

Policy Position

Mining for Tomorrow

The strategic importance of critical raw materials for Europe's industry

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[#CriticalRawMaterials](#)

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Arthur Leichthammer, Geoeconomics Policy Fellow at the Jacques Delors Centre, argues that the EU needs a strategic rethink to safeguard its critical raw materials supplies as global competition intensifies.

European Commission President Ursula von der Leyen assumed office in 2019 with the [European Green Deal](#) as her flagship policy, setting out the path for the EU's clean energy transition. Within it, she stressed the strategic importance of achieving resilient and diversified supply chains for the sustainable raw materials that underpin any industrial process. As the name suggests, critical raw materials (CRMs) – those resources judged to be of high economic importance and exposed to high supply chain risks – are key. CRMs matter greatly for strategic sectors of clean technologies, for use in digital, space, and defence goods and, as such, fundamental to delivering the Green Deal's ambitious net-zero targets. They are used in electronics, motors, generators, and batteries. For instance, rare earth elements are essential for manufacturing wind turbines, solar panels, and electronic devices. At the same time, lithium and cobalt are crucial for battery production, powering electric vehicles and energy storage systems.

CRM and the green transition

As the green transition progresses, demand for CRMs will dramatically increase. For instance, EU lithium demand is expected to increase twelve-fold by 2030. As it stands, the EU's current CRM supply will fail to cover this surge. The EU is not alone in its decarbonisation efforts, as economies worldwide have committed to net-zero targets. The [International Energy Agency \(IEA\) estimates](#) that the global energy sector's need for critical minerals could quadruple by 2040. To satisfy this increased demand, the IEA estimates that by 2030, 388 new mining sites will have to be opened.

As demand is projected to outgrow any increase in supply, global competition is becoming increasingly fierce, with reliable CRM supply chains emerging as cornerstones of the new renewable industry ecosystem.

The European Union does not produce or refine anywhere near the volume of CRMs it uses for its industrial production. As such, the EU heavily relies on imports. More problematically, it relies on a handful of countries for key CRMs, both in production and refinement. This exposes it to supply disruptions and price volatility, amplifying vulnerabilities in critical sectors. First and foremost, the dependency on China is a key concern. Not only is China a core producer for several CRMs but, perhaps more importantly, it has established itself as the primary centre for the refinement of most key minerals, processing 40% of copper, 60% of lithium, 70% of cobalt, and close to 100% of the graphite used worldwide. The EU, for instance, imports close to 100% of its rare earths from China.

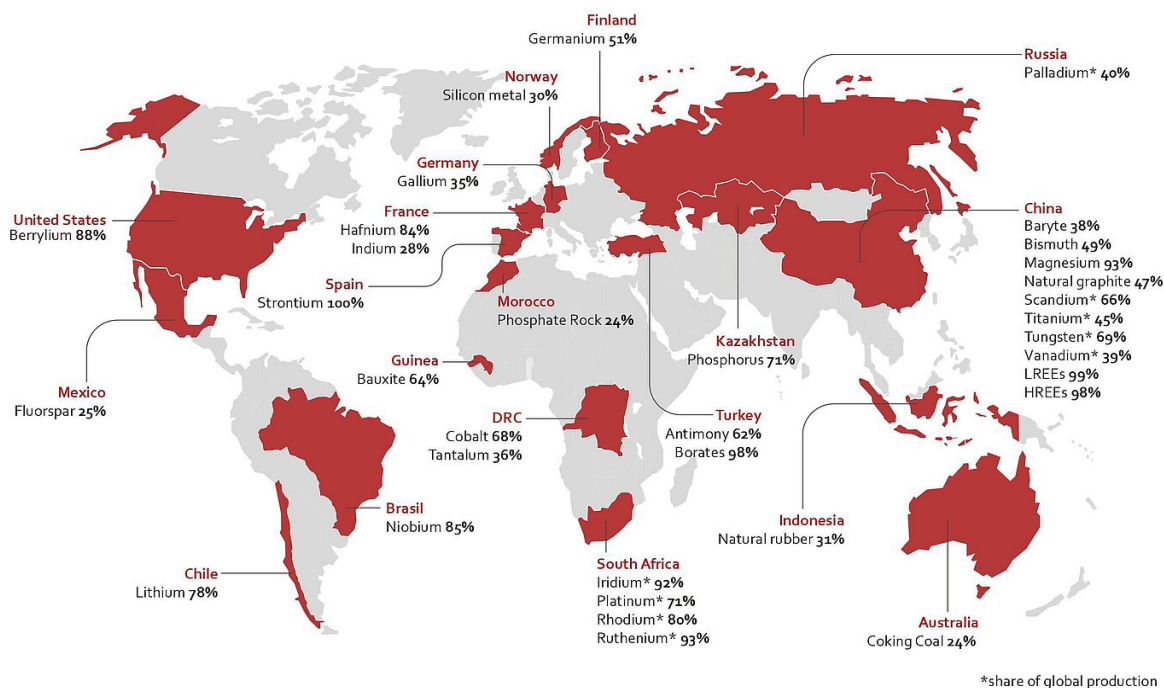


Figure 1: The concentration of the EU's critical raw materials imports (Figure adapted from: [European Commission \(2020\)](#). Action Plan on Critical Raw Materials)

Today's great power competition between the US and China and the ensuing trade war is likely to accelerate the politicisation of issues surrounding critical raw materials. As the West attempts to decrease China's strategic stranglehold on CRM value chains, Beijing is becoming increasingly assertive in both defending and utilising its strategic position within these. In 2020, China became the number one country when it comes to restrictions on mineral exports. In 2023 alone, China introduced rare-earth export restrictions for several types of graphite and doubled down with a new trade ban on rare-earth production equipment. Both restrictions were imposed „on grounds of national economic security interests.“ This follows the earlier export permit requirement for gallium and germanium – required to make chips – last August, in a retaliatory move following Dutch trade restrictions on advanced semiconductor equipment.

The EU's first stab at reducing its dependencies

The EU has long tried to secure reliable CRM supplies, adopting a 'raw materials initiative' as far back as 2008. However, geopolitical developments, supply chain disruptions during

the Covid pandemic, and Russia's invasion of Ukraine have propelled the issue of energy and supply chain resilience high up the agenda. Aiming to diversify and foster new supply chains and reduce critical chokeholds of CRMs, the EU drafted its [Critical Raw Materials Act \(CRMA\)](#), completing its legislative passage in March 2024. This legislative framework aims to enhance the EU's CRM supply via increased domestic capacities and international agreements, enhance supply chain monitoring, and improve the sustainability of CRM sourcing.

The CRMA sets out three key milestones for EU domestic capacities by 2030:

1. 10% of annual consumption derived from locally extracted materials
2. 40% processed in the EU
3. 25% derived from recycled materials.

Key to enhancing the EU's domestic production, processing, and recycling capacities is a Strategic Projects framework that grants accelerated permitting procedures and is supposed to make it easier to get financial support. Under the framework, firms apply for Strategic Project designation from a Critical Raw Material Board, which is hosted and funded by the Commission. Once granted, projects receive European public interest status and streamlined planning and development processes. Authorities must decide on resource extraction projects within 24 months and processing or recycling projects within 12 months, with limited contingency time set aside for complex applications.

It further foresees that financial risks are shared between project promoters, member states, and public financial institutions, involving partners like the European Investment Bank Group to provide recommendations on project preparation and financial assistance. Furthermore, the Act empowers the EU to set environmental standards and screening criteria for raw materials mined, refined, and recycled within the European Union.

The CRMA also posits that a maximum of 65% of a strategic raw material at any relevant stage of processing should originate from a single third country. To enhance such reshoring efforts and reduce overly concentrated dependencies on single states, DG GROW is setting up a panel which, in coordination with the member states, will attempt to build on current raw materials partnerships and facilitate infrastructure projects. Having already exempted the vast majority of CRMs from tariffs via its expansive network of free trade agreements and WTO provisions, strategic partnerships are seen as the best route to securing additional CRM supplies.

Big ambitions – wrong tools

The new legislation ups the ante for the EU to at last address its dependencies. However, it is likely to fall short of its ambitions for two reasons. First, the predominant focus on accelerating permitting processes is unlikely to significantly increase the speed of mining investments. The exploration and construction phases of mining projects take several years, with the average new mine taking around 15 years from exploration to completion. So, even if the Act succeeds in chipping off a couple of months in the process by cutting bureaucratic red tape, it will take an inordinate amount of time for European mining projects to reduce dependencies in a meaningful way.

Second, the Act lacks the financial power of comparable programmes, such as the US Inflation Reduction Act, which allocated over \$8.5bn for CRM projects, or the substantial financial assistance for Chinese state-owned enterprises. CRM projects are characterised by their need for hefty investments over extended periods and large downside risks regarding

planning permits and social and environmental risks. On the other hand, CRMs are subject to high price volatility, as seen in the collapse in lithium prices over the last ten months, heightening investment uncertainty. While the CRMA foresees provisions for firms to lock in prices at which they can sell their resources, it is unclear how this would look in detail and how it would be financed. Without greater financial reassurances, firms are likely to continue their reluctance to make the required investments. Further, the Act misses out on generating new incentives for crowding in private risk capital, for example, via tax credits.

Absent significant EU funding, it is left to national capitals to generate investments towards the long-term supply of the needed materials. Germany, France, and Italy all pledged national financial resources via dedicated funds, with Germany and Italy each committing €1bn and France €2bn. Last year, they also created a working group to coordinate better future possibilities to source critical raw materials collectively. This could well foster projects akin to the [Important Projects of Common European Interest \(IPCEIs\)](#), which allow multiple member states to channel state aid into technology projects of common European interest. A national approach, however, risks underinvestment for member states with limited fiscal headspace and as such limit overall European levels of CRM production, vital for bolstering EU economic resilience.

The next Commission needs a strategic rethink on critical raw materials

To make the CRMA's ambitious political goals reality, the EU must commit far more funds. Making European Investment Bank financing eligible for all steps of the CRM value chain in July 2023 was an important first step. The EU taxonomy, as of now, only includes the recycling of critical raw materials. Adding mining and refining under the condition of high environmental standards could help generate private investment. However, without additional public financial support in the form of equity and investment guarantee support, it is unlikely to channel greater financial resources to CRM projects.

More importantly, even if large sums of money can be found to support domestic extraction, this will realistically make only a small contribution to enhanced resilience. A reliable import strategy from a diversified pool of international partners will remain vital in satisfying European demand. The next Commission should then focus on four things.

First, strategic priorities should be assigned to individual CRMs. A detailed analysis of what materials should be domestically sourced, for which CRMs international partnerships can be developed, and for which ones the EU can build a diversified supply network is required. Indiscriminately pursuing EU involvement in all parts of the value chain for all CRMs is ruled out by capacity restrictions, long lead times, and lack of funding.

Second, in the new legislative cycle, EU instruments should come with enough financial clout to accelerate research and development in processing and recycling facilities with a focus on sustainable practices. To that end, the EU should develop available funding instruments such as Horizon Europe that facilitates early-stage financing for encouraging sustainable mining and CRM substitution. Extra funding would support fresh low-carbon technological efforts beyond those initial investment needs and allow such ventures to scale.

Third, pursuing more diversified CRM partnerships and co-operation agreements will be crucial. The EU has been busy signing agreements with Canada, the DRC, and Zambia and committed to pursuing new ones, as we saw in the recent [joint statement](#) with Australia on energy cooperation. Following up on initial ideas of forming an international 'Critical Raw Materials Club', the EU joined the [Minerals Security Partnership \(MSP\)](#), launched by

the US and now including partners such as South Korea and the UK. In April 2024, the MSP members alongside Kazakhstan, Namibia, Ukraine, and Uzbekistan announced the launch of the MSP Forum, pledging greater co-operation regarding CRMs, regarding both project implementation and sustainability regulation.

However, the EU is belatedly playing catch-up. China has been developing its CRM network with significant investments for the past two decades, firmly establishing its companies' presence throughout supply and value chains. This has given Beijing substantial control over upstream activities, including mining and primary smelting and refining processes. The EU can try and make up for lost time by offering more attractive partnership conditions. Mineral-rich countries have increasingly proclaimed their wish to raise their share of the value chain. Since 2022, more than a dozen African countries have imposed export restrictions or bans on CRMs while over the last decade global export restrictions quintupled. The EU should thus win over third states to increase co-operation via expansive co-investment. Here the focus should be on increasing upstream activities and supporting third countries with advanced mineral processing technologies, secured via concerted R&D efforts, and targeting CRMs that the EU will be hard-pressed to develop on its home territory.

Extracting and processing CRMs often entails significant environmental and social damage. There have been widespread reports of mines across the globe in which both human rights and environmental standards have been disregarded. The newly agreed Corporate Sustainability Due Diligence Directive (CSDDD) introduces comprehensive human rights and environmental obligations throughout value chains. By facilitating sustainable technology and practices the EU not only offers third states additional incentives to pursue partnerships but sets the foundation to comply with its own legislation and achieve its global climate agenda.

Fourth, the next Commission should attempt to influence corporate behaviour, something the CRMA omits. Private European firms currently underinvest in supply chain resilience and refuse to set diversification as a priority. The EU should build on mechanisms such as the one introduced in its Net-Zero Industry Act, which incentivised member states to recognise non-price considerations for allocating public procurement tenders. As such, the EU should incorporate resilience criteria more widely, for example by making subsidies reliant on diversification or considering such factors more decisively when deciding on CRM public procurement allocation.

Securing reliable and secure critical raw material supply chains will be a decisive factor in determining Europe's industrial future. As European capitals increasingly acknowledge this, the Critical Raw Materials Act constitutes an important step towards remedying the unfolding supply challenges. However, as it stands, it is insufficient. Following June's European elections, the newly constituted Commission will have to overcome the member states' reluctance to pool greater financial means at EU level - a fundamental step to boosting domestic production and offering attractive and sustainable international partnerships.

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