The need for a comprehensive management system for resources in the EU

UNECE Expert Group on Resource Management, 10th Session
29 April - 3 May 2019, Geneve

Peter Handley

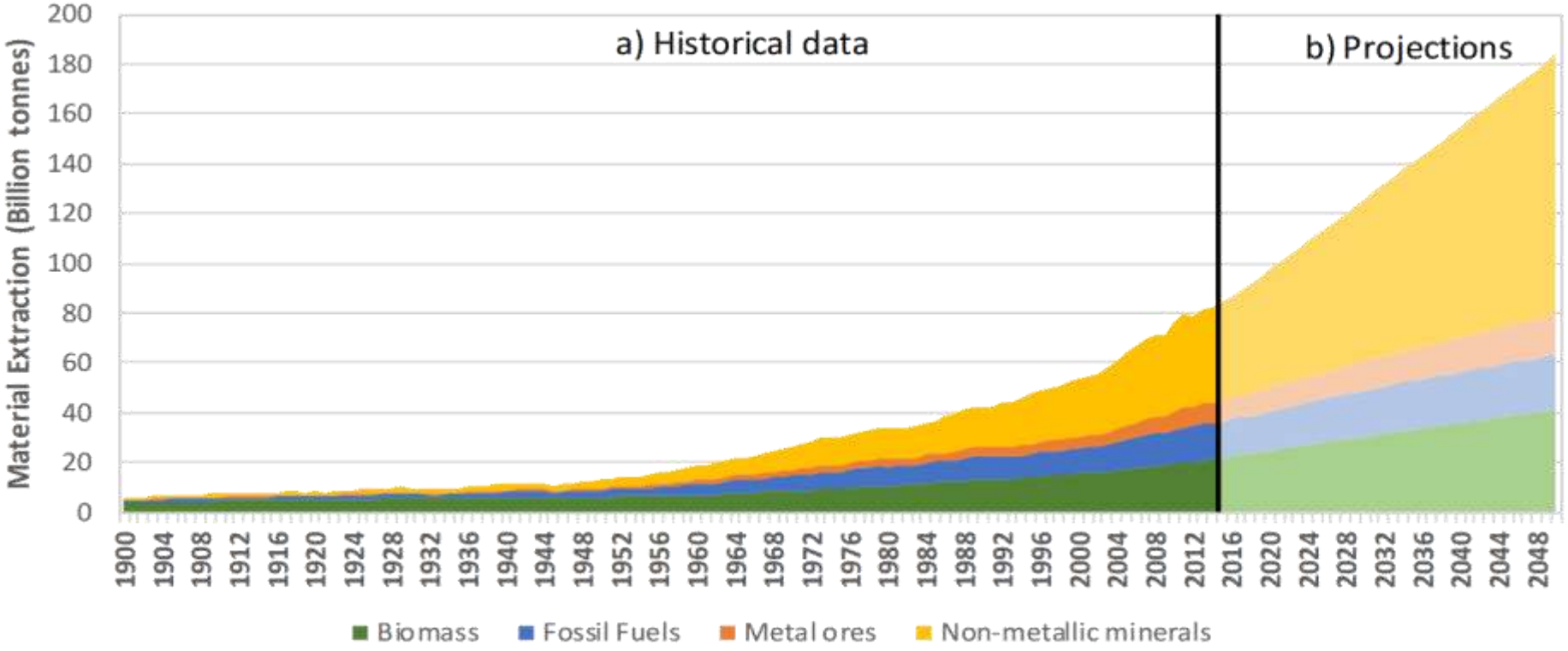
Head of Unit C2 - «Resource Efficiency and Raw Materials»
European Commission. Directorate-General for Internal Market, Industry, Entrepreneurship and SME's (DG GROW)

peter.handley@ec.europa.eu

Raw Materials

Resources for SDGs

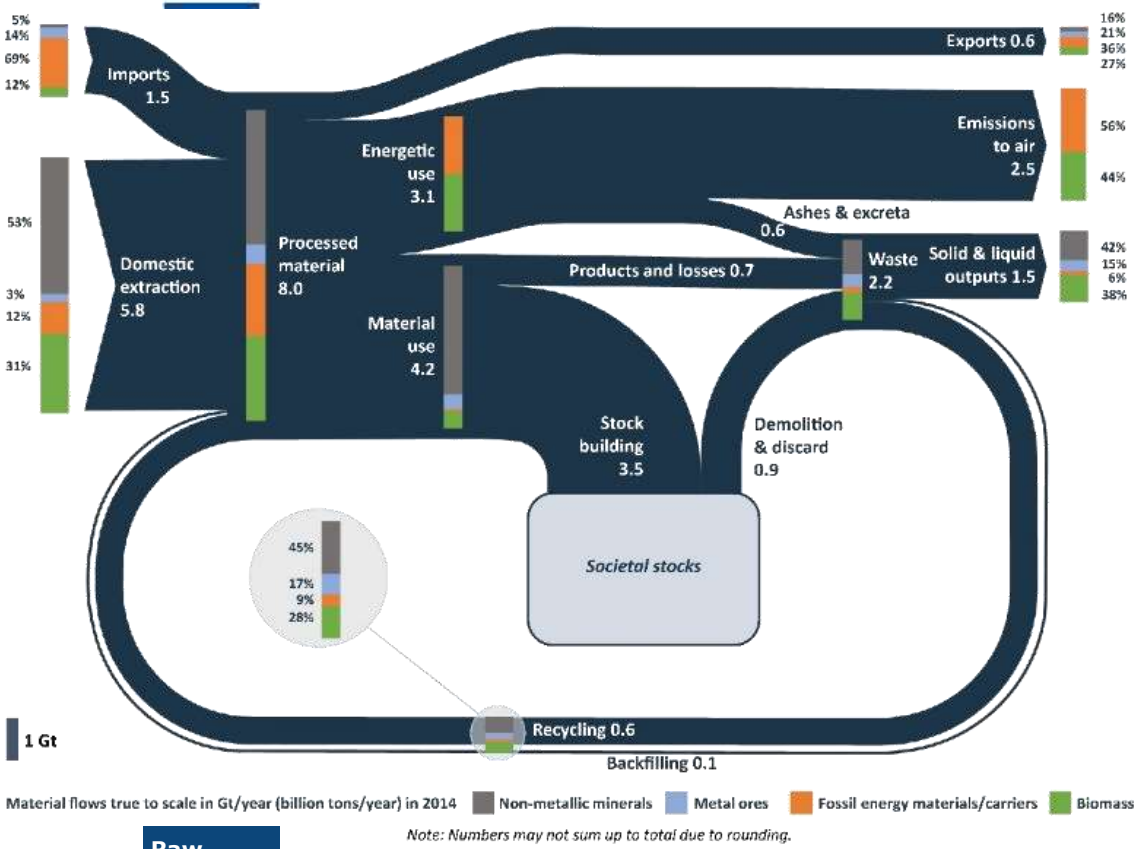
Global material extraction trends



Source: UNEP (2017) and Dodds-Hatfield et al. (2017), in 2018 Raw Materials Scoreboard

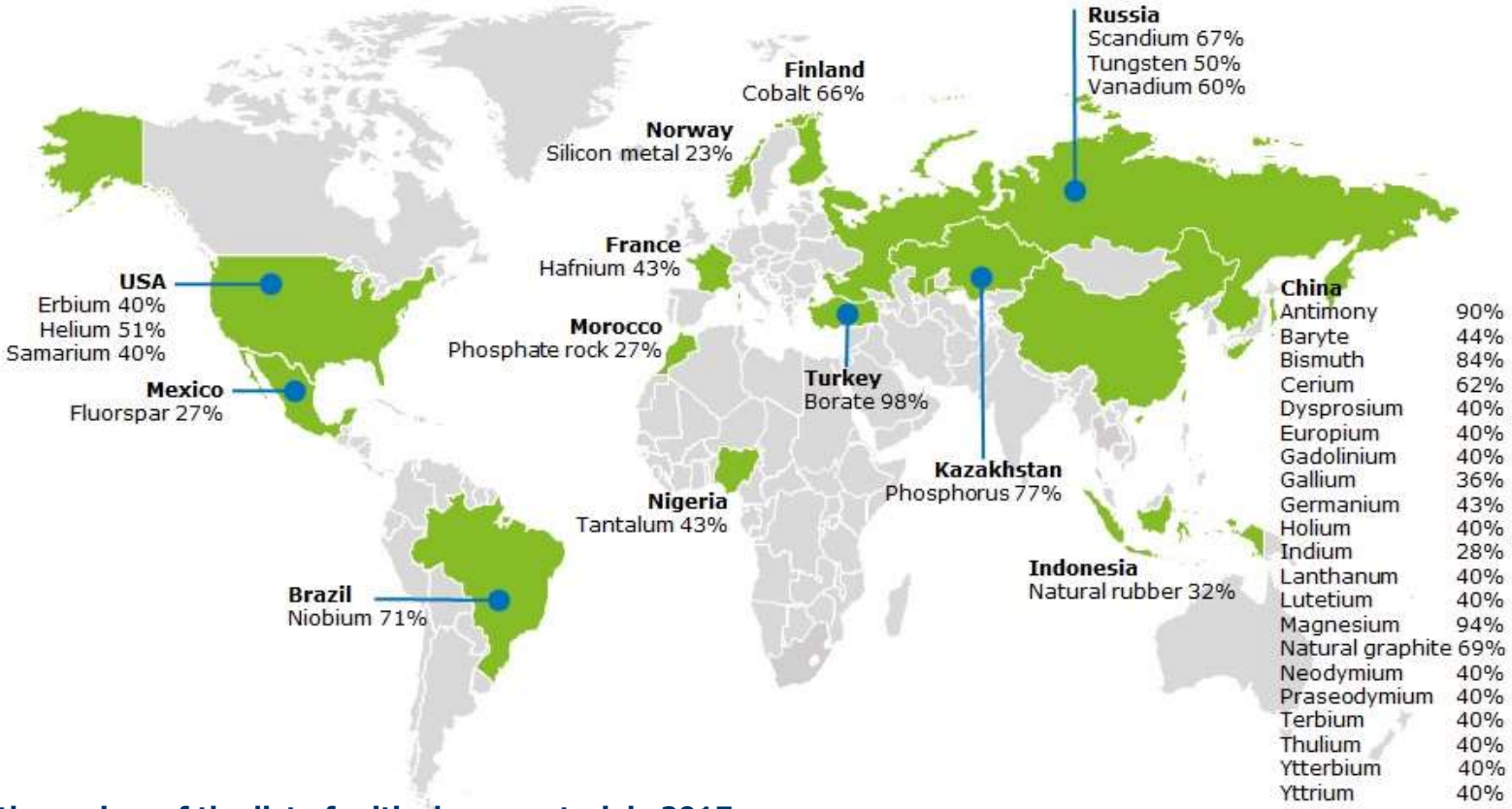
Materials flows in the EU

- high complexity
- high import dependency
- low circularity
- growing waste streams and waste exports
- limited collection and reuse



Source: Mayer et al., 2018, in 2018 Raw Materials Scoreboard

Biggest suppliers of CRM to the EU



EU Vision for A Clean Planet for All

European Commission

Paris Agreement

EMBRACING CLEAN, SAFE AND CONNECTED MOBILITY

Decarbonising the transport sector by using alternative means of transport, connected and automated driving combined with the roll-out of electric vehicles and enhanced use of alternative fuels

PUTTING INDUSTRIAL MODERNISATION AT THE CENTRE OF A FULLY CIRCULAR ECONOMY

Reaping first mover benefits by modernising existing installations and investing in new carbon neutral and circular economy-compatible technologies and systems

FULLY DECARBONISING EUROPE'S ENERGY SUPPLY

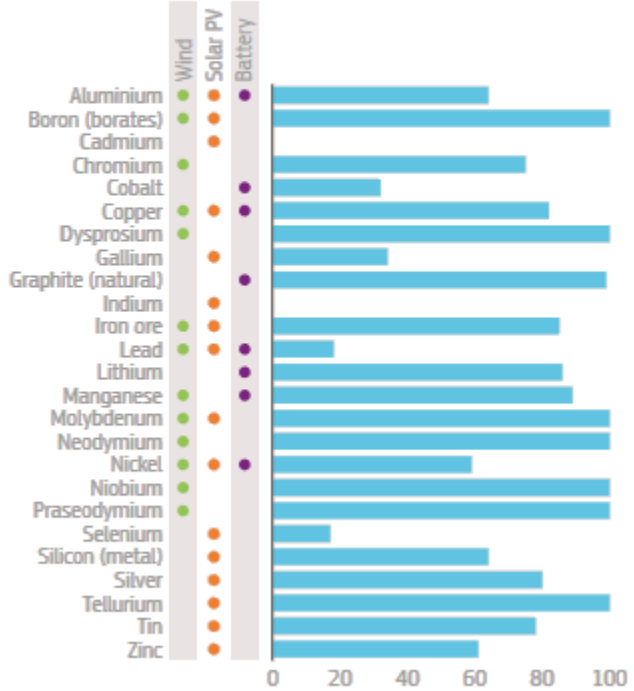
Large scale electrification of the energy system coupled with deployment of renewables will decarbonise our energy supply and significantly reduce our dependency on third country suppliers

Raw Materials

Materials needed for renewable energy

European Commission

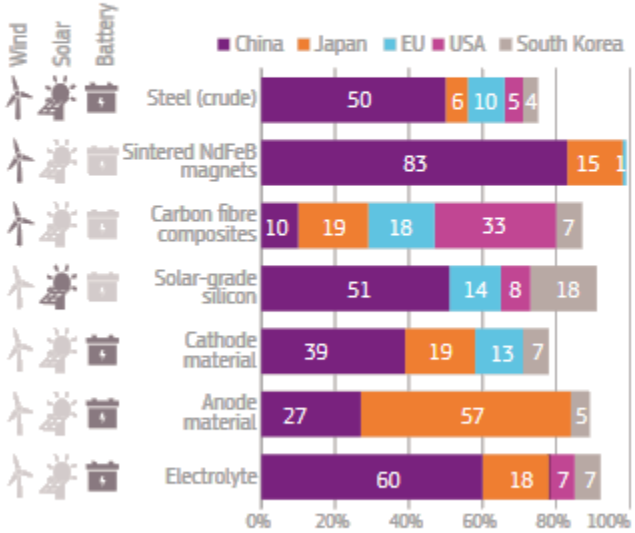
Import dependency for raw materials, as well as for selected materials used in wind, PV and battery technologies



Source: Joint Research Centre

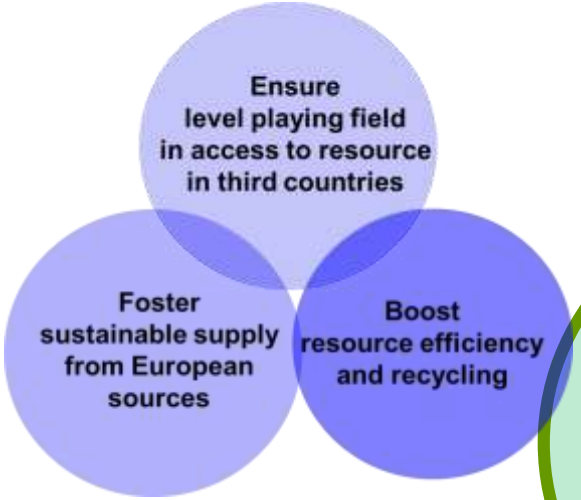
EU competitiveness at stake as China leads on supply of most materials and components needed for renewables

Share of global production of different processed and finished materials used in wind turbines, solar photovoltaic panels and batteries, in % of total



Source: Joint Research Centre

EU Raw Materials Strategy and Commission priorities



Raw Materials Initiative
= *EU policy*

EIP on Raw Materials
Strategic Implementation Plan

- ✓ **CRM list**
- ✓ **H2020 funding**

Commission priorities 2015-19

1. Jobs, Growth and Investment
- circular economy and green growth

3. Energy Union
- transition to a climate neutral economy (renewables, electricity market, transport…)

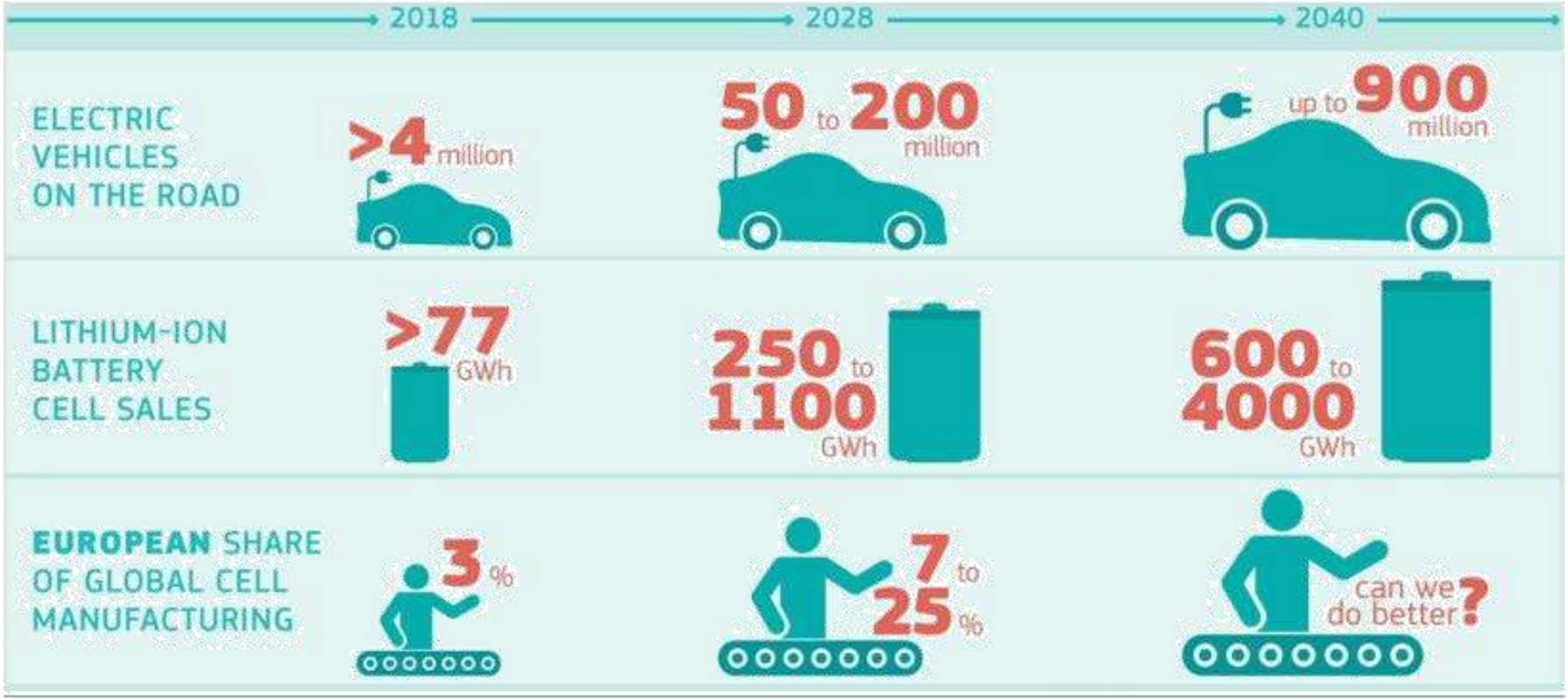
4. Internal Market
- unlock the full potential of the single market
- a renewed EU Industrial Policy Strategy

6. Trade policy to harness globalisation
- economic diplomacy
- raw materials chapters in FTAs

9. A stronger global actor
- international cooperation and development

Raw materials knowledge and management

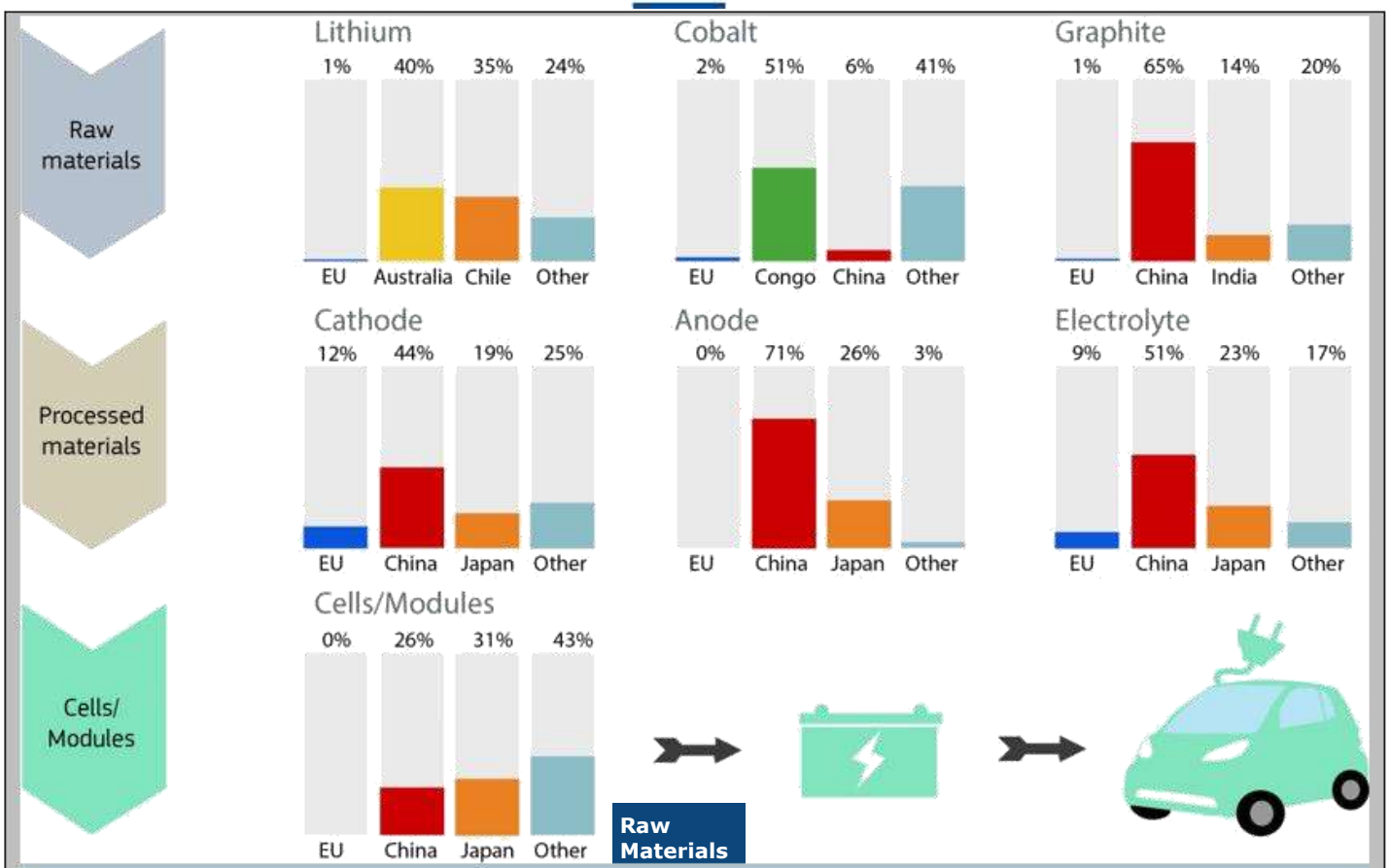
Global supply and demand of Li-ion batteries, EU share



Raw Materials

Source: JRC

Supply dependency on battery raw materials



Source: JRC

European Battery Alliance

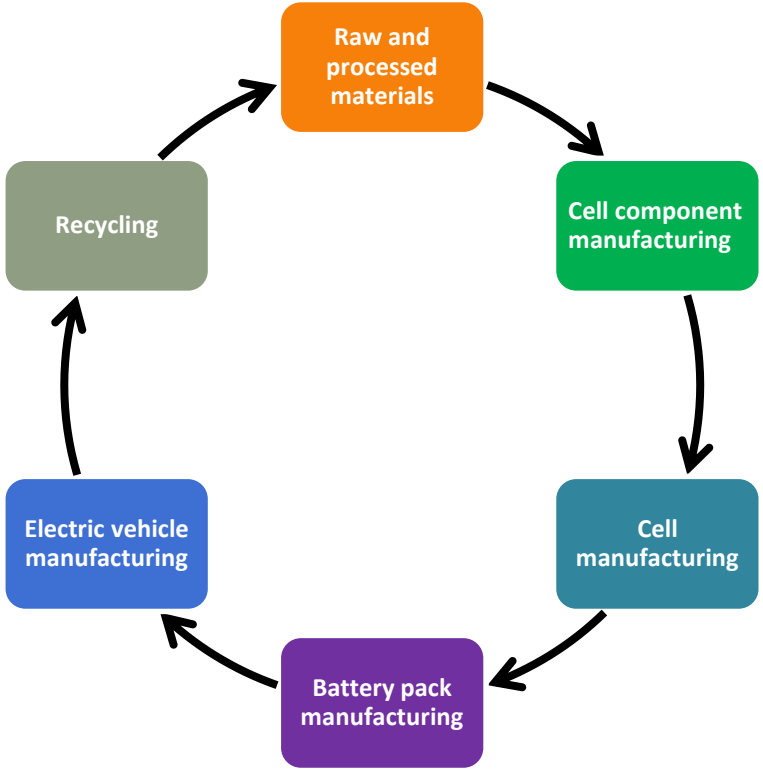
Batteries – example of the strategic EU industrial value chains

The objective is:

- To create a competitive manufacturing value chain in Europe with sustainable battery cells at its core .
- To capture a battery market of up to €250 billion a year from 2025 onwards. Covering the EU demand alone requires at least 10 to 20 'gigafactories' (large-scale battery cell production facilities).

➢ Raw and processed materials:

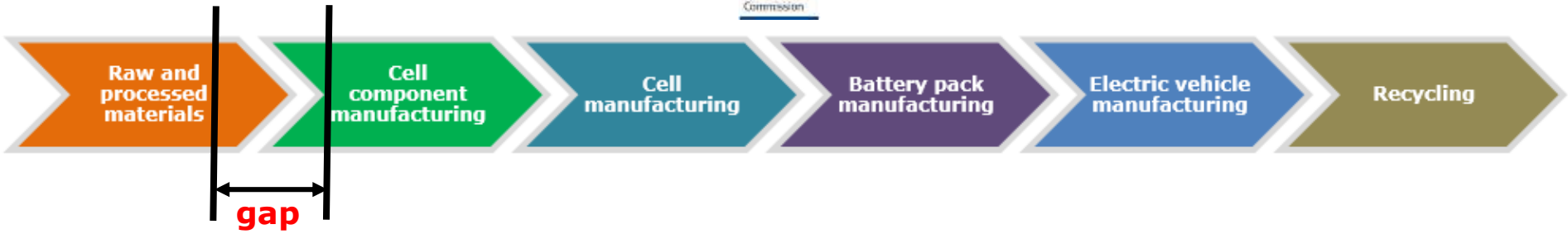
- cobalt, lithium, natural graphite, nickel; but also manganese, silicon metal,



Raw Materials

Strategic Action Plan for Batteries

Mobility package
Action Plan on Batteries



Actions relevant to raw materials:

- **Map** the current and future **primary RM for batteries**.
- **Assess** the **potential within the EU for sourcing battery RM materials** Cobalt, Lithium, Natural Graphite, and Nickel
- **Dialogue with Member States** to determine the **fitness** of their **raw materials policies, mining codes** and **incentives for exploration** to address the strategic needs of materials for batteries.
- **promote ethical sourcing** of raw materials for the batteries industry

➢ **Member States survey 2018-2019 via RMSG**

➢ **Report on Implementation of the Strategic Action Plan on Batteries (9 Apr 2019)**

Raw Materials

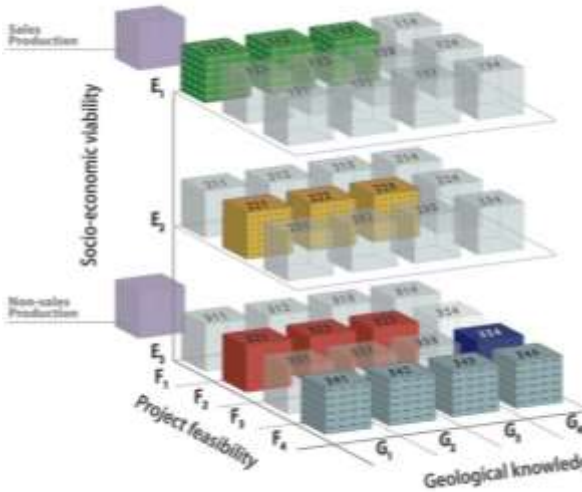
Exploration activities

	Commercial projects (E1;F1; G1,2,3)[1]	Potentially commercial projects (E2;F2;G1,2,3)[1]	Non-Commercial projects (E3;F2;G1,2,3)[1]	Exploration projects (E3;F3;G4)[1]
Cobalt	--	3 SE(3)	10 ES(1), FI(5), SE(4)	25 AT(2), CY(3), CZ(1), ES(7), FI(1), IE(1), NO(1), PL(1), SE(5), SK(2), UK(1)
Lithium	3 FI(1),PT(2)	7 AT (1), CZ(1), DE(1), ES(1), FI(1), PT(2)	3 AT(1), ES(1), UK(1)	16 ~~(40)~~[2] CZ(1), DE(2), ES(2), FI(1), FR(2), GR(1), IE(3), NO(1) SE(3), PT~~(40)~~[2]
Natural graphite	1 SE (1)	2 SE(1), SK (1)	**3** SE(2), **FI(1)**	28 CZ(3), DE(1), FI(10), ES(4), SE(2) NO(8)
Nickel	--	3 SE(3)	6 FI(3),SE(1), UK(2)	21 AT(2), CY(3), DE(1), ES(5), FI (4), LV(1), SK(2), SE(3)

Note 1 – UNFC, Definition of categories (see United Nations Framework Classification (ECE ENERGY SERIES No. 42):
E axis: E1, extraction and sale has been confirmed to be economically viable; E2, expected to become economically viable; E3, not expected to become economically viable or evaluation is at too early a stage.
F axis: F1, feasibility of extraction by a development project or mining operation has been confirmed; F2, feasibility is subject to further evaluation; F3, feasibility cannot be evaluated due to limited technical data.
G axis: G1, quantities associated with a known deposit that can be estimated with a high level of confidence (G1), moderate level of confidence (G2), a low level of confidence (G3)

Note 2 – Nine Mordenite areas have been defined for lithium exploration in the Centre and North of Portugal. Public tenders are going to be launched in 2019.

Project categories, exploration (UNFC-2009)
(Source: Survey Member States- RMSG, 2018-2019)



Raw Materials

Key messages

Pressure on resources will increase

High tech metals will become oil and gas of tomorrow

Knowledge will be crucial for resources management.

There is a need for a comprehensive raw materials management system

Thank you!

European Battery Alliance
https://ec.europa.eu/growth/industry/policy/european-battery-alliance_en

Critical raw materials for the EU:
http://ec.europa.eu/growth/sectors/raw-materials/specific-interest/critical_en

Raw Materials Information System:
http://rmis.jrc.ec.europa.eu/

EU Raw materials, metals, minerals and forest-based industries:
https://ec.europa.eu/growth/sectors/raw-materials_en

EIP on Raw Materials:
https://ec.europa.eu/growth/tools-databases/eip-raw-materials/en

Horizon 2020 - raw materials and calls:
https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html