



**THE EUROPEAN UNION AND CRITICAL  
RAW MATERIALS: JUGGLING  
GEOPOLITICAL AND ECONOMIC REALITIES**

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# THE EUROPEAN UNION AND CRITICAL RAW MATERIALS: JUGGLING GEOPOLITICAL AND ECONOMIC REALITIES

Over the past decade, critical raw materials (CRMs) have emerged as a crucial focus for governments and industries worldwide. These materials, which include rare earth elements, lithium, cobalt, and others, have gained strategic importance due to their essential role in modern technologies, particularly those related to clean energy, digitalization, and advanced manufacturing (CRM Alliance 2024). In particular, the essential role of CRMs in clean energy technologies and the global push for a green energy transition have led to a surge in demand for CRMs (World Economic Forum 24-05-2024).

This surge has created substantial opportunities for green industrialization. According to the International Energy Agency, the market for these raw materials has more than doubled over the past five years, with expectations of "unprecedented growth" in the coming years (International Energy Agency 2023); current climate commitments could lead to a quadrupling of global demand for materials such as rare earths, cobalt, and nickel by 2040 (Findeisen & Wernert 30-06-2023).

CRMs are of paramount importance for the European Union's economy, industrial base, and strategic autonomy. These materials have a wide range of applications, contributing to the production of various goods across all supply-chain stages in Europe. The use of CRMs is also essential for the EU's green transition goals, as these materials are necessary for technologies crucial to the EU's green and digital transformations. This is particularly true for many technologies that support net-zero carbon emissions goals like wind turbines and electric

vehicles. For example, the production of a typical electric car has been estimated to require six times the mineral inputs of a conventional car; an onshore wind plant requires nine times more mineral resources than a gas-fired plant (International Energy Agency 2022).

This surge in demand has led to increased concerns about supply chain vulnerabilities in western countries, as many CRMs are concentrated in a small number of countries or are

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produced as by-products of other mining operations (U.S. Department of Energy 2023). The European Union, recognizing the economic and strategic significance of CRMs, responded by publishing a list of critical raw materials in 2011, updating it every three years to reflect changing economic importance and supply risks (Gislev & Grohol 2018), while the European Commission produced a foresight study of CRMs in 2020 for strategic technologies and sectors in the EU (Bobba et al. 2020). In 2023, the European Critical Raw Materials Act (CRMA) was adopted, which aims to increase and diversify the EU's critical raw materials supply, strengthen circularity and recycling efforts, and support research and innovation in resource efficiency and the development of substitutes (European Council 2024).

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### **The EU and the European Critical Raw Materials Act (CRMA)**

The European Critical Raw Materials Act (CRMA) is a regulation that aims to ensure the EU has a secure and sustainable supply of CRMs. It was adopted by the European Commission in March 2023 and seeks to serve as comprehensive legislation to strengthen the EU's value chain for CRMs, diversify the EU's imports of CRMs, improve the EU's ability to monitor and mitigate supply disruptions, and improve the circularity and sustainability of CRMs (European Commission 2023). The CRMA sets targets for the EU's extraction, processing, and recycling capacity by 2030.

The targets are set as:

- At least 10% of the EU's annual consumption of strategic raw materials should be extracted domestically.
- At least 40% of the EU's annual consumption of strategic raw materials should be processed domestically.
- At least 15% of the EU's annual consumption of strategic raw materials should be recycled domestically.

The EU also seeks to work with third countries to develop and diversify investment, production, and trade. Under the Mineral Security Partnership (MSP) program, the EU currently has 15 partners who are automatically members of the MSP Forum, which include Australia, Canada, Estonia, Finland, France, Germany, India, Italy, Japan, Norway, the Republic of Korea, Sweden, the United Kingdom, the US and the EU, and 15 new MSP Forum Members, which include Argentina, Ecuador, the Democratic Republic of the Congo, the Dominican Republic, Greenland, Kazakhstan, Mexico, Namibia,

Peru, the Philippines, Serbia, Türkiye, Ukraine, Uzbekistan and Zambia (European Commission 27-09-2024). Launched in June 2022, the MSP's primary goal is to ensure critical minerals are produced, processed, and recycled in a manner that supports countries' economic development while maintaining high environmental, social, and governance (ESG) standards (DownToEarth, 30-06-2023).

### **EU Imports of CRMs and the Internal Search for CRMs in the EU**

The European Union heavily relies on imports of CRMs from a limited number of countries, creating significant geopolitical and economic vulnerabilities; this dependency poses risks to the EU's economic strength, strategic autonomy, and green transition efforts. China, Russia, and Malaysia supply 94% of rare earth elements, while Brazil supplies 87% of ferro-niobium imports (Eurostat 2024). China also currently supplies 100% of heavy rare earth elements, while Turkey supplies 98% of boron, and South Africa supplies 71% of platinum (European Council 2024). Supplier countries outside the EU have also begun to respond to the CRMA. In March 2024, the China Chamber of Commerce communicated to the EU that the approved CRMA was seen as a move to affect normal China-EU economic activities (Global Times 19-03-2024). The intensification of trade relations with resource-rich countries in the Global South has the potential to exacerbate existing unequal trade and production structures, including through exploitative working conditions, and can lead to negative environmental impacts (Hickel et al. 2024).

Under the CRMA, EU countries are required to develop national programs for exploring geological resources,

including mineral mapping and geoscientific surveys (International Energy Agency 2024). One example of this is the Austrian Raw Materials Initiative, which outlines a strategic initiative from 2024-2026 to research and develop the ability to secure critical raw minerals (Österreichische Forschungsförderungsgesellschaft 2024). Securing CRM supply is vital for maintaining the EU's industrial competitiveness in strategic sectors, but the concentration of CRM sources exposes the EU to potential supply disruptions and external economic shocks (Findeisen & Wernert 30-06-2023). Despite these efforts, the EU has acknowledged that it may never be entirely self-sufficient and will continue to rely on CRM imports to some extent (Sørensen & Yearsley 01-09-2024). The success of the CRMA and related strategies will be crucial for the EU's future economic resilience and geopolitical position in the global race for critical minerals. This will be essential to the stability of the EU's green transition as well, underscoring the increasing importance of critical minerals for future political and economic decision-making.

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