



Reesource

Unlocking Critical Raw Materials (CRMs) in Europe

From CRMA Targets to Industrial Delivery

Policy Brief



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HIGHLIGHTS

- 1** CRMA¹ 2030 benchmarks are at risk due to implementation bottlenecks, not resource scarcity. With fewer than five years remaining, delayed scale-up, fragmented governance, and investment uncertainty threaten delivery of the 10% extraction, 40% processing, and 25% recycling targets.
- 2** Financing gaps for pilot and first-of-a-kind plants remain the primary barrier to industrial deployment. Stakeholders consistently identify limited access to blended finance, price volatility, and unclear market signals as key obstacles to scaling technologies beyond laboratory stage.
- 3** Regulatory fragmentation continues to slow circular CRM flows. Inconsistent waste classifications, cross-border transport rules, and uneven administrative capacity undermine recycling efficiency and investor confidence.
- 4** Social acceptance delays can outweigh financial and regulatory barriers combined. Stakeholder evidence indicates that projects failing to engage local communities early, particularly in primary extraction, face delays that offset even well-structured financing and permitting arrangements.

¹ CRMA — Critical Raw Materials Act: Regulation (EU) 2024/1252, which establishes 2030 benchmarks and strategic project designation procedures.

² CRM — Critical Raw Material: a material deemed essential to the EU economy and subject to significant supply risk, as defined in the CRMA Annex.

The main risk to CRMA 2030 targets is not resource scarcity, but delayed scale-up, fragmented governance, and investment uncertainty

Context

Why Implementation Now Matters

Critical raw materials (CRMs) underpin Europe's twin green and digital transitions. They are essential inputs for battery technologies, renewable energy generation, electricity grid infrastructure, digital systems, defence applications, and advanced manufacturing. Reliable access to these materials directly determines Europe's ability to meet its climate objectives, sustain industrial competitiveness, and preserve strategic autonomy.

The Critical Raw Materials Act (CRMA)⁴ establishes four measurable 2030 benchmarks for the EU: at least 10% of annual consumption to be extracted domestically; at least 40% the EU; at least 25% to come from recycling; and no more than 65% dependence on any single third country at any processing stage. The CRMA also introduces institutional mechanisms including a CRM Board and national single points of contact. Their effectiveness depends on administrative capacity, clear guidance, and consistent application across Member States.

CRMA 2030 BENCHMARKS

By 2030, the EU aims to increase domestic extraction, processing, and recycling of critical raw materials while reducing strategic dependencies.



10%

of critical raw materials must be extracted within the EU



40%

of critical raw materials should be processed within the EU



25%

of annual EU consumption to come from recycling



max 65%

dependence on any single third country

The policy context has sharpened with the adoption of the RESourceEU³ Action Plan, which builds on the CRMA to accelerate delivery through concrete financing instruments, market monitoring, and supply-chain risk mitigation tools. With fewer than five years remaining, the decisive phase is no longer legislative design but effective implementation. The central question is how CRMA targets can be converted into industrial deployment within the remaining window — and the primary risk is not geological scarcity, but delayed scale-up, fragmented governance, and investment uncertainty. Stakeholders also underline that primary extraction and secondary supply from recycling must develop in parallel: recycling can reduce import dependence and environmental pressure, but primary extraction remains necessary for certain materials and volumes in the medium term.

6 Policy Recommendations

Across the European CRM value chain

The following recommendations address the structural barriers identified by stakeholders across the European CRM value chain collected during Raw Materials Week 2025 side event “Crossroads of Innovation: Shared Challenges and Joint Solutions in Raw Materials,” and related discussions.



De-risk Industrial Scale-Up

Public financial instruments should combine grants, guarantees, and offtake-linked support to enable pilot and first-of-a-kind (FOAK³) plants to advance despite market volatility and price uncertainty. Without targeted de-risking, even technologically mature solutions will stall in the “valley of death” between research and commercial deployment. Funding mechanisms should also move toward longer-term, milestone-based pathways so that successful initiatives can scale without restarting complex application processes.



Improve Transparency and Traceability

Mandatory product-level information requirements should be introduced for devices containing rare-earth permanent magnets to enable identification, sorting, and responsible recycling at end-of-life. These measures can be aligned with Digital Product Passport initiatives and are already partially reflected in the End-of-Life Vehicles Regulation, which introduces a Digital Circularity Vehicle Passport incorporating CRMA Article 28 magnet information requirements.



Harmonise Waste Definitions and Cross-Border Transport Rules

EU-level harmonisation of waste definitions and cross-border movement rules for CRM-bearing streams, supported by operational guidance for customs and competent authorities, would reduce legal uncertainty and unblock circular value chains. This can be achieved through clarification and guidance rather than full legislative overhaul.



Strengthen Exploration Capacity

Coordinated investment in interoperable geological data systems, standardised waste-stream quality specifications, and predictive modelling tools is necessary to close critical knowledge gaps and secure medium- and long-term supply resilience. Exploration challenges extend beyond permitting to scientific capacity, digital infrastructure, and data accessibility across Member States.



Operationalise Fast-Track Permitting Under CRMA

Strategic project designation under CRMA should be supported by transparent eligibility criteria, predictable timelines, and adequate administrative capacity in Member States. Permitting uncertainty, not formal regulatory barriers, is currently the primary factor undermining investor confidence in FOAK³ and extraction projects.



Reduce Perceived Community Risk

Early, transparent, and equitable engagement with local communities, particularly in primary extraction contexts, should be embedded in project design from the outset. Projects that align with regional development priorities and share benefits fairly demonstrate faster progress and greater long-term durability; ignoring social dimensions can generate delays that outweigh financial or regulatory incentives.

³ FOAK — First-of-a-Kind plant: an industrial facility deploying a technology at commercial scale for the first time; typically characterised by high capital requirements and limited access to conventional project finance.

Evidence and Implementation Challenges

Bottlenecks identified

This brief draws on a structured survey distributed to stakeholders ahead of the Raw Materials Week 2025 side event "Crossroads of Innovation: Shared Challenges and Joint Solutions in Raw Materials," co-organised by eleven Horizon Europe projects. Respondents represent a broad cross-section of the European CRM ecosystem, including mining and industrial companies, research organisations, universities, SMEs, civil society representatives, a think tank, and consultancies.



Limited access to finance for pilot and first-of-a-kind plants is the primary bottleneck to industrial deployment. Price volatility and uncertain market signals discourage private investment in capital-intensive extraction, processing, and recycling projects.



Regulatory fragmentation, particularly inconsistent waste classifications and cross-border transport rules, creates legal uncertainty and increases transaction costs, directly affecting recycling capacity and circular CRM flows.



Permitting procedures remain slow or unpredictable in practice. While CRMA introduces accelerated timelines for strategic projects, and institutional mechanisms such as the CRM Board and national single points of contact, their interpretation and administrative capacity may vary across Member States.



Additional structural constraints include: limited access to shared pilot infrastructure, fragmented funding cycles, emerging exploration capacity gaps, and public acceptance challenges, particularly in mining contexts.

These findings are based on directional practitioner evidence rather than statistically representative survey data. While the input reflects diverse actors across the CRM value chain, results should be interpreted as implementation-informed insights rather than comprehensive sector-wide measurement.

Monitoring Progress

Toward CRMA Implementation

Progress toward CRMA implementation can be tracked through indicators such as →

While monitoring should also consider sustainability and transparency across value chains.

Number of pilots and first-of-a-kind plants funded

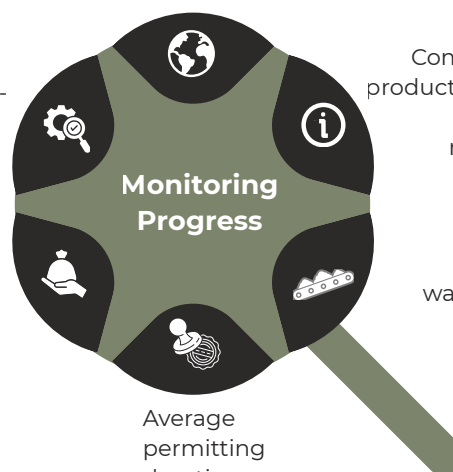
Volume of private capital mobilised

Consistency of Member State implementation

Compliance with product and magnet information requirements

Share of CRM-bearing waste processed within the EU

Average permitting duration





A resilient European CRM system requires the parallel development of responsible primary extraction and advanced recycling.

CONCLUSION

Europe has established a comprehensive regulatory framework for critical raw materials.

The central challenge now lies in operational delivery.

Without targeted action on financing, regulatory coherence, permitting predictability, exploration capacity, and social alignment, the 2030 benchmarks will not be met — and the window to course-correct is closing.

Conversely, coordinated and timely implementation can accelerate industrial deployment, strengthen investor confidence, and anchor resilient CRM value chains within Europe.

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