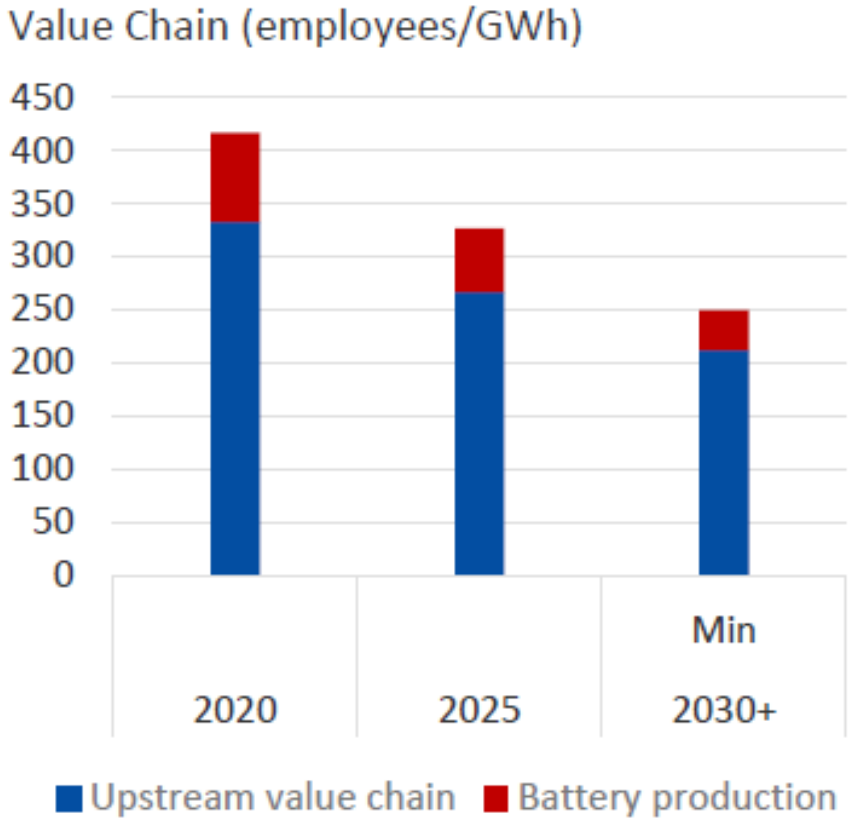
RESPONSIBLE – SUSTAINABLE – CIRCULAR: TOWARDS SUSTAINABLE AND RESILIENT SUPPLY CHAINS



	Responsible Sourcing	Sustainable Materials	Circular Societies
Strategic technologies and value chains	Batteries, fuel cells, magnets and motors, photovoltaics, electronics, lightweight design, future exploration, mining, processing tech		
Thematic focus areas	• Smart, data driven targeting of ore deposits • Mining and ore processing at highest safety and environmental standards • Social Licence to Operate • Decarbonisation	• Substitution of critical, toxic, and low-performance materials • Resource-efficient materials design and processing	• Industrial Symbiosis • End-of-Life product recycling • Design for recycling and life-time extension • Traceability, sustainability, supply chain transparency

OPPORTUNITIES: THERE IS A HUGE JOB POTENTIAL IN THE RAW MATERIALS AND ADVANCED MATERIALS SECTORS

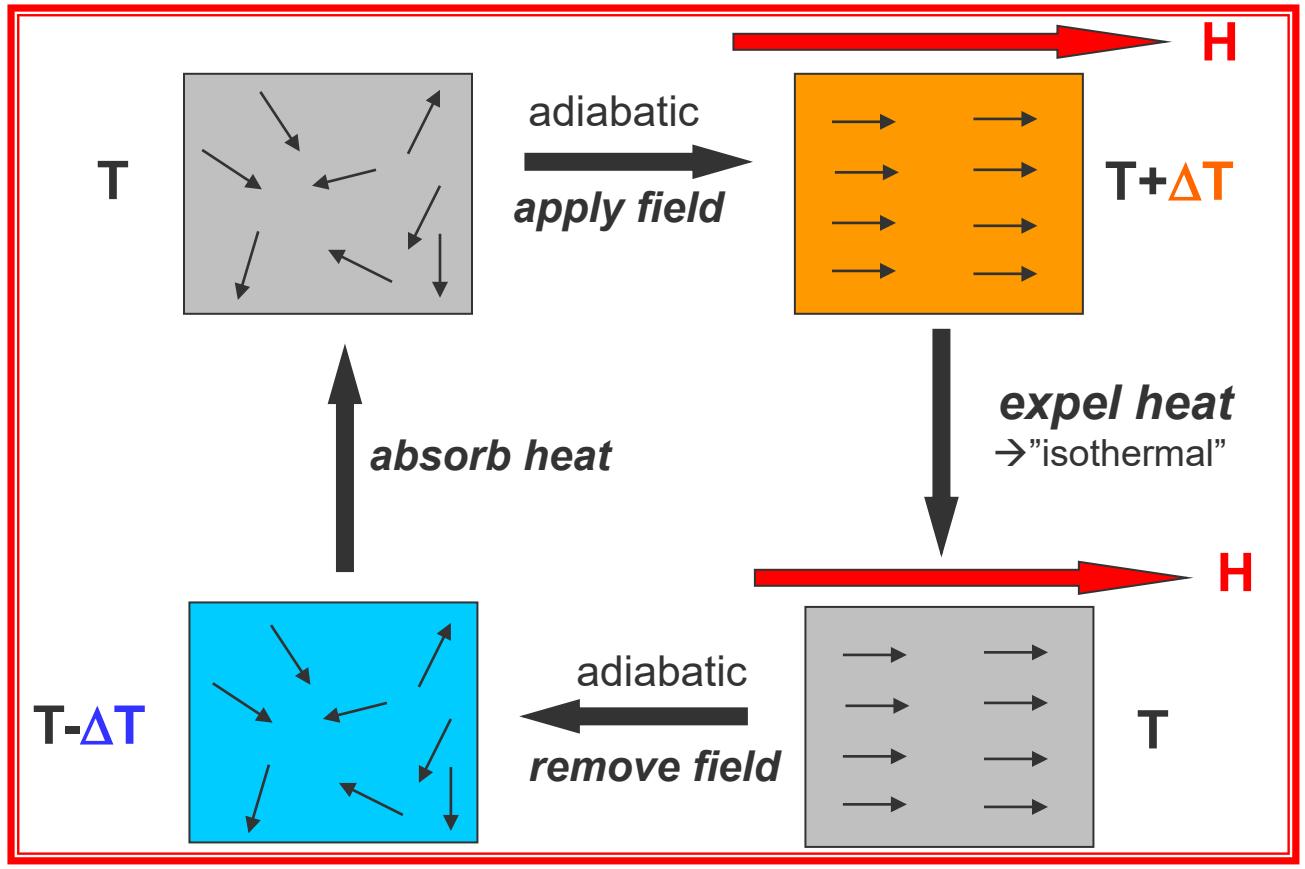




Jobs required for the emerging battery industrial sector in Europe, i.e., across the value chain from raw materials extraction and processing (“upstream”) to battery production Thielmann et al. 2021

OPPORTUNITIES: ADVANCED MATERIALS AND TECHNOLOGIES.

Example: The future of cooling is rare earths. Magnetic refrigerant $La(Fe,Mn,Si)_{13}H_Y$ and magnetic circuit: Nd-Fe-B



Magnotherm POLARIS is the first magnetic beverage cooler available for sale. It is driven 100% magnetically and cools down up to 150 beverages to 5°C.