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# GSEU

GEOLOGICAL SERVICE | FOR EUROPE

## THE CHALLENGES OF CRITICAL RAW MATERIALS IN A CHANGING WORLD– A EUROPEAN PERSPECTIVE

EU Networking and Business Breakfast

Securing Raw Materials for the Green and Digital Transition

PDAC, Toronto, March 7th 2023



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the European Union

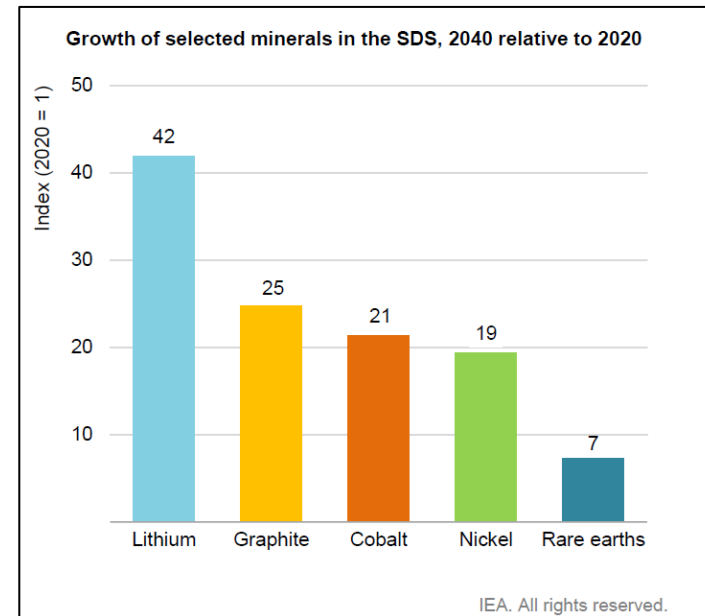
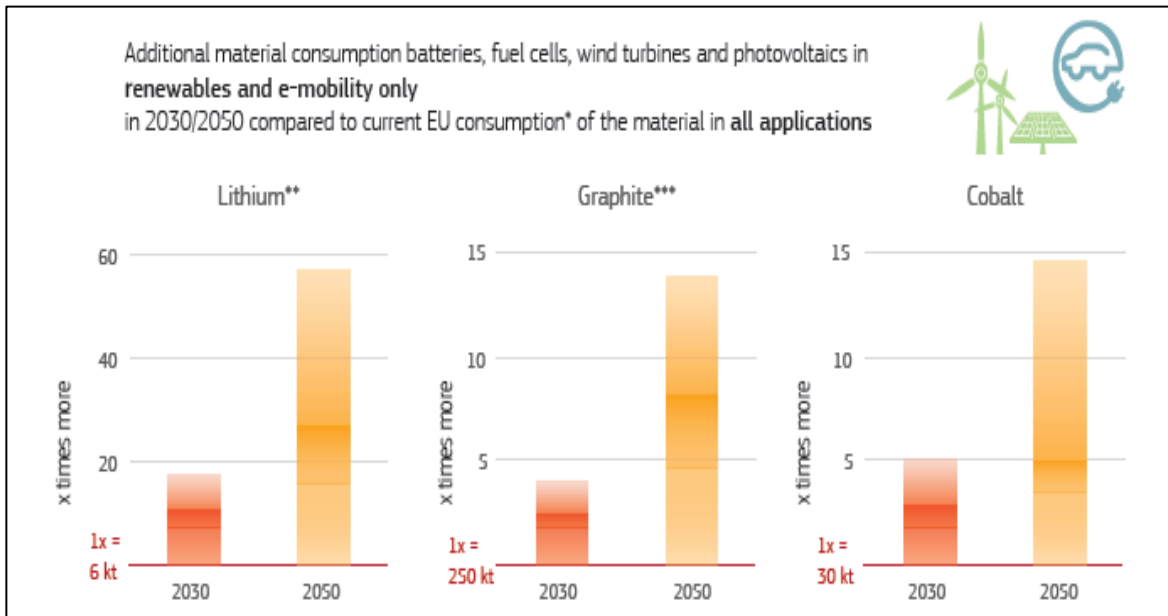
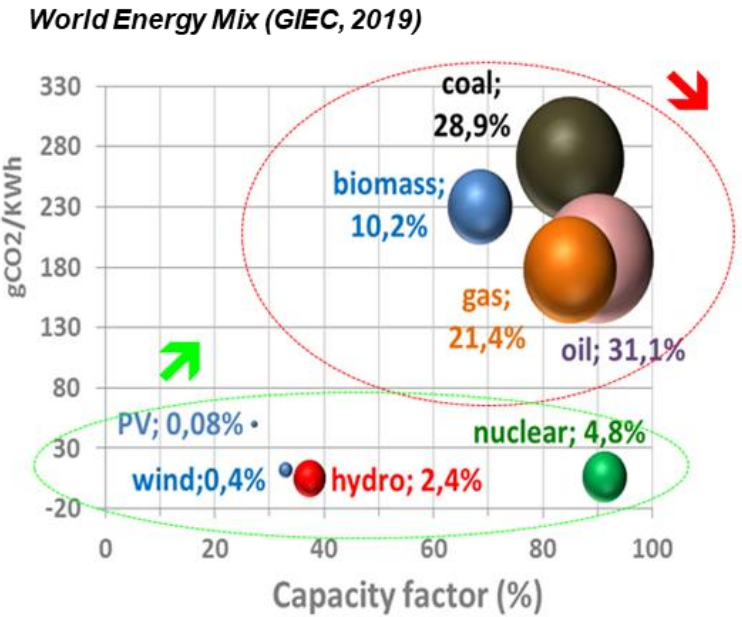




# A CHANGING WORLD

Our world is changing faster than ever following a rapid succession of crises (climate, Covid19, Russian invasion of Ukraine, energy, etc.).

To limit the magnitude of climate change, we need an energy revolution and to reduce GHGs. Renewable energy and electric mobility require a lot of mineral and metallic raw materials (whatever the scenario is or will be).



European Commission, Critical Materials for Strategic Technologies and Sectors in the EU - a Foresight Study (2020)

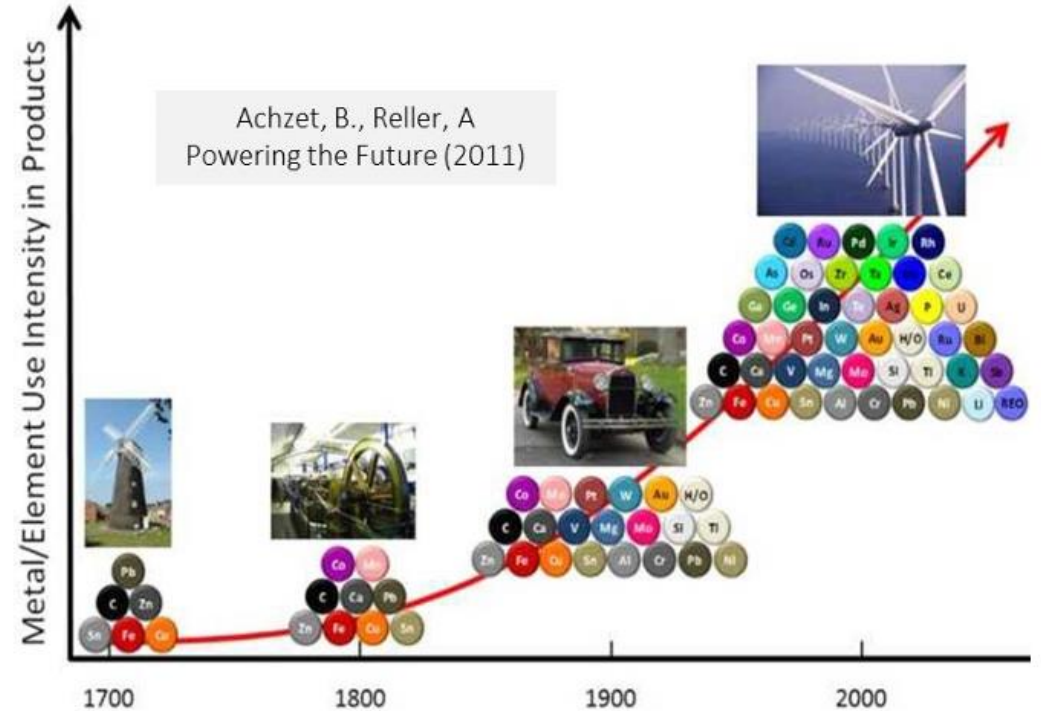
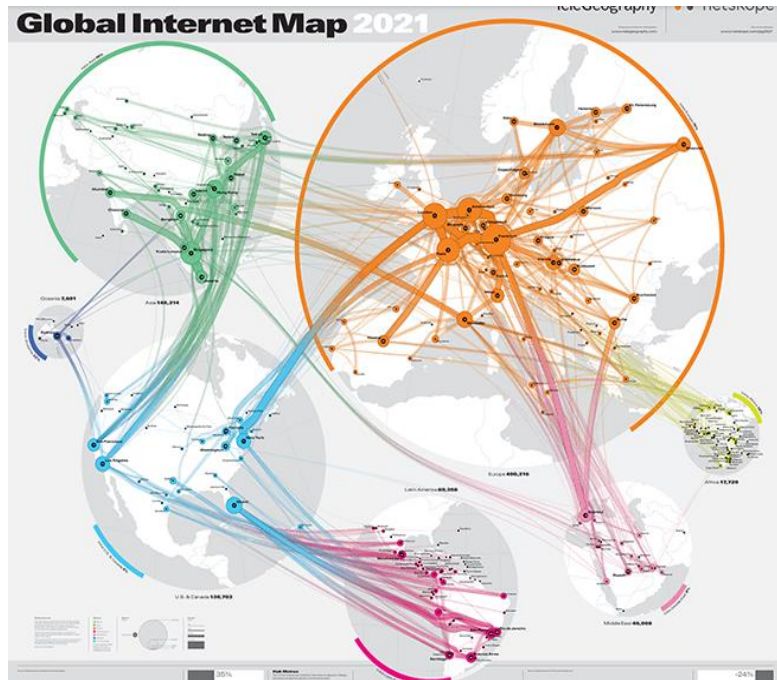


# A CHANGING WORLD

The exponential development of information and digital technologies relies on a physical infrastructure:

- High energy consumption (approx. 5% of global energy) → approx. 21% in 2030, according to scenarios (45% for manufacturing, 55% for usages)
- High consumption of materials (devices, data centres, data networks, energy demand, etc.)

The demand for metals and materials is rapidly increasing (in volumes and diversity) through our lifestyles and world population.



Achzet, B., Reller, A  
Powering the Future (2011)

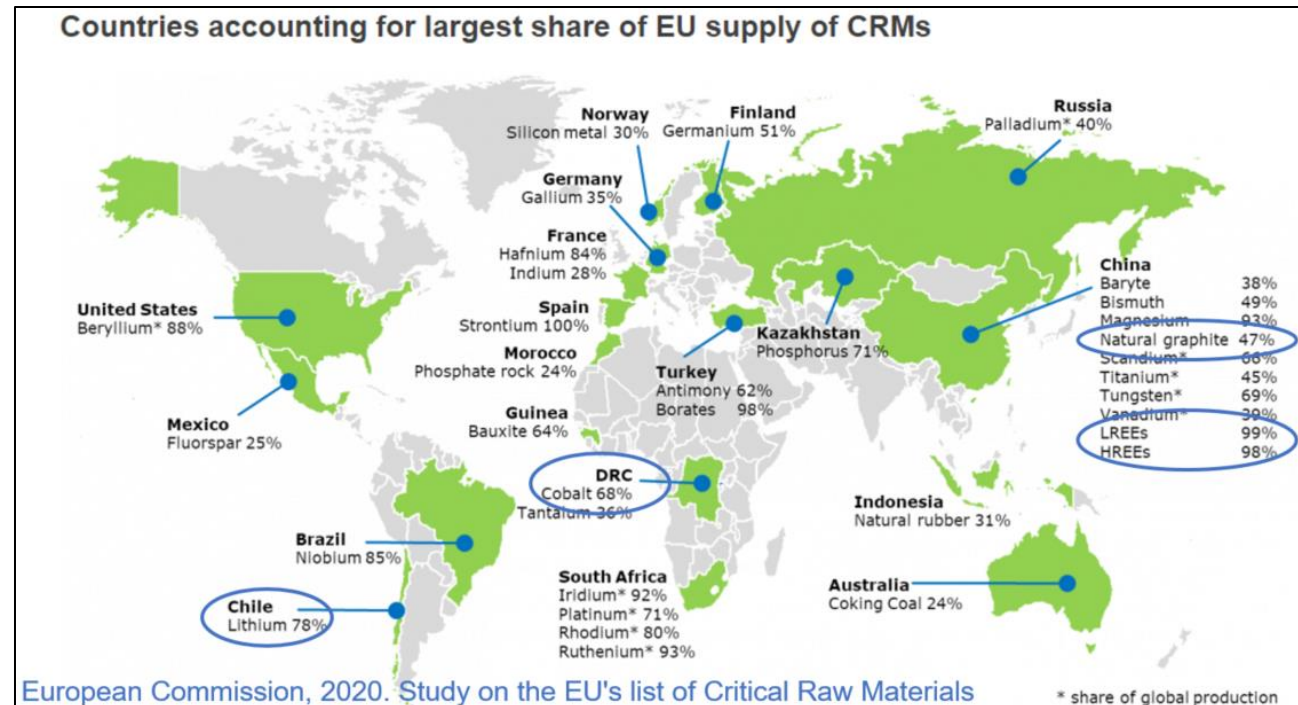


# THE CHALLENGE FOR EUROPE

European industry strongly depends on imports from third countries: 68% of Cobalt comes from DRC, 78% of Lithium from Chile, 98% of Rare Earth Elements (REEs) from China.

In this context, in 2020 the European Commission published a list of 30 CRMs to remark:

- Their high-supply risk due to high import dependency and level of concentration of their production
- Their importance for key sectors in the European economy
- The lack of viable substitutes
- The limitations of recycling





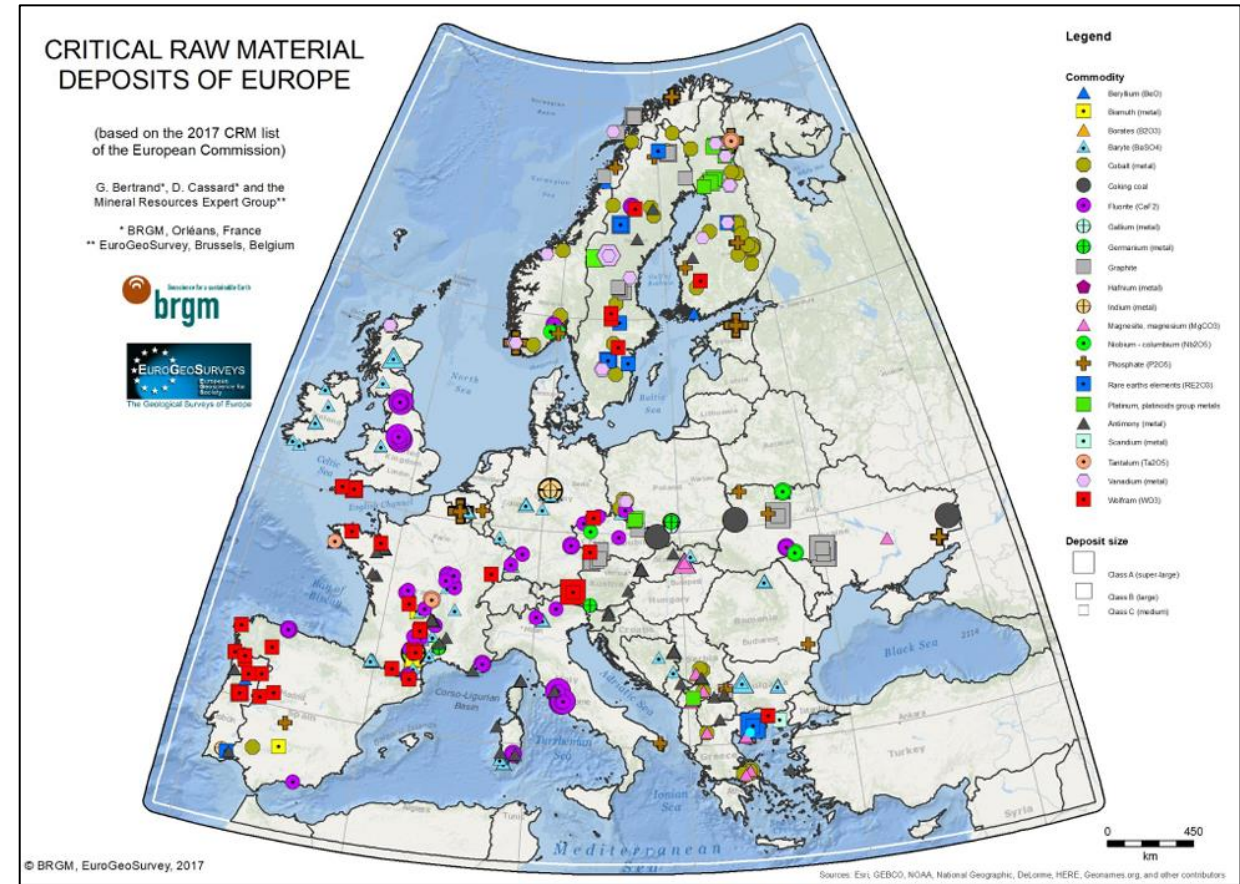
# THE CHALLENGE FOR EUROPE

## Europe critically needs to secure its supply of CRM:

- Increased recycling and secondary resources e.g. mine and processing wastes
- Bilateral cooperation with producing countries
- Relocation of extraction and production in European countries

## Europe still has significant potential; relocating production of CRMs requires:

- Large investments and huge amounts of data
- A pan-European approach (geology does not care for political boundaries!)
- Strong involvement of European geological surveys, under the coordination of EuroGeoSurveys, to produce and serve factual scientific information and knowledge on the European CRM potential





# GEOLOGICAL SERVICE FOR EUROPE

The GSEU EU-funded project aims at strengthening the cooperation between national GSOs, under the coordination of EGS.

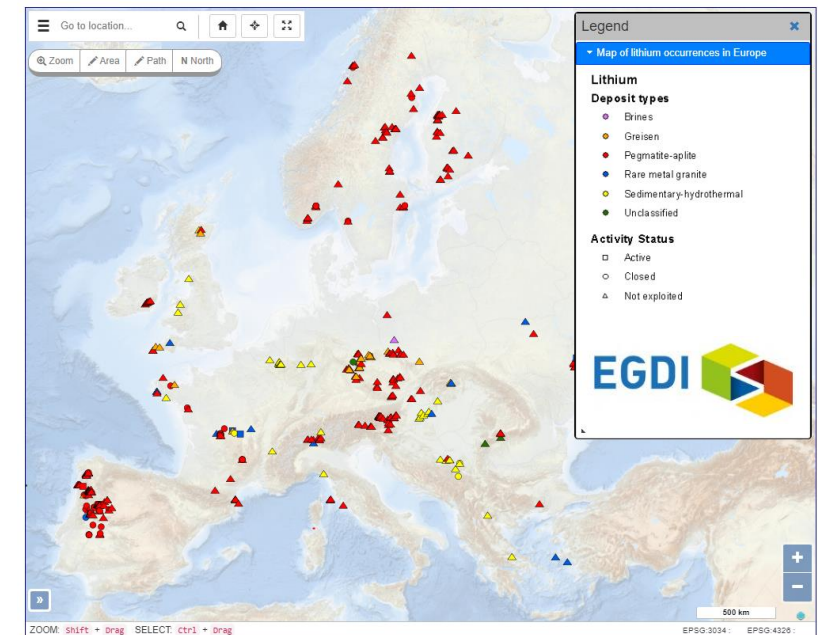
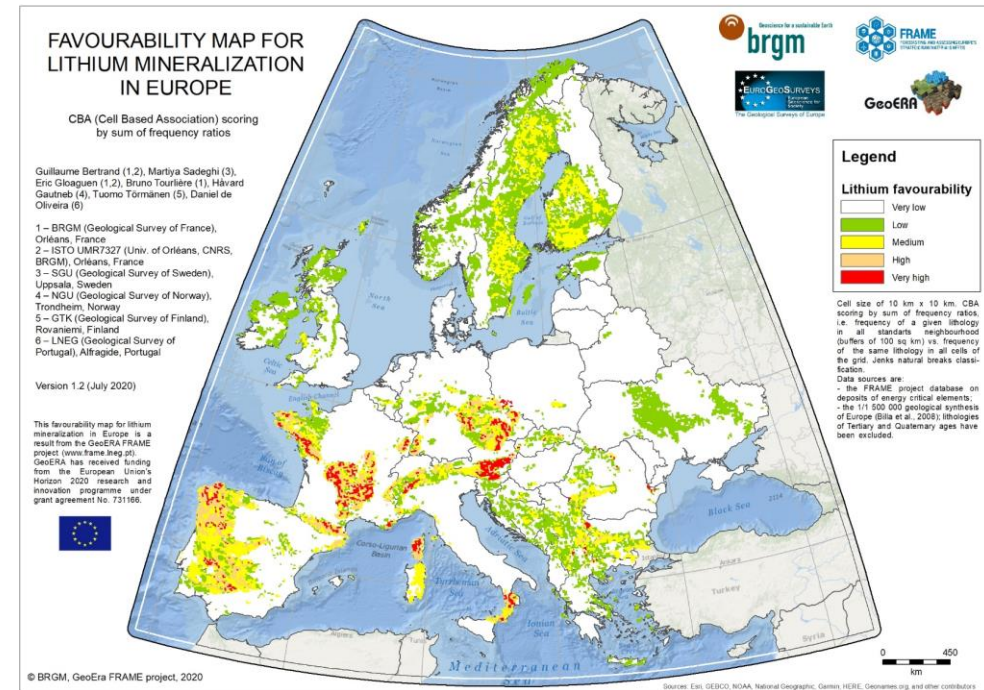
One Work Package is dedicated to mineral resources, the objectives of which are :

- Re-evaluation of European potential in primary onshore and offshore CRMs and mining wastes
- Development of the use of the UNFC classification system in mineral resources databases
- Creation of an International Center of Excellence on Sustainable Resources Management

It will also produce added value knowledge (databases, maps of metallogenic potential, mineral prospectivity maps, etc.).

Data will be accessed via the EGDI (European Geological Data Infrastructure) open-access web portal :

<https://www.europe-geology.eu/>





## CONCLUSIONS

- European industry largely depends on foreign countries for its supply of most CRMs
- Despite being a mature mining continent, Europe still has a significant potential for many CRMs
- Relocating extraction and production of CRMs in Europe requires significant investment, data and knowledge
- Availability of data is key to attract exploration and mining companies
- EuroGeoSurveys and the GSEU project will coordinate European GSOs to produce harmonised data and added-value products for mineral sector stakeholders



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