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FRAME's (Forecasting and Assessing Europe's Strategic Raw Materials Needs) contribution to the "European Green Deal"

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It is widely accepted that non-energy minerals underpin modern economies since they are essential for manufacturing and renewable energy supply. Europe shows an inevitably growing and accelerated consumption of mineral commodities. The critical question is whether supply to meet these demands is adequate. However, no one can answer this with any certainty because secure supply of mineral RM is a matter of knowing the resources and the ability to exploit them sustainably.

Europe's strive to become the world's first climate-neutral continent by 2050 means implementing the "European Green Deal" by the EU Commission. Measures accompanied with an initial roadmap of key policies range from ambitiously cutting emissions, to investing in cutting-edge research and innovation, to preserving Europe's natural environment.

This green transition is a giant societal leap. However, of the clean and carbon-reducing technologies (e.g. wind turbines, photovoltaic panels, electric and hybrid vehicles), which allow energy production from renewable resources, use significant quantities of metals [e.g. REE, PGE, Nb, Li, Co, In, Ga, V, Te, Se] that are derived or refined from minerals, and of which Europe is strongly import dependent on. The high import dependence of strategic (SRM) and critical raw materials (CRM) has a serious impact on the sustainability of the EU manufacturing industry value chains and key enabling technologies (e.g. renewable energy industry, mobility sector and AI) and significant release of CO₂ emissions due to foreign ore transport. Effectively knowing Europe's subsurface and the potential mineral supplies that can be used in these manufacturing industries can achieve this. We need to calculate the volumes of CRM and SRM metals (e.g. Co, Nb, V, Sb, PGE and REE) and minerals currently not extracted in Europe. We further need to understand how high-tech elements are mobilised, where they occur and why some are associated with specific major

industrial metals. This means a renewed and robust focus on advanced exploration for new mineral deposits on land and sea.

FRAME^(*)[1] addresses most of these concerns by focusing on at least four of the current objectives of the EU Commission: 1- CRM; 2- battery critical elements [graphite, Co, Li]; 3- The circular economy and; 4- the responsible sourcing of metals by combating conflict minerals.

With focused work packages, FRAME aims to broadly deliver, 1- a new assessment of the SRM and CRM in Europe; 2- an innovative predictability of where the sourcing of some of these SRM and CRM may come from to reduce dependance on external supply sources, which in some specific metals such as Nb and Ta, fosters the sustainable and responsible supply and; 3- look at case specific sites for the reuse of mineral RM. Data will be made available through a structured data platform. Hence, FRAME is making a significant contribution to aid in the "European Green Deal", activities such as the Battery Alliance and support legal actions like the new EU "conflict minerals" regulation effective from 1/01/2021.

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