

The Role of Critical Raw Materials in Achieving the Goals of the Paris Agreement in the UNECE Region



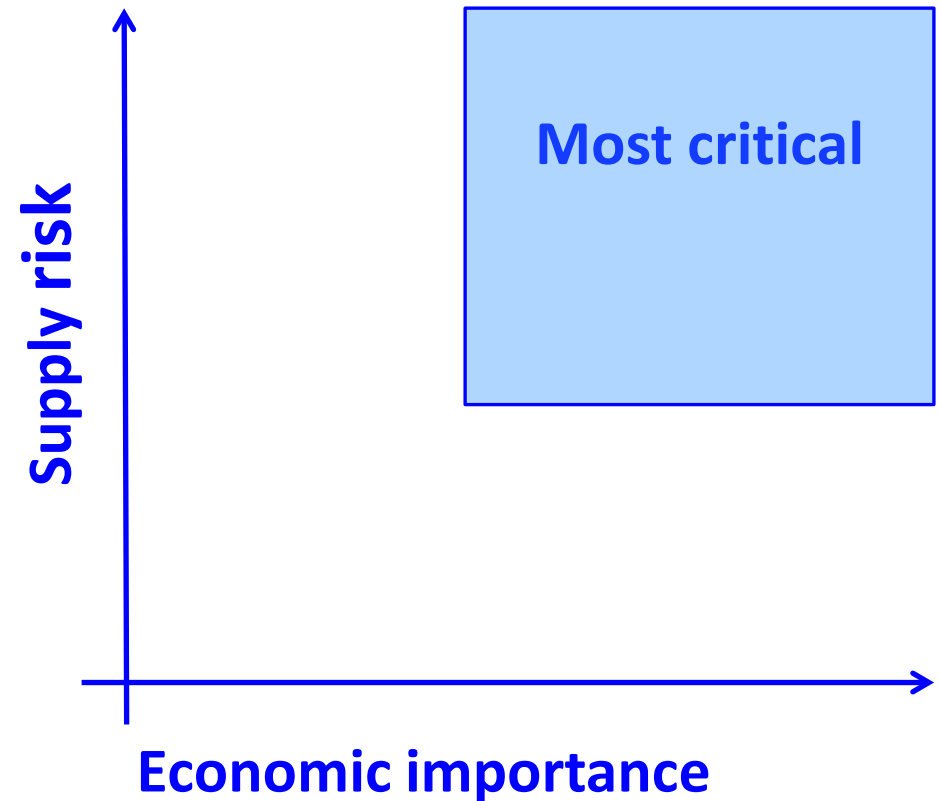
Why critical minerals are different and why they are not

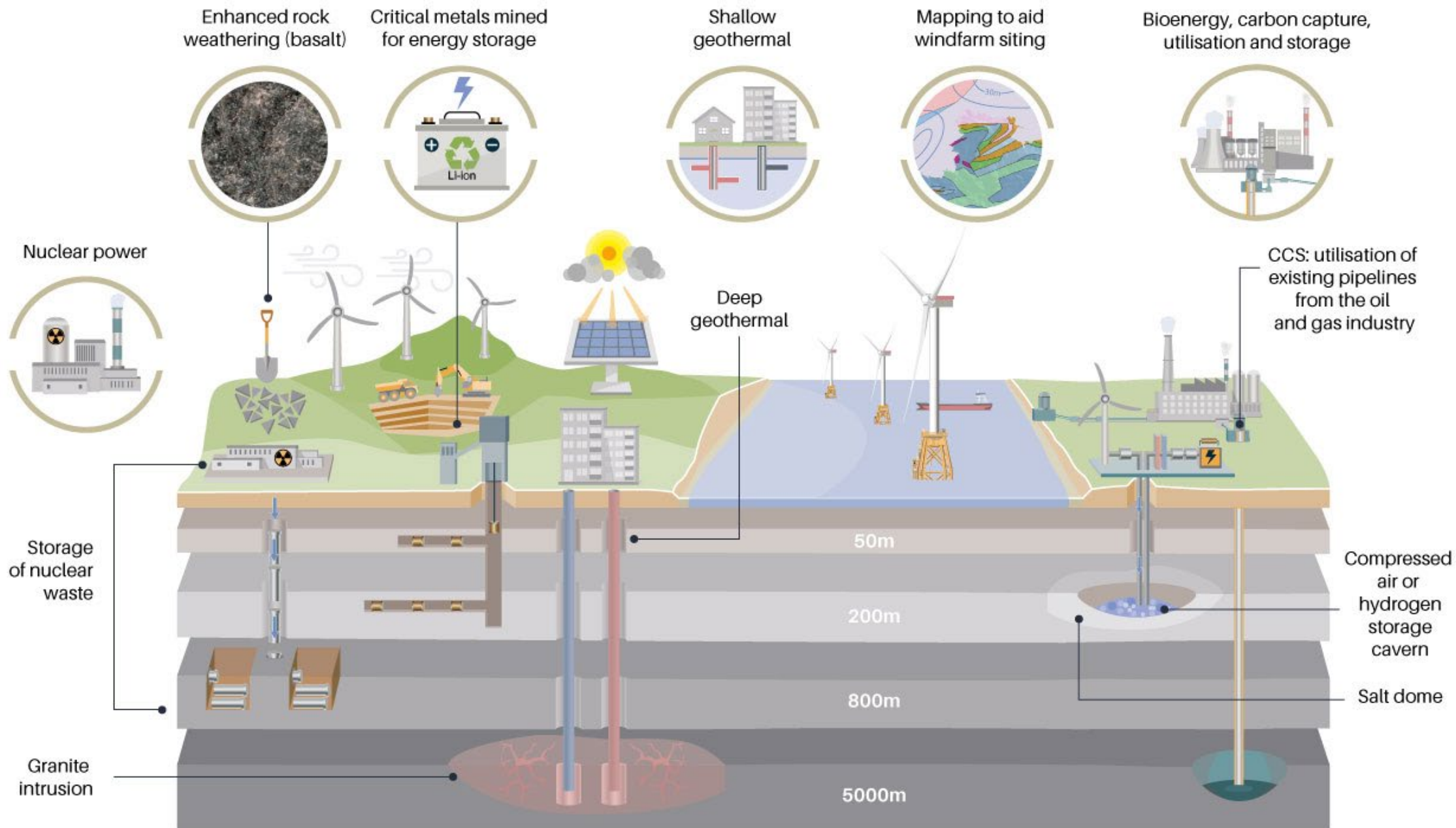
Why minerals matter for the energy transition

Why everything starts with a rock

What is criticality?

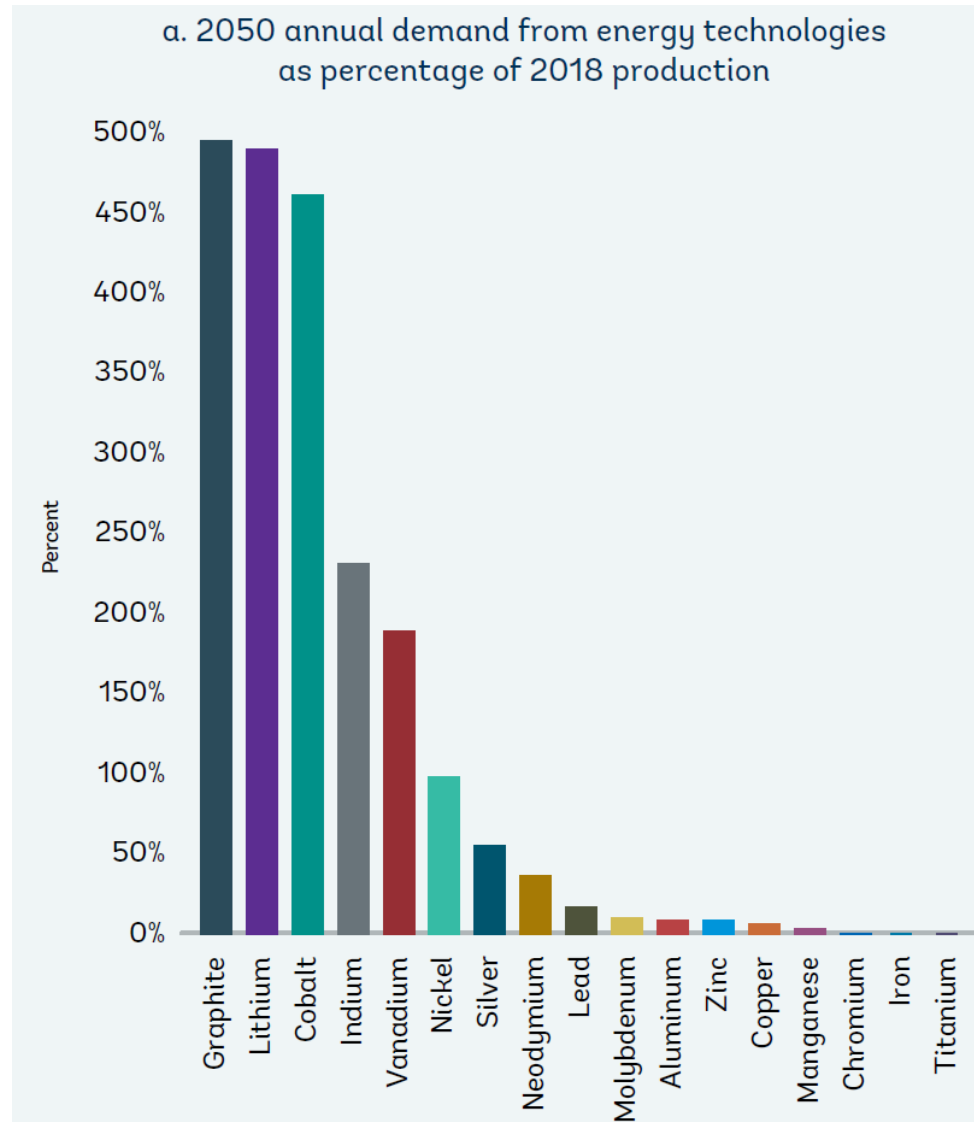
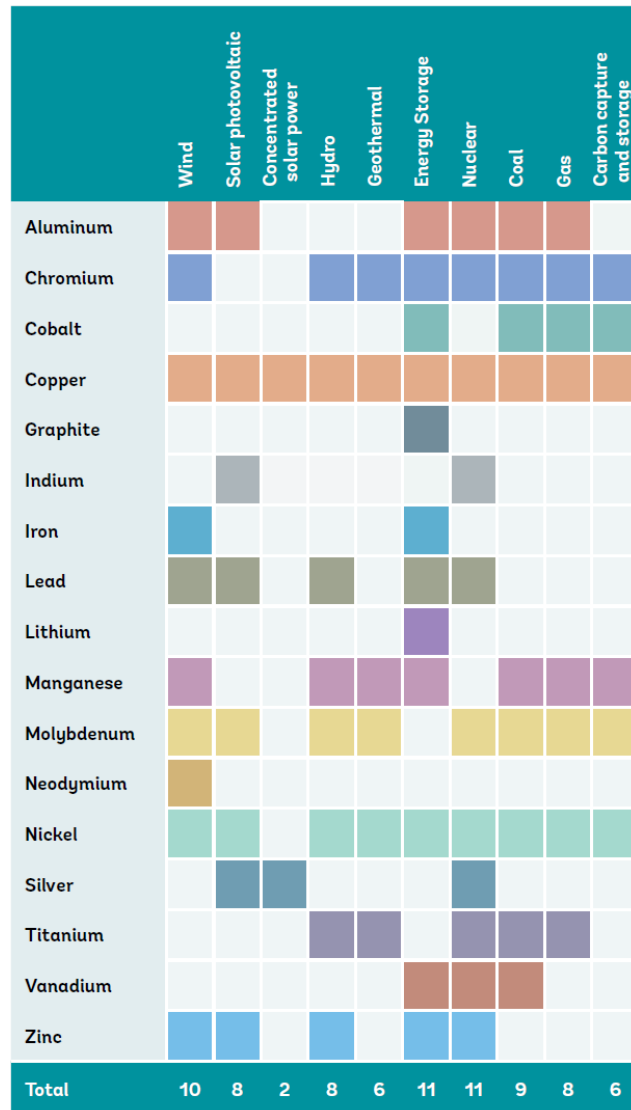
- Combines consideration of economic importance with vulnerability to supply disruption
- Can also take into account environmental and/ or ethical issues
- Assessed on a bloc-/ country-/ sector-/ company-specific basis



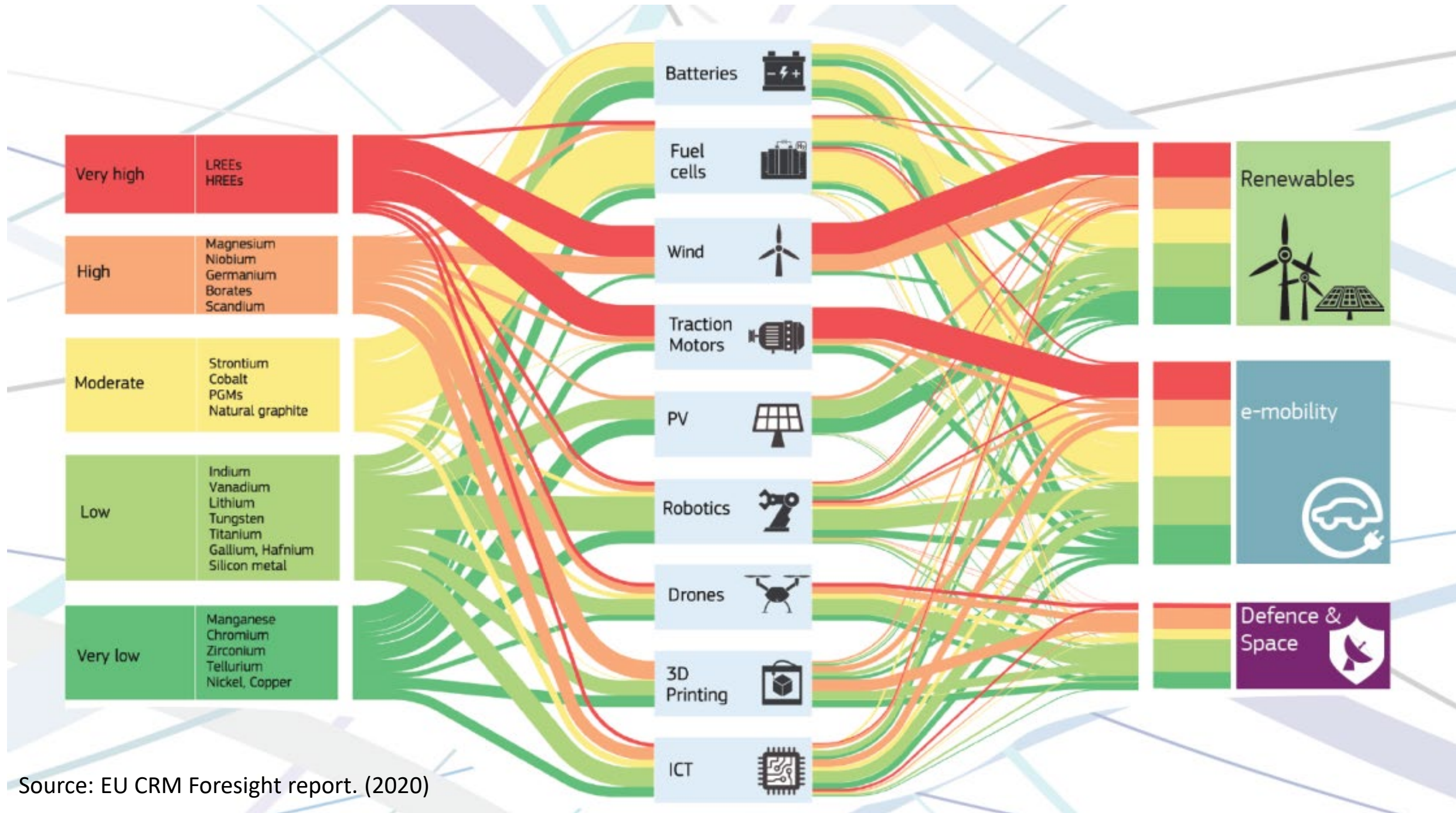


Source: British Geological Survey

Metals and minerals in the energy transition



Source: World Bank 2018 Report; Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition



Source: EU CRM Foresight report. (2020)

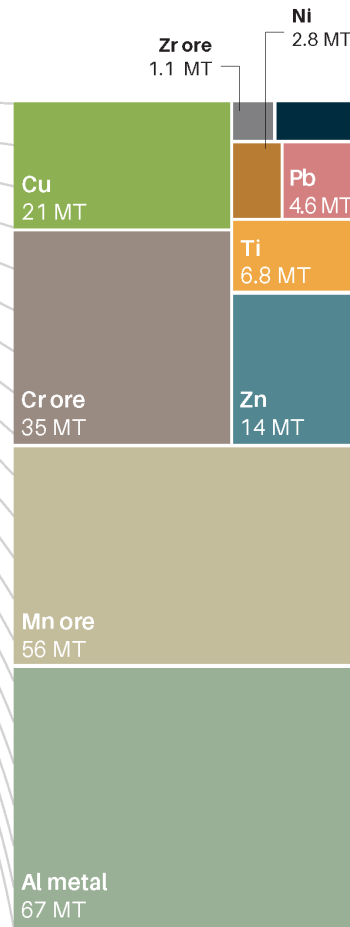
WHAT DO WE MINE?

All metals and ores



MT = Million tonnes

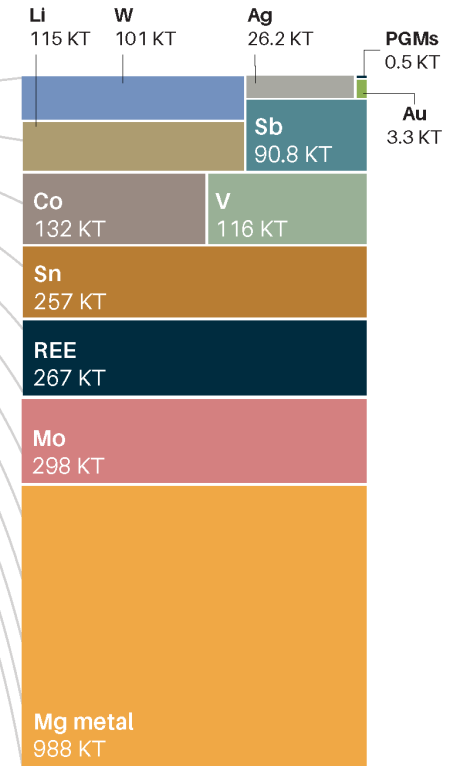
'Industrial' metals and ores



Technology and precious metals

2.4 MT

'Technology' and precious metals



KT = Thousand tonnes

Footnote: unless otherwise stated all figures are metal content.

Can we manage without minerals for (clean) energy?

- 940 million (13% of the world) do not have access to electricity.
- 3 billion (40% of the world) do not have access to clean fuels for cooking.
- Per capita electricity consumption varies more than 100-fold across the world.
- Per capita energy consumption varies more than 10-fold across the world.
- Energy access is strongly related to income: poorer households are more likely to lack access.

United Nations Framework Classification



- Relevant ESG metrics, i.e. environmental and reporting
- Social licence to operate

Exploration



- Mineral location
- Mineral composition/grade
- Mineral quantity

Extraction/Mining

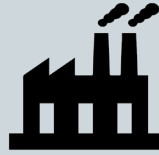


- Production volumes
- Energy requirements

Extractive waste

UNFC and UNRMS

Processing



- Processing technology
- Environmental reporting and relevant ESG metrics
- International/domestic trade, processing volumes
- Chemical compositions of processed commodities
- Different sources of materials
- Energy requirements

Processing waste

Manufacturing



- Manufacturing techniques
- Relevant ESG metrics
- International/domestic trade
- Manufacturing volumes
- Chemical compositions of products
- Different product categories
- Different sources of materials
- Energy requirements

Scrap material

In-Use



International trade stocks in use

Municipal/Industrial waste

Recycle/Reuse



- Recycling process, relevant ESG metrics
- Energy requirements

Anthropogenic resources



- Waste composition
- Waste location
- Waste quantity

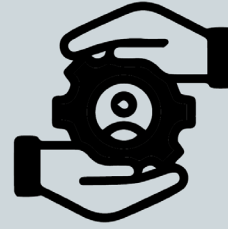
UNRMS Principles



State rights and responsibility in the management of resources



Responsibility to the Planet



Integrated and indivisible management of resources



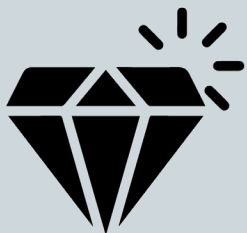
Social contract on natural resources



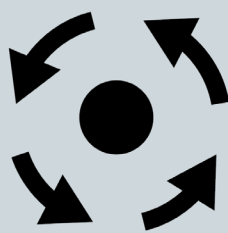
Service orientation



Comprehensive resource recovery



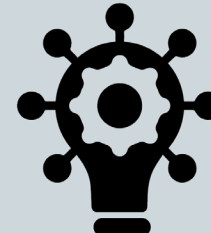
Value addition



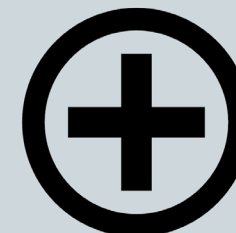
Circularity



Transparency



Innovation

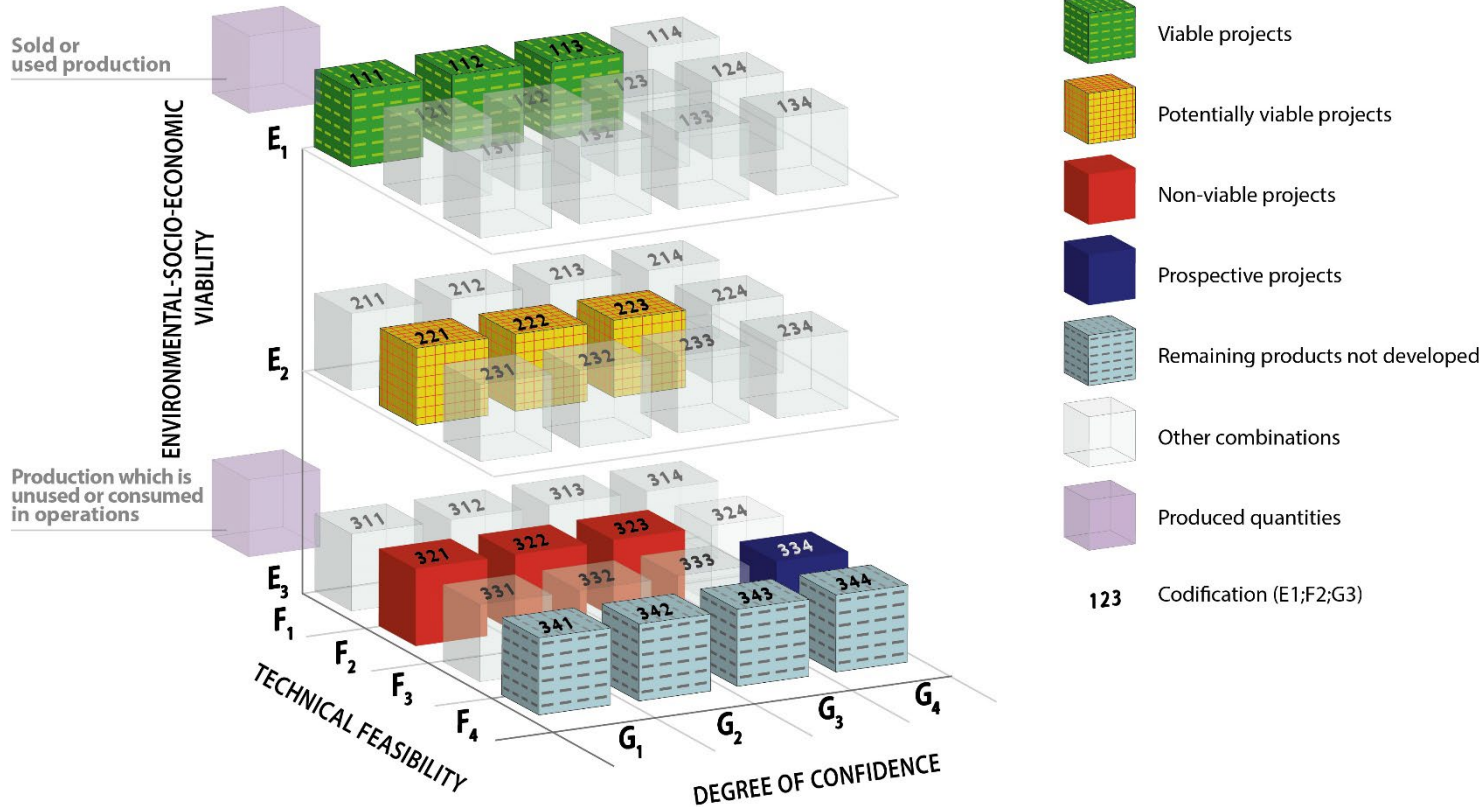


Health and Safety



Continous strengthening of core competencies and capabilities

United Nations Framework Classification for Resources (UNFC) and United Nations Resource Management System (UNRMS)



- Viable projects
- Potentially viable projects
- Non-viable projects
- Prospective projects
- Remaining products not developed
- Other combinations
- Produced quantities
- 123 Codification (E1;F2;G3)

A unified, comparable, interoperable and harmonized approach to resource assessment and management



SUSTAINABLE DEVELOPMENT

GOALS

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

SUSTAINABLE DEVELOPMENT GOALS

Thank you



UNFC and UNRMS

ENABLING SUSTAINABILITY PRINCIPLES IN RESOURCE MANAGEMENT



UNECE