

Ukraine's Minerals in Global Supply Chains: Challenges and Opportunities

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Summary

For a European country, Ukraine holds a substantial endowment of critical raw materials (CRM). Of greatest practical significance for international supply chains are titanium feedstock, natural graphite, manganese, uranium, zirconium, and hafnium; lithium, beryllium, germanium, tantalum, and rare earth elements are of high strategic interest but require further geological, technological, and investment verification. Ukraine's key advantage lies not only in its resource base but also in its ability to become part of Western policies to reduce strategic dependencies in critical raw material supply chains for the European Union (EU), the United States (US), member states of the North Atlantic Treaty Organization (NATO), and selected partners beyond the Alliance.

The global context favors such positioning for Ukraine. The European Parliament and the Council of the EU adopted Regulation (EU) 2024/1252, known as the Critical Raw Materials Act (CRMA), which sets benchmarks to 2030 for the extraction, processing, and recycling of strategic raw materials and for the diversification of their supply: at least 10% of annual consumption of strategic raw materials to be met by extraction within the EU, 40% – by processing within the EU, 25% – by recycling, along with capping dependence on any single third country at no more than 65% for each strategic raw material at the relevant stage of the supply chain¹. In 2025, the International Energy Agency (IEA) recorded growing concentration in the processing of critical minerals: China is the leading refiner for 19 of the 20 major strategic minerals, with an average share of around 70%², which makes supply sources alternative to China a political and security priority for many countries.

For Ukraine, the window of opportunity is open but not guaranteed. In 2025, the Cabinet of Ministers approved national lists of 11 minerals of strategic importance and 28 of critical importance, and in June 2026 it adopted the long-term Strategy for the Development of Industry Based on Critical Minerals to 2056, focused on high value-added production^{3,4}. This creates a policy framework, but it does not substitute for reserves confirmed to international standards, security risk insurance, investment, processing, and regulatory predictability.

Critical minerals can become for Ukraine not only an economic asset for reconstruction but also an instrument of strategic agency. To achieve this, Ukraine should promote not the image of a “raw materials storehouse of Europe” but an offer of partnership across the full value chain: geological exploration – extraction – beneficiation – processing – production of components for the defense, energy, battery, and high-tech industries.

1. Situation Assessment

1.1. Global Restructuring of Supply Chains

Critical minerals have become an element of industrial policy, trade security, and geopolitical competition. Whereas the energy security of the twentieth century was defined by dependence on suppliers of energy resources, the security of the twenty-first-century technological economy increasingly depends on access to materials for batteries, power grids, semiconductors, permanent magnets, defense systems, aerospace equipment, and nuclear energy. The European Commission defines critical raw materials as those of high economic importance that face a high risk of supply chain disruption. In 2023, the EU list covered 34 items, including lithium, natural graphite, titanium, manganese, rare earth elements (REEs), scandium, gallium, tantalum, niobium, tungsten, vanadium, copper, and nickel⁵.

Raw materials policy in Ukraine can no longer be treated as a narrow mining issue. It must be integrated into foreign policy, industrial strategy, defense production, export controls, sanctions policy toward Russia, reconstruction policy, and the European integration process. It is especially important that the EU views critical raw materials not only as an import issue but also as a matter of control over value chains: from extraction to processing, recycling, and component production.

1.2. US–China Confrontation and China's Role

The main structural vulnerability of the global critical raw materials market lies not only in where deposits are located but also in where they are processed. Over recent decades, China has built up dominance in the processing of REEs, graphite, cobalt, and parts of the lithium, manganese, and other segments. According to the IEA, the share of the three leading countries in the processing of key energy minerals rose from roughly 82% in 2020 to 86% in 2024, with much of the increase attributable to a single dominant supplier: Indonesia for nickel and China for cobalt, graphite, and REEs⁶.

After 2023, concentration risks became practical rather than theoretical. China introduced or expanded export restrictions on materials and technologies important for semiconductors, the defense industry, and green technologies. The IEA notes that the restrictions extend not only to raw or refined materials but also to processing technologies, notably for lithium and REEs⁷. Against this backdrop, the US, the EU, Japan, South Korea, the United Kingdom, Canada, and Australia are looking not simply for alternative deposits but for politically reliable, environmentally acceptable, and technologically integrated supply chains.

Ukraine can fit into this logic as a partner country that combines a resource base, geographic proximity to the EU, EU candidate status, industrial experience, and security cooperation within Western formats. Yet such positioning will be convincing only if it is backed by technical evidence: up-to-date geological data, independent audits of reserves, clear rules for subsoil access, investor protection, environmental, social, and governance (ESG) standards⁸, and a plan for processing within the country or in chains shared with partners.

1.3. Ukraine’s Resource Base: Strengths and Limits of Potential

Ukraine is among the countries with a diversified mineral base, but its potential is uneven in terms of how well it is confirmed and how ready it is for commercial development. In July 2025, the government approved a list of strategic minerals comprising aluminum, beryllium, copper, nickel, niobium, strontium, tantalum, titanium, uranium, and zirconium ores, as well as fluorspar. The list of critical minerals is broader and includes, among others, vanadium, tungsten, gallium, hafnium, indium, rare earth, lithium, scandium, antimony, tellurium, cesium, and zinc ores, as well as potash⁹.

The most mature positions in terms of the actual industrial base are titanium feedstock, manganese, natural graphite, uranium, iron ore, and, in part, zirconium feedstock. The United States Geological Survey (USGS) maintains a 2024 overview page on Ukraine, which lists the country as the 6th-largest producer of rutile, the 9th-largest producer of ilmenite and iron ore, and a significant producer of natural graphite and lime¹⁰. Ukraine has not only prospective deposits but also historical industrial competence. At the same time, the war has significantly reduced output of certain commodities and degraded logistics.

Lithium and REEs carry high political resonance, but it is precisely here that particular restraint is needed. Ukraine has no active industrial extraction of lithium-bearing feedstock. Known deposits and sites require further exploration, investment, techno-economic assessment, and verification of their ability to yield material suitable for battery chains. The USGS notes that, as of 2023, Ukraine had never mined REEs, although individual sites, notably the Yastrebitske zircon-REE-fluorite deposit, are of resource interest¹¹. **Communication must therefore clearly separate the confirmed industrial base from geological potential.**

1.4. CRM and REEs in the EU

In the context of Ukraine’s European integration policy, defining a market niche for CRM and REEs requires looking at the EU in terms of which resources its member states possess or lack. It is not that the EU entirely lacks CRM deposits; rather, it faces a substantial shortfall in its own reserves and in extraction and processing capacity. These shortfalls are precisely what prompted the adoption in 2024 of the aforementioned CRMA.

Taking into account the volume of confirmed reserves, the diversity of CRM, and their strategic importance for the “green” transition, the greatest potential within the EU lies with the countries listed in Table 1.

Table 1. CRM potential of the European Union

Country	Key critical materials	Significance
Sweden	REEs, natural graphite, fluorspar	Largest REE potential in the EU (Per Geijer deposit near Kiruna)
Finland	Nickel, cobalt, lithium, graphite, platinum group metals	Most diversified mineral base in the EU
Portugal	Lithium	Some of the largest lithium reserves in Europe

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Country	Key critical materials	Significance
Spain	Tungsten, lithium, fluorspar, strontium	Large resource base
Greece	Bauxite (gallium), nickel, magnesite	Important for gallium production
France	Lithium, antimony, tungsten	Major new lithium projects
Czechia	Lithium	The Cínovec deposit is one of the largest in the EU
Poland	Coking coal, copper, silver	Leading producer of coking coal
Austria	Natural graphite, tungsten	Largest producer of natural graphite in the EU
Romania	Magnesium, natural graphite, copper, REEs	Significant unexplored REE potential

Source: based on European Commission materials¹²

A synthesis of the data suggests that the EU's main CRM deposits are concentrated in Scandinavia (Sweden and Finland) and on the Iberian Peninsula (Spain and Portugal). For a number of items on the CRM list, Europe has deposits, but they do not cover projected demand. **Even if all planned projects are implemented, the EU will not become self-sufficient in these materials, although import dependence may fall substantially.**

Attention should be paid to the specifics of two CRM items, titanium and uranium, which are exceptionally important for industry and energy, both today and in the future. The EU does not face a critical shortage of titanium ore (Scandinavia holds large reserves), but it does face a serious shortage of capacity to produce rolled titanium and titanium products. This is the main strategic problem. The EU is a net importer of metallic titanium. Although its main suppliers are Japan, the US, the United Kingdom, and China, significant volumes of rolled titanium and titanium sponge nonetheless flowed to the EU from Russia until 2022¹³. These volumes have since declined, but imports have grown from Kazakhstan, which sits within the zone of Russian and Chinese influence.

Uranium does not formally appear on the European CRM list and is not included in the list of Strategic Raw Materials. The reason is that it already has a separate status within the European Atomic Energy Community (Euratom). In contrast to the titanium case, the EU's problem is not a complete absence of uranium deposits but the fact that its own reserves and production are insufficient to meet the needs of European nuclear power. Nuclear power generates **~24% of EU electricity**, which makes security of uranium supply strategically important. According to the European Commission's Joint Research Centre (JRC), around 95% of the EU's natural uranium needs are met by imports¹⁴.

According to the Euratom Supply Agency, in 2025 the largest volumes of natural uranium supplied to the EU came from Canada (~37%), Kazakhstan (~20%), Russia (~16%), Uzbekistan (~10%), and Australia (~9%)¹⁵. It should be borne in mind, however, that uranium mining in Central Asia is carried out largely through joint ventures with the Russian monopolist Rosatom, which implies corresponding risks of political influence by Russia, as well as China, both of which have grown considerably in recent years.

The EU's real strategic needs include titanium and uranium, which should be treated as materials of first-order strategic importance. Titanium matters because it is irreplaceable for

the aerospace, defense, and high-tech industries, although the critical bottleneck is primarily metal production rather than ore extraction. Uranium matters because of the substantial and promising role of nuclear power in the EU's energy mix and because its supply is governed by the separate Euratom system rather than the CRMA mechanism. This is why EU analytical documents on strategic autonomy and supply chain security regularly consider titanium and uranium alongside CRM, even though they formally fall under other regulatory categories.

1.5. Sector Status: War, Access to Deposits, and Investment Framework

The war is the main constraint on realizing this potential in the short term. Some deposits are located in occupied or frontline territories, part of the infrastructure is damaged, and the risks posed by landmines and by attacks on energy and transport raise the cost of capital.

The USGS, citing Ukrainian sources, has noted that important deposits in territories outside Ukraine's control included gold, iron ore, lithium, manganese, salt, and uranium¹⁶. This means that any strategy must be built on the principle of phasing: first, an inventory, audits, and projects in government-controlled territory; in parallel, international documentation of damages, of subsoil use rights, and of future access to de-occupied resources.

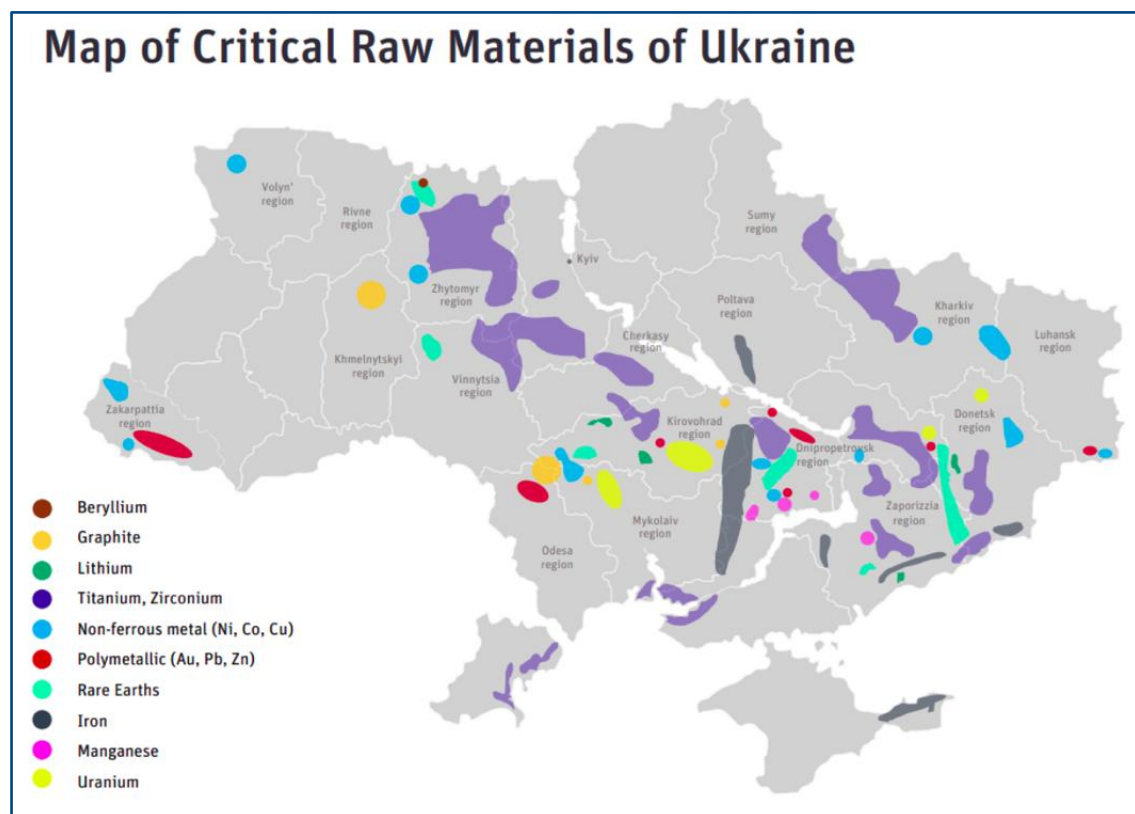


Fig. 1. Critical minerals of Ukraine¹⁷

A positive shift is the emergence of an international investment framework. In 2021, the EU and Ukraine launched a strategic partnership on raw materials and batteries that explicitly provides for the integration of critical raw material and battery value chains, regulatory approximation, and cooperation through the European Raw Materials Alliance and the European Battery Alliance¹⁸¹⁹. As of 2026, the Ukraine–EU strategic partnership on raw materials and batteries has a number of practical

results to show: several cooperation roadmaps have been adopted, the digitization of geological data and the creation of a secure information repository for investors are under way, and the Balakhivske graphite project has been selected by the EU as a strategic project under the CRMA. At the same time, the partnership has not yet translated into large-scale industrial value chains. **The key task of the next stage is to convert roadmaps, geological data, and individual projects into investment-ready assets with confirmed reserves, a processing model, an ESG assessment, and long-term arrangements with future offtakers.**

In 2025, the US and Ukraine signed an agreement establishing the United States–Ukraine Reconstruction Investment Fund (URIF)²⁰. As of July 2026, there is not only the fund's general framework but also URIF's first, albeit non-mineral, investment in the startup Sine Engineering (which specializes in dual-use technologies and technology solutions for unmanned aerial vehicles), a portfolio of nearly 300 potential projects, and specific mineral cases, notably the project to develop the Dobra lithium site in Kirovohrad Oblast, which matters as a pilot political-investment case. The holding company Dobra Lithium Holdings JV was named the winner of the tender to conclude a production sharing agreement for metallic minerals. To date, the holding's ownership structure (*the percentage split between the co-owners TechMet and RSL Group/The Rock Holdings*) has not been officially disclosed. All that is known is the shareholders of these co-owners – from the US, Qatar, and the Netherlands. Frequent government reshuffles in Ukraine will evidently not help move the project forward.

Preparations are also under way for titanium auctions. In June 2026, the US International Development Finance Corporation (DFC) and the Multilateral Investment Guarantee Agency (MIGA) agreed on a political risk insurance framework to support private investment linked to this fund, including in strategic sectors such as minerals and energy²¹. It is worth noting separately that URIF, on the one hand, strengthens American interest in a long-term presence in Ukraine; on the other hand, its prospects, like the benefits for Ukraine, remain uncertain. It is also important that, in choosing strategic partners for the titanium sector, preference should be given to Western companies.

These frameworks give Ukraine a political advantage, but they do not remove domestic barriers. For investors, the critical factors remain the quality of geological data, judicial protection, transparent licensing procedures, a stable tax regime, access to energy, logistics, environmental permits, local community support, and the presence of buyers or long-term guaranteed offtake agreements.

1.6. Possible Role of Ukrainian CRM in Global Supply Chains

Ukrainian resources can matter for several types of supply chains. **The first is defense and aerospace:** titanium, zirconium, hafnium, beryllium, tantalum, niobium, tungsten, copper, and REEs are used to produce alloys with special properties for aviation and rocket and space technology, for electronic and optical devices and radars, and in nuclear technologies. **The second is value chains in energy storage production:** lithium, graphite, manganese, nickel, cobalt, copper, aluminum, and phosphate/potash materials are directly or indirectly linked to batteries, electric vehicles, energy storage, and power grids. **The third is the EU industrial base:** titanium feedstock, natural graphite, manganese, iron ore, fluor spar, and REEs are important for metallurgy, chemicals, machine building, and high-tech manufacturing.

The nearest-term practical value of Ukrainian CRM for the EU lies not in its rapid export but in combining several tracks: restoring and modernizing the titanium, graphite, manganese, and uranium base; auditing lithium, zirconium, and REE sites; preparing the first projects for international financing; and creating industrial sites for processing and the production of intermediate products.

2. Key Opportunities for Ukraine

Ukraine's key opportunities may include:

- › Integration into the de-risking policies of the EU and US. Ukraine can offer partners a geographically close, politically compatible, and strategically motivated alternative to part of their raw material and industrial dependencies on China and Russia. This does not mean quickly replacing China, but it can mean creating individual segments of secure supply: titanium materials, graphite concentrates and anode materials, manganese feedstock, uranium, and selected REEs.
- › Linking CRM to reconstruction. Reconstruction will require steel, cement, power grids, energy storage, transport infrastructure, defense production, and the localization of industrial capacity. If critical minerals are integrated into reconstruction projects, Ukraine will be able to create domestic demand rather than merely an export offer.
- › Moving beyond raw material exports. The greatest added value is created not at the stage of selling ore but at the stages of beneficiation, refining, and the production of chemical compounds, powders, alloys, anode materials, magnets, and components for the defense and energy industries. The government's Strategy to 2056 explicitly sets the benchmark of high value-added production²².
- › For the Ministry of Foreign Affairs (MFA), critical minerals can become an instrument for deepening strategic dialogue with the EU, the US, the Group of Seven (G7), NATO, Japan, South Korea, Canada, and Australia. This is a matter not only of investment but also of common standards, political risk insurance, guaranteed supply agreements, industrial clusters, workforce training, research and development (R&D), and the integration of Ukraine into the maps of critical supply chains.
- › The sanctions and security dimension. Ukraine can tie the development of its own critical minerals to policies limiting Russian influence over strategic materials, including titanium, nuclear materials, metallurgical feedstock, and logistics routes. Partner support for Ukrainian projects should be presented as a contribution to the resilience of Western defense, technology, and energy chains. In corporate terms, the priority partners are the American Boeing and the European Airbus for titanium, and Westinghouse for uranium.

3. Key Challenges and Constraints

The first challenge is the war and physical security. Security risks affect insurance, the cost of capital, access to deposits, logistics, energy supply, and companies' willingness to sign long-term contracts. That is why war and political risk insurance must be not an auxiliary tool but a central element of the investment architecture.

The second challenge is the quality of geological information. A significant share of Ukrainian assessments was produced under Soviet or national methodologies and is not always bankable. Strategic investors need independent assessments under JORC, NI 43-101, or CRIRSCO, digital geological packages, transparent terms of access to data, and a clear project portfolio²³.

The third challenge is processing. Without beneficiation, refining, and component production, Ukraine risks remaining a supplier of low-margin raw materials. This is especially important for natural graphite, lithium, manganese, titanium, zirconium, and REEs, where processing technology is often more complex and strategically more important than extraction itself.

The fourth challenge is regulatory trust. Investors will assess not only geology but also the judicial system, the risks of license reviews, corrupt practices, tax stability, procedures for environmental impact assessment, relations with communities, and the ability to repatriate profits. If these factors remain weak, even high-quality deposits will not become investment projects.

The fifth challenge is environmental and social acceptability. Mining lithium, graphite, titanium, or REEs can provoke community resistance if the state and companies fail to ensure transparency, monitoring, compensation, and control of water, waste, and land reclamation. For the EU and US, ESG is not a decorative requirement but a condition of access to financing and markets.

Table 2 below presents the problems, the potential consequences of ignoring them, and what should be done to prevent negative scenarios.

Table 2. Problems, potential consequences, and preventive steps

Problem	Potential consequences	What to do
EU de-risking in the context of the CRMA	The EU is looking for suppliers outside overly concentrated markets	Raise the issue in dialogue with the European Commission, member states, and business. Propose a joint 2027–2030 roadmap for projects in government-controlled territory
Lack of JORC/NI 43-101 reporting	Without international audits, deposits are not attractive investment assets Partners will be unable to justify financing	Launch a grant/technical assistance program for independent audits of priority sites

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Problem	Potential consequences	What to do
Insufficient processing	Raw material exports do not create strategic interest in Ukraine among partners What must be sold is not only raw materials but also participation in value chains	Promote clusters: from graphite to anode, the titanium feedstock – titanium powders – rolled titanium – titanium alloys chain
War and political risk	Raises the cost of capital and delays decisions Without insurance, investors will wait for the war to end or move to alternative projects	Expand the war risk insurance instruments of MIGA, DFC, the European Bank for Reconstruction and Development (EBRD), and export credit agencies
Inflated expectations around REEs	Unverified claims undermine trust	Communicate objectively: confirmed / promising / requires further exploration Promote projects with ready data, an ESG package, and potential long-term supply agreements

4. Forecasts and Prospects

4.1. Short-Term Outlook: 1–2 Years

In the short term, Ukraine is unlikely to be able to substantially increase physical output of new critical minerals, especially lithium or REEs. Realistic tasks include: building a priority portfolio of deposits in government-controlled territory, auditing data to international standards, preparing feasibility studies, launching insurance and guarantee instruments, restoring or modernizing existing production of titanium, natural graphite, manganese, and uranium, and signing the first memoranda on guaranteed offtake with partners.

4.2. Medium-Term Outlook: 3–5 Years

In the medium term, the most attractive investment projects are likely to be those that build on the existing industrial base or have a relatively clear technological path: titanium feedstock and higher value-added products, natural graphite and its purification for battery chains, manganese feedstock and potentially the production of high-purity manganese sulfate for the battery industry, uranium feedstock, and lithium projects once commercially recoverable reserves are confirmed. It is in this period that Ukraine can move from diplomatic positioning to its first investment-attractive projects.

4.3. Long-Term Outlook: 5–10 Years

In the long term, Ukraine can become a strategic supplier of selected critical resources and intermediate products if four conditions are met: security stabilization, an internationally recognized geological base, the creation of processing capacity, and integration into EU and US industrial policies. Absent these conditions, Ukraine will remain a country with potential but without a real role in supply chains. Potential scenarios for international cooperation on Ukraine's CRM are presented in Table 3 below.

Table 3. Scenarios for international cooperation on Ukraine's CRM

Scenario	Preconditions	Possible consequences	Policy implications
Baseline	The war continues, but government-controlled territory maintains production activity; audits and risk insurance get under way	First investments in titanium, graphite, and manganese. Lithium and REEs remain largely at the preparation stage	The MFA should promote Ukraine as a "resources + standards + security" partnership, without inflated promises
Optimistic	Improved security situation, stepped-up engagement by DFC/MIGA/EBRD, aligned policy with the EU and US, transparent licensing	Investment-attractive projects appear, the first graphite/titanium/manganese processing capacity comes online, and lithium moves to the investment stage	Ukraine becomes part of the transatlantic de-risking architecture

Scenario	Preconditions	Possible consequences	Policy implications
Risky/negative	Escalation of the war, strikes on the energy system, regulatory conflicts, corruption scandals, absence of reserve audits	Investors postpone decisions. Ukraine loses its window of opportunity. Resources remain a political declaration	Partners will perceive the issue as unrealized potential rather than a strategic asset of Ukraine

Conclusions

- › Ukraine's greatest short- and medium-term potential lies not in abstract "rare earth elements" but in the areas where an industrial base or a clear development trajectory exists: titanium, natural graphite, manganese, uranium, zirconium, and hafnium. Lithium and REEs carry strategic weight but require restrained communication, further exploration, and international verification.
- › Ukraine's main opportunity lies in entering Western supply chains against the backdrop of the US-China confrontation and EU policies to reduce dependence on any single supplier. Ukraine must compete not only on resources but also on the quality of its rules, data, ESG practices, and processing offers, which means a focus on beneficiation, refining, and the production of compounds, powders, alloys, anode materials, and intermediate products for the defense, energy, and high-tech industries.
- › Having deposits does not automatically confer a strategic role. A strategic role emerges when partners can conclude long-term agreements, finance projects, insure risks, and obtain predictable access to materials or components.
- › CRM must not become a new form of raw material dependence for Ukraine. If policy is reduced to ore exports, the country will lose most of the added value. If, instead, Ukraine builds processing, intermediate products, and industrial clusters, critical raw materials can become an element of long-term economic security.
- › For the MFA, critical minerals should become an instrument of economic and security diplomacy. Ukraine should offer partners not "access to subsoil" but a shared model of secure, transparent, and politically reliable supply chains that reduce democratic countries' dependence on authoritarian suppliers.

Recommendations for Ukrainian State Authorities

For Ukraine's MFA

- › Establish a single foreign policy framework: Ukraine as a partner in secure, sustainable, and transparent CRM processing chains – from extraction to the production of finished goods.
- › In dialogue with the EU, propose an updated raw materials and batteries partnership roadmap for 2026–2030, with a list of specific projects, responsible institutions, financing instruments, and progress indicators.
- › In dialogue with the US, the aim should be not simply to orient URIF toward the CRM sector but to build a priority portfolio of investment-ready projects in titanium, graphite, manganese, uranium, and zirconium/hafnium, with lithium treated separately as a promising second-tier track. Existing cases – notably the Dobra lithium site in Kirovohrad Oblast and the preparation of titanium auctions – should be supplemented with high-quality technical packages: reserves confirmed to international standards, an audit of license status, assessments of ESG and war risks, a processing model, and preliminary long-term guaranteed offtake arrangements.
- › Building on the June 2026 arrangements between DFC and MIGA, initiate the development of a dedicated sectoral mechanism for insuring war and political risks for critical raw material projects in Ukraine. Such a mechanism should be tied to priority projects within URIF and supplemented with instruments of the EBRD, the European Investment Bank (EIB), and the export credit agencies of strategic partners.
- › Prepare for Ukraine's embassies a “critical minerals diplomatic toolkit”: a map of resources by readiness level, a list of priority projects, standard messaging, answers to sensitive questions, and a dedicated section on the difference between confirmed reserves and geological potential.
- › Bring the critical minerals agenda into the G7 and NATO–Ukraine formats, the EU–Ukraine High-Level Industrial Dialogue, the Ukraine Recovery Conference, and bilateral strategic dialogues with Japan, South Korea, Canada, the United Kingdom, and Australia.
- › Avoid public rhetoric about “trillions of dollars’ worth of resources” without explaining the methodology. Such rhetoric can create inflated expectations and undermine the trust of professional investors.
- › Focus foreign partners’ attention on real priority projects for processing titanium and uranium feedstock with output of high value-added products.
- › Avoid handing raw material assets to projects run by dubious companies operating under the flag of non-Western countries, as well as those with hidden Chinese dominance behind them.

For Interagency Policy

- › Create an interagency group on critical minerals involving the MFA, the Ministry of Economy and Environment of Ukraine, the Ukrainian Geological Survey (the State Service of Geology and Mineral Resources of Ukraine – SSGSU), the Ministry of Defense of Ukraine,

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the Ministry of Energy, the State Property Fund, UkraineInvest, and relevant security agencies.

- › Identify 10–15 priority sites in government-controlled territory for independent audits under JORC/NI 43-101/CRIRSCO, categorized as: investor-ready; requiring further exploration; promising but high-risk.
- › Digitize geological data and create a secure data repository for strategic partners with tiered access levels, taking into account wartime security constraints.
- › Introduce a “not by raw materials alone” strategy standard: every major critical raw material project must include an assessment of opportunities for local processing, R&D, workforce training, supplier localization, and participation by Ukraine's defense-industrial complex.
- › Strengthen environmental and social safeguards: water and waste monitoring, agreements with communities, land reclamation plans, and public ESG reports.
- › Prepare a sanctions position on Russian strategic materials and on the companies that supply Russia's defense and high-tech chains, so that Ukraine's offer is seen not only as an economic but also as a security alternative.

In sum, Ukraine should offer partners not merely access to critical raw materials but joint participation in building secure, transparent, and resilient supply chains for defense, energy, the battery industry, and high technology. Our priority should be not raw material exports but projects with added value, international standards, investment protection, and long-term arrangements with future offtakers. Investment in Ukraine's critical minerals is a contribution to the resilience of Europe and the transatlantic community, to reducing dependence on authoritarian suppliers, and to Ukraine's economic reconstruction.

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 - ⁶ International Energy Agency. Global Critical Minerals Outlook 2025. Paris: IEA, May 21, 2025. Executive Summary. <https://www.iea.org/reports/global-critical-minerals-outlook-2025/executive-summary>
 - ⁷ International Energy Agency. Global Critical Minerals Outlook 2025. Paris: IEA, May 21, 2025. Executive Summary. <https://www.iea.org/reports/global-critical-minerals-outlook-2025/executive-summary>
 - ⁸ ESG standards are environmental, social, and governance requirements for projects that determine their acceptability to international investors, financial institutions, and strategic partners. In the field of critical minerals, they cover the

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environmental impact of mining, occupational safety, engagement with local communities, licensing transparency, anti-corruption mechanisms, and the quality of corporate governance.

- ⁹ Cabinet of Ministers of Ukraine. On Approving the Lists of Minerals and Components of Strategic and Critical Importance and the Lists of Subsoil Areas (Mineral Deposits) of Strategic and/or Critical Importance: Resolution of the Cabinet of Ministers of Ukraine No. 845 of July 14, 2025. "Legislation of Ukraine" database / Verkhovna Rada of Ukraine. Current version as of March 12, 2026. <https://zakon.rada.gov.ua/laws/main/845-2025-%D0%BF#Text>
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- ²³ JORC (Joint Ore Reserves Committee Code) – the Australian code for the public reporting of mineral resources and reserves. It carries great authority in the international mining industry. If a deposit has been assessed under JORC, an investor has a clearer picture of which resources are confirmed, of their quality, and of how realistic extraction is.

NI 43-101 (National Instrument 43-101) – the Canadian standard for disclosing information on mineral projects. It is used by companies raising capital on the Canadian market. It requires deposit data to be verified by qualified independent professionals.

CRIRSCO (Committee for Mineral Reserves International Reporting Standards) – an international committee that brings together mineral resource and reserve reporting systems. Put simply, it is an “umbrella” international framework with which standards such as JORC and other national codes are compatible.

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