U.S.-Ukraine Critical Mineral Deal

On April 30, 2025, the United States and Ukraine officially signed off on a historic mineral agreement. For the United States, this agreement not only has major ramifications for the future of U.S.-Ukraine relations, it also fundamentally impacts America's long term economic and security interests by securing access to resources vital to the American economy and U.S. defense production.

This memo is intended to provide background regarding:

- The importance of critical and rare earth minerals
- An overview of current U.S. mineral production
- The economic and security concerns posed by China's ascendency in mineral production
- The structure and implications of the U.S.-Ukraine deal
- An overview of Ukraine's critical and rare earth mineral resources

Critical and Rare Earth Minerals

Critical Minerals

Critical minerals, as defined by the U.S. Geological Survey (USGS), are essential for economic and national security, with the 2022 list comprising 50 mineral commodities.[1] The Energy Act of 2020 defines a "critical mineral" as a non-fuel mineral or mineral material essential to the economic or national security of the U.S. and which has a supply chain vulnerable to disruption, or any mineral, element, substance, or material designated as critical by the Secretary of the Interior.[2]

Critical minerals are also characterized as serving an essential function in the manufacturing of a product, the absence of which would have significant consequences for the economy or national security.[3] Examples of critical minerals include but are not limited to: aluminum, antimony, arsenic, barite, beryllium, cerium, chromium, cobalt, gadolinium, gallium, graphite, hafnium, holmium, indium, iridium, lithium, magnesium, manganese, neodymium, nickel, palladium, platinum, rhodium, samarium, tellurium, thulium, tin, titanium, vanadium, zinc, and zirconium.[4]

Rare Earth Elements

Of these critical minerals, a subset is also known as "rare earth elements." Rare earth elements are specific metallic elements that have substantial defense, energy, industrial, and military

[1] U.S. Geological Survey Releases 2022 List of Critical Minerals | U.S. Geological Survey
[2] What Are Critical Materials and Critical Minerals? | Department of Energy
[3] U.S. Geological Survey Releases 2022 List of Critical Minerals | U.S. Geological Survey
[4] What Are Critical Materials and Critical Minerals? | Department of Energy

technology applications due to their unique physical and chemical structures.[5] The U.S. Geological Survey (USGS) explains that:

> "Rare-earth elements are necessary components of more than 200 products across a wide range of applications, especially high-tech consumer products, such as cellular telephones, computer hard drives, electric and hybrid vehicles, and flat-screen monitors and televisions. Significant defense applications include electronic displays, guidance systems, lasers, and radar and sonar systems."[6]

Overview of U.S. & China Mineral Production

History of China Overtaking U.S. Mineral Production

As the Senate Republican Policy Committee has noted, from the mid-1960s to the mid-1980s, the U.S. was the world leader in rare earth elements production. Nearly all of this production came from America's largest rare earth element mine, which operated near Mountain Pass, California, until the 1990s. Beginning in 1992, China increased efforts into extracting rare earth elements. China's focus on mineral extraction combined with little labor and environmental protections led to them quickly leading in both extracting and processing rare earth elements. By 2016, the United States was completely dependent on imports, with most of its supply coming from China. Today, China mines five times more rare earth elements than the U.S., and American raw materials must be sent there for processing.[7]

Current U.S. Mineral Production

According to the USGS, the U.S. is 100% import-reliant for 12 critical minerals. American production of critical minerals varies significantly. For example, U.S. lithium reserves barely surpass 1 million tons and the U.S. imports more than 25% of lithium used to manufacture products. Argentina supplies 51%, Chile 43%, and China 3% of the total lithium imported to the U.S.[8] Mine production of titanium minerals in the United States amounted to approximately 200,000 metric tons in 2022.[9] The U.S. has a high net import reliance on titanium, with approximately 95% of titanium sponge metal and 86% of titanium mineral concentrates being imported, primarily from Japan.[10] Identified cobalt resources in the United States are estimated to be about 1 million tons.[11] The U.S. has a high net import reliance for cobalt, with

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[5] Rare-earth elements
[6] Toward a More Sustainable Future for the Rare Earths Industry - Eos
[7] Protecting America's Supply of Rare Earth Elements
[8] Massive lithium deposit found across southeastern U.S. could end reliance on imports
[9] U.S. titanium mine production volume | Statista
[10] U.S. titanium net import reliance 2024 | Statista
[11] Mineral Commodity Summaries 2024

approximately 76% of the cobalt used in the U.S. imported in 2024, a slight increase from previous years.[12]

Chinese Mineral Production and U.S. Reliance

Comparatively, China is the largest producer of over half (26) of the critical minerals found around the globe.[13] This disparity is similar concerning rare earth elements, with China producing roughly 70% of rare earth elements globally, while the U.S. imports nearly 75% of its demand from China. China controls approximately 85% of the global production of anodes and has significant shares in processing materials such as nickel (68%), copper (40%), lithium (59%), and cobalt (73%). The U.S. sourced a third of its graphite from China between 2017 and 2020. Specifically in terms of rare earth elements, the U.S. is highly dependent on China for the supply of neodymium (Nd), praseodymium (Pr), dysprosium (Dy),[14] and terbium (Tb), which are crucial for various technologies, including electronics, defense, and renewable energy.

Recent Related U.S. Policy

In July 2019, President Trump used Section 303 of the Defense Production Act to classify domestic rare earth production as vital to national defense. This decision enabled the U.S. Army to support private companies in building domestic refining facilities.[15] In May 2024, the Biden administration announced that Section 301 import tariffs would be imposed starting in 2026 on sintered neodymium iron boron [NdFeB] rare earth magnets, and hard ferrite magnets, which was the first time tariffs were imposed on rare earth magnets or materials from China. In addition, the tariff rate for certain other critical minerals increased from zero to 25% in 2024.[16]

Chinese Retaliation

China's willingness to leverage rare earth exports is a major national security concern. For example, in 2010 China cut off supplies to Japan over a fishing boat captain's arrest.[17] In December 2024, in response to Biden administration's sanctions on Chinese semiconductor chips and equipment, China announced a ban of certain rare earth element exports to the U.S., impacting government procurement and national security along with domestic battery and solar panel production. The ban applies to several elements that are vital for the production of batteries and solar manufacturing.[18]

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[12] U.S. cobalt net import reliance 2024 | Statista
[13] Charted: America's Import Reliance of Key Minerals
[14] The Not-So-Rare Earth Elements: A Question of Supply and Demand - Kleinman Center for Energy Policy
[15] Protecting America's Supply of Rare Earth Elements
[16] U.S. to impose 25% import tariffs on Chinese rare earth magnets in 2026 - Fastmarkets
[17] Protecting America's Supply of Rare Earth Elements
[18] China bans exports to US of gallium, germanium, antimony in response to chip sanctions

U.S.-Ukraine Mineral Deal

Structure of the deal

The U.S.-Ukraine mineral deal would require the U.S. and Ukraine to jointly invest in Ukraine's mineral resources, particularly critical minerals like rare earth elements, lithium, uranium, titanium, and manganese. It establishes a United States-Ukraine Reconstruction Investment Fund. Under the leadership of President Trump, the Treasury Department and the U.S. International Development Finance Corporation (DFC) will work together with the Government of Ukraine to finalize program governance and advance this important partnership. Secretary of Treasury Scott Bessent stated in announcing the agreement, "This agreement signals clearly to Russia that the Trump Administration is committed to a peace process centered on a free, sovereign, and prosperous Ukraine over the long term. President Trump envisioned this partnership between the American people and the Ukrainian people to show both sides' commitment to lasting peace and prosperity in Ukraine. And to be clear, no state or person who financed or supplied the Russian war machine will be allowed to benefit from the reconstruction of Ukraine."[19]

According to a copy of the text released by the Government of Ukraine, the agreement would establish a United States-Ukraine Reconstruction Investment Fund (the "Fund"), structured as a limited partnership between the U.S. International Development Finance Corporation (U.S. Partner) and Ukraine's Agency on Support of Public-Private Partnership (Ukraine Partner) to invest in critical sectors of Ukraine's economy including energy, mining, and infrastructure. Ukraine would be required to enact laws enabling the economic partnership agreement. The Fund would be tax exempt under both U.S. and Ukrainian law and guarantee currency convertibility and free transferability of funds, including U.S. dollars, to and from Ukraine—with limited exceptions tied to macroeconomic stability or martial law, in which case Ukraine must consult the U.S. and indemnify the Fund for losses.[20]

Ukraine's contribution includes a legally committed stream of revenues through its budget, while U.S. contributions may include assessed value of any post-agreement military assistance delivered to Ukraine. The Fund would receive priority access to investment opportunities regarding Ukrainian minerals and infrastructure. Ukrainian authorities are required to share investment information with the Fund when issuing licenses or concessions related to natural resources or infrastructure. Ukraine must negotiate in good faith first with the Fund before offering better terms to other investors. The Fund has the right to negotiate under market-based offtake agreements (i.e., to purchase outputs) for natural resources and must be given equal or

[19] Treasury Announces Agreement to Establish United States-Ukraine Reconstruction Investment Fund | U.S. Department of the Treasury

[20] The full text of the US, Ukraine minerals agreement

better terms than third parties, in other words. Ukraine must include investment access and offtake rights provisions in all relevant permits, licenses, and agreements.[21]

Put simply – the U.S. is required to negotiate for purchase of resources produces from Ukrainian natural resource projects and Ukraine must avoid granting better offtake deals to other buyers unless they also offer those terms to the Fund.

The agreement respects Ukraine's commitments under the EU accession process and international financial agreements, and when future EU related obligations create conflicts, the U.S. and Ukraine agree to consult and negotiate adjustments in good faith. Any dispute regarding the agreement will be handled through mutual consultation between both sides, and the amendment may only be amended by a written agreement from both parties. The agreement enters into force after ratification by the Ukrainian parliament and relevant U.S. procedures.

This deal aims to use Ukraine's rare earth minerals to fund its own post-war recovery while providing the U.S. with the economic and strategic benefits of mineral access in Ukraine.[22] According to the Financial Times, the new deal does not include a previous demand by the Trump administration for retroactive compensation for more than $100bn in military support for Ukraine.[23] Both sides are expected to contribute 50% to the Fund, which will be governed jointly by three U.S. members and three Ukrainian members on its board.[24]

For the U.S., the deal offers access to critical minerals, reduced dependence on China, and fortification of supply chains for defense and technology.[25] For Ukraine, the deal provides investment for economic development to aid reconstruction after the war and a long-term merging of U.S.-Ukraine economic interests which strengthens ties with the U.S.[26]

Timeline of Negotiations

Initially, it was expected that this deal would be finalized on February 28, 2025, during the White House meeting between President Trump and Ukrainian President Zelensky. Instead, the meeting was derailed when Ukrainian President Zelensky argued with President Trump and Vice President Vance about security guarantees.[27]

Following that meeting, Ukraine indicated its willingness to sign the deal and the U.S.-Ukraine joint statement on March 11, 2025, following U.S.-Russia talks in Saudi Arabia, noted that the U.S. and Ukraine agreed to conclude a minerals agreement "as soon as possible." The statement also said the deal would "develop Ukraine's critical mineral resources to expand Ukraine's

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[21] The full text of the US, Ukraine minerals agreement
[22] Breaking Down the U.S.-Ukraine Minerals Deal
[23] US and Ukraine sign natural resources deal
[24] U.S. and Ukraine sign minerals deal
[25] What minerals does Ukraine have and what are they used for?
[26] Ukraine minerals deal: What we know so far
[27] Zelenskyy leaves White House without signing minerals deal | AP News

economy, offset the cost of American assistance and guarantee Ukraine's long-term prosperity and security." Discussions were delayed until President Trump met with Ukrainian President Zelensky during the funeral of Pope Francis on April 26, 2025 and pushed talks past the finish line a few days later.[28]

Other Policy Implications

Initially, Ukraine sought security guarantees as part of the agreement. While the current iteration of the deal does not include a security guarantee, the Trump administration has argued there is an "implicit" economic security guarantee.[29] This understanding recognizes that as American companies will be involved in investment and mining of Ukraine's mineral resources, the U.S. will have a strong interest in the security and stability of Ukraine.[30] The agreement also explicitly mentions that "The Parties further affirm that this Agreement is an expression of a broader, long-term strategic alignment between their peoples and governments, and a tangible demonstration of the United States of America's support for Ukraine's security, prosperity, reconstruction, and integration into global economic frameworks."[31]

Another potential implication of the deal is that it could reduce corruption in Ukraine, which has been an endemic problem for Ukraine's economy. While the investment climate in Ukraine has improved since 2014 following reforms, corruption remains an issue.[32] The agreement puts in place international oversight through the joint fund, managed by both governments, and encourages American companies to implement anti-corruption practices.[33]

Overview of Critical Minerals in Ukraine

Ukraine is rich in critical minerals, including rare earth elements, lithium, titanium, uranium, and graphite. It is estimated that Ukraine holds roughly 5% of the world's critical raw materials.[34] Ukraine holds 22 out of the 34 minerals classified as critical by the European Union (EU).

Ukraine holds Europe's largest reserves of uranium. Uranium is vital for nuclear energy production, as well as to support rapidly expanding data center and AI-related needs.[35]

In terms of rare earth elements, research funded by the EU in 2022 shows that Ukraine holds some of the largest scandium reserves in the world.[36] Scandium is a byproduct of titanium ore processing and is valuable for aerospace alloys.[37]

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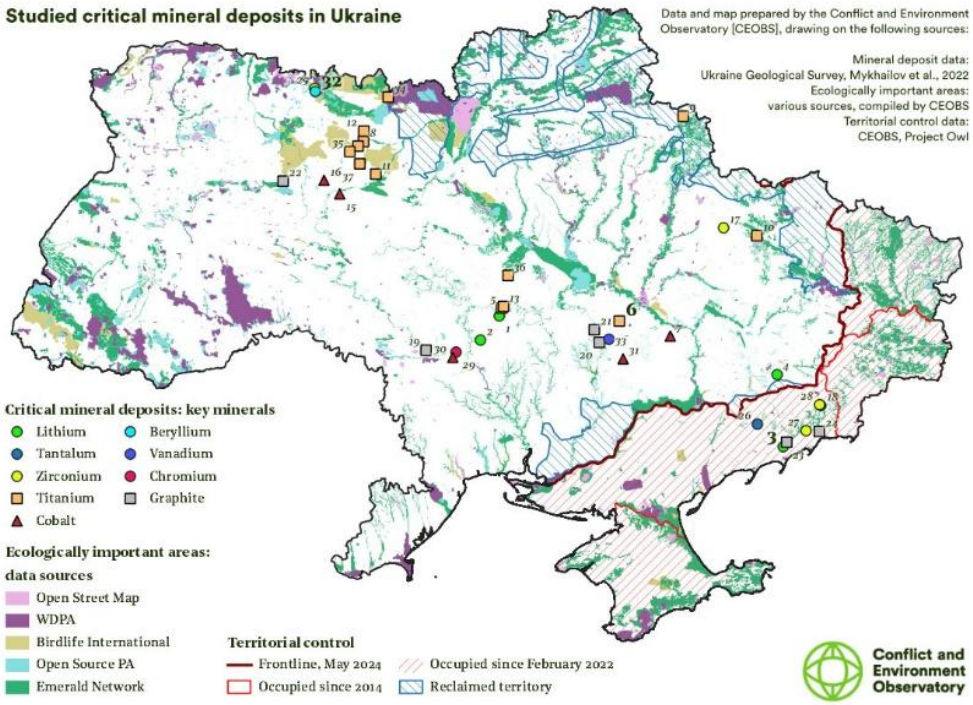
[28] US and Ukraine sign critical minerals deal after months of tense negotiations | CNN
[29] Scott Bessent says US-Ukraine deal has 'implicit' economic security guarantee
[30] Trump says no significant security guarantees in Ukraine minerals deal | Ukraine | The Guardian
[31] The full text of the US, Ukraine minerals agreement
[32] Ukraine - United States Department of State
[33] Breaking Down the U.S.-Ukraine Minerals Deal
[34] What minerals does Ukraine have and what are they used for?
[35] The Mineral Wars - How Ukraine's Critical Minerals Will Fuel Future Geopolitical Rivalries - CIRSD
[36] Microsoft Word - CRM Report FINAL rev3 2022-11-09 HB PRINT.docx
[37] Ukraine's Rare Earth Minerals: What Is Trump Eyeing in Ukraine?

Ukraine possesses 7% of the global production of titanium. Ukraine's lithium reserves are considered one of Europe's largest, at an estimated 500,000 tons, and are largely untapped.[38] The price of lithium has surged from $1,500 (£1,164) per ton in the 1990s to around $20,000 per ton in recent years with demand expected to increase nearly 40-fold by 2040. Lithium is needed for electric vehicle batteries, for example Tesla's Model S battery requires approximately 63kg of high purity lithium. [39]

According to the U.S. geological survey, Ukraine ranks globally as the third-largest producer of the mineral rutile – making up 15.7% of world's total output. It is the sixth-largest producer of iron ore (3.2% of total output) as well as the seventh-largest producer of manganese ore (3.1%).[40] In the aerospace and defense industries, rutile is used as a reinforcing agent in the production of high-strength, lightweight titanium alloys.[41] Almost 98% of iron ore is used in the production of steel, a strong and versatile alloy essential for modern industry, including the construction of bridges, buildings and other infrastructure.[42] Manganese ore is a crucial component in dry-cell batteries.[43]



A map of critical minerals in Ukraine / Source: Conflict and Environment Observatory

[38] Mapping Ukraine's rare earth and critical minerals | Russia-Ukraine war News | Al Jazeera
[39] What's so special about Ukraine's minerals? A geologist explains
[40] What's so special about Ukraine's minerals? A geologist explains
[41] Rutile: The Hidden Gem of the Mineral World - Maxwer Group AG
[42] Iron Ore Statistics and Information | U.S. Geological Survey
[43] Manganese Statistics and Information | U.S. Geological Survey

Economic Value of Ukrainian Minerals

According to a 2023 study by Forbes, Ukraine's rare earth and other critical minerals could be worth as much as $14.8 trillion.[44] However, most estimates of the global critical mineral market stand at between $4 to $12.5 billion. In addition, Ukraine's rare earth element deposits have not been subject to in-depth studies.[45] The last assessment of the country's mineral resources was based on Soviet surveys from 1960 to 1980 using outdated methods.[46] There are also challenges related to the high costs of extraction, and processing of such minerals. It may take several years to build the capacity to extract substantial amounts of critical minerals in Ukraine.[47] Building a large-scale rare-earth mine would require companies to heavily invest over a billion dollars to develop mines in Ukraine, according to the draft agreement.[48]

Ukrainian Minerals in Russian Controlled Territories

Some of Ukraine's critical minerals, are concentrated in areas currently occupied by Russia including Donetsk, Dobra, and Kruta Balka. However, there are also deposits in central and eastern Ukraine, which are controlled by the government of Ukraine. By the end of 2022, Russia controlled between 50 and 100 percent of Ukraine's reserves of lithium, tantalum, cesium, and strontium, metals that are critical for energy technologies and defense industries. Until Russia's invasion derailed supply routes in 2022, Ukraine was a major supplier of iron ore, lithium, manganese, and steel to Europe.[49]

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[44] What to know about Ukraine's mineral wealth
[45] Ukraine's Rare Earth Minerals: Trump's Ambitions and Supply Chain Impact | Argus Media
[46] Ukraine Minerals Deal Is Mostly Hyperbole
[47] Ukraine's Rare Earth Minerals: Trump's Ambitions and Supply Chain Impact | Argus Media
[48] Rare Earths Reality: Ukraine's Nonexistent Deposits - IEEE Spectrum
[49] The Mineral Wars - How Ukraine's Critical Minerals Will Fuel Future Geopolitical Rivalries - CIRSD