STRATEGIC MINERALS EXPLAINED: UKRAINE, THE SOUTH CAUCASUS, AND CENTRAL ASIA

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ABOUT US

The Caspian Policy Center (CPC) is an independent, nonprofit research think tank based in Washington D.C. Economic, political, energy, and security issues of the Caspian region constitute the central research focus of the Center.

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This is the first in a series of articles planned to provide a comprehensive overview on strategic minerals in Central Asia, the South Caucasus, and Ukraine.

America's economic and political security depends upon a secure future supply of strategic minerals. With nearly every modern technology, from smartphones to jet engines to wind turbines, requiring the use of strategic minerals, the World Economic Forum has suggested they will be the new oil of the 21st century. Moreover, global appetite and scramble for strategic minerals is only increasing, with the International Energy Agency estimating that demand in the energy sector alone could triple by 2030. The People's Republic of China (PRC) currently dominates the sector, controlling 60% of global production and 85% of processing capacity. Due to this growing monopoly and resulting reliance on the PRC, future U. S. access to strategic minerals is under threat. A potential solution to this challenge can be found in the largely unexploited natural resources of Central Asia, the Caucasus, and Ukraine. Aggressive pursuit of these strategic resources now could be the key to supplying the United States with the minerals it needs, while providing the broader Caspian region and Ukraine with global market reach and inclusion. Meaningful participation in the global strategic mineral supply chain for Central Asia, the Caucasus, and Ukraine would be a major step towards achieving regional economic sovereignty and the ability for those countries to reduce their own dependence on Russia and the PRC.

Defining Strategic Minerals

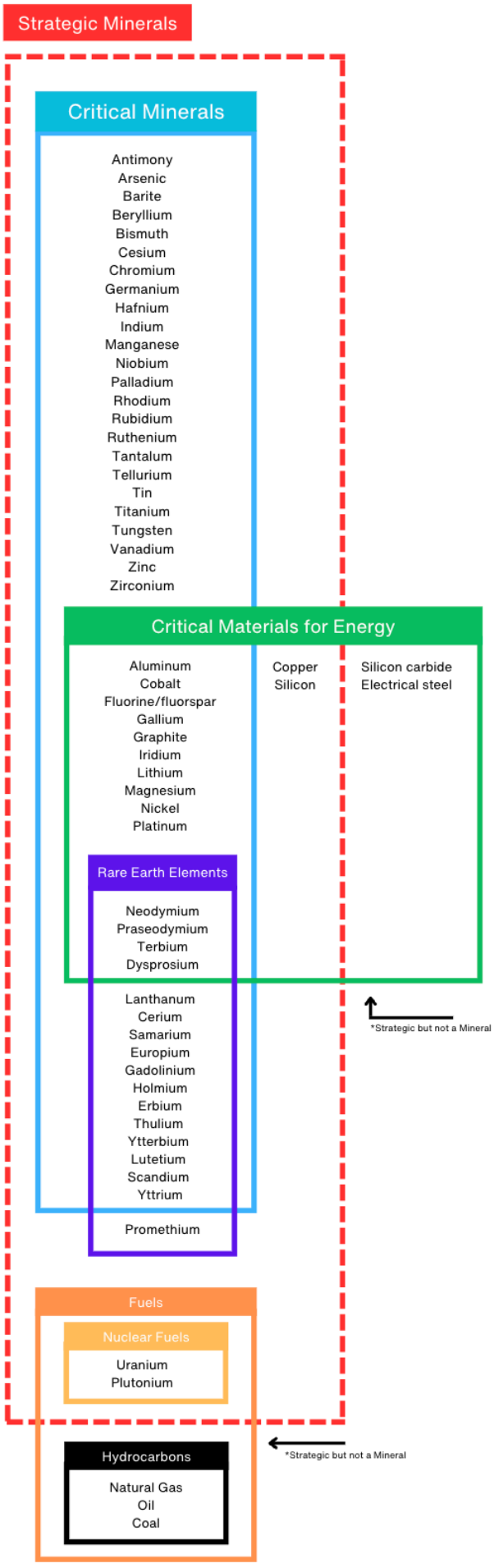
One of the greatest sources of confusion relates to understanding just what is a "strategic" or "critical" mineral, because there are differing definitions. Executive order 13817, signed in December of 2017, defines "critical minerals" as non-fuel minerals that are "essential to the economic and national security of the United States" and "the supply chain of which is vulnerable to disruption." The United States Geological Survey (USGS), tasked with applying this definition, lists 50 minerals deemed "critical minerals." This list includes a number of minerals crucial to U.S. strategic needs but several other official lists also exist. For example, four additional materials are listed as critical to energy technology by the Department of Energy (DOE). Uranium is also highlighted as a mineral with strategic importance, yet it does not fall into the narrow definition of a "critical mineral," due to its classification as a fuel. The minerals and resources on each list pertain to the specific resources each agency prioritizes, though each is essential to overall U.S. interests.

Mineral Dependence on China

The United States overwhelmingly relies on foreign nations for its critical mineral supply. In 2022, it depended on imports for over 50% of its supply for 31 minerals and 100% for 12, including minerals used for electronic equipment and military-grade metals. This import reliance is heavily skewed towards the PRC, with nine minerals supplied exclusively by China. According to an estimate from the International Energy Agency, by 2030, 77% of refined rare earth elements[1] will come from China. Already, over 95% of the growth in battery-grade spherical and synthetic graphite production comes from the PRC. In fact, China's share of market value for mined materials overall is rapidly increasing, largely due to its growing output of copper and lithium. While the United States has significant reserves of both of these metals, it falls dangerously short in other areas, and that creates serious problems for the future of U.S. economic growth, defense capabilities, energy transition, and global competitiveness. Critical minerals are especially important for energy and defense technology, but they are

1. Rare earth elements are a subset of 17 minerals, 16 of which are included in the critical minerals list.

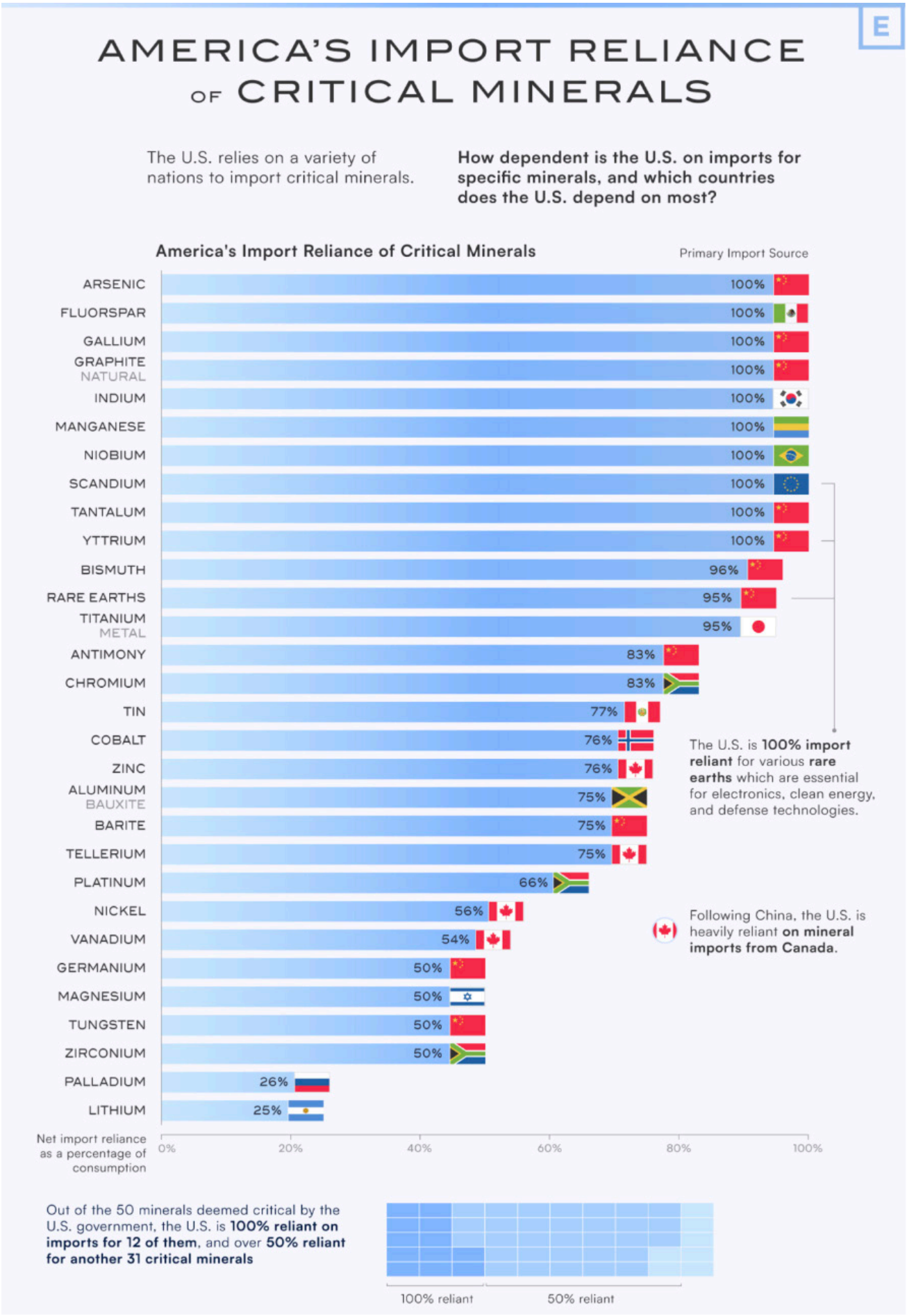
largely concentrated in China. In recent years, the PRC has made efforts to secure ownership and control of critical minerals extraction sites internationally. Beijing has sought to corner supplies of nickel and cobalt specifically, which are essential for energy and aerospace technology. China has in the past shown a willingness to weaponize this monopoly too. In 2010, China briefly halted its export of rare earth elements to Japan over a fishing dispute, sending Tokyo's automotive and technology sectors into crisis. Further efforts by Beijing to monopolize sources of critical and strategic elements could enable it to similarly weaponize supplies needed by the United States and its allies. There is a driving national security motivation behind U.S. efforts to seek alternative sources and extend its mineral supply lines.



Minerals in Central Asia, the South Caucasus, and Ukraine

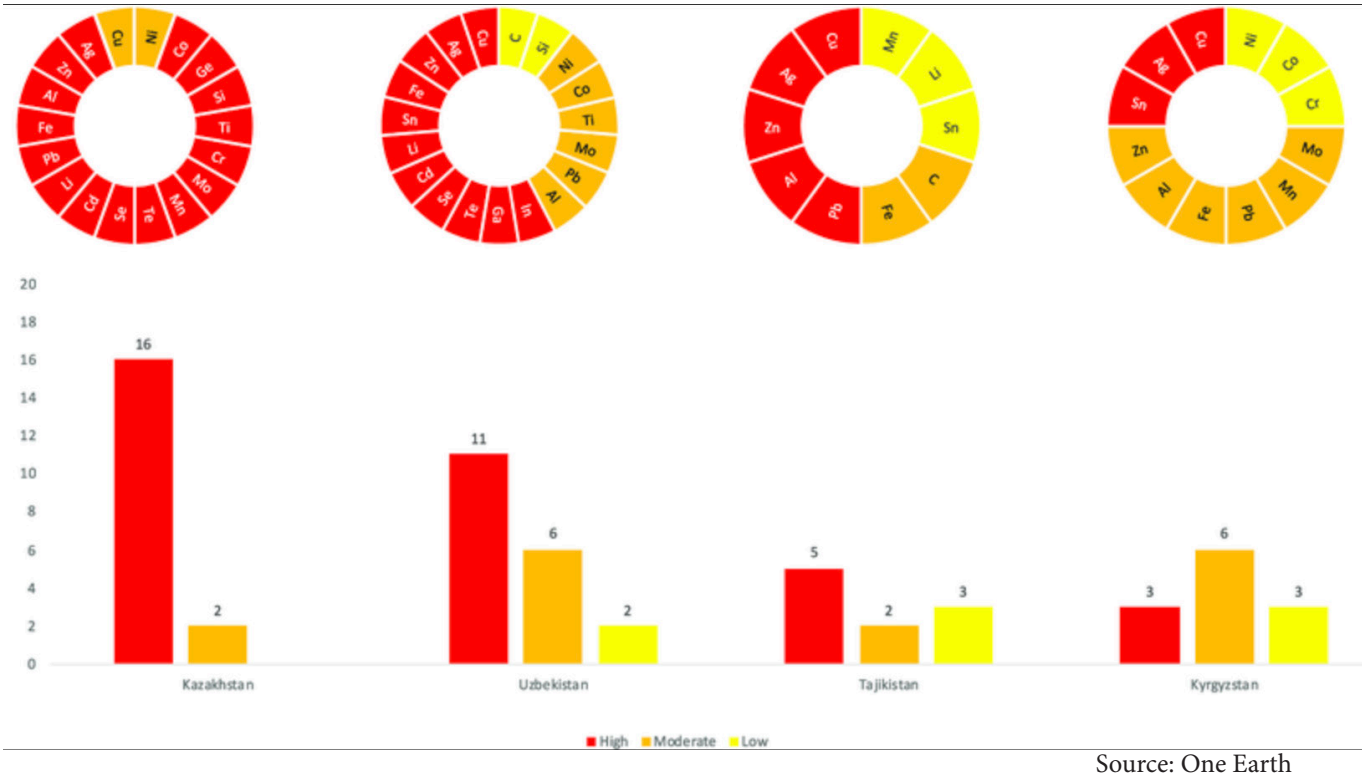
Washington has most recently called for diversification away from Chinese sources in the 2023 National Defense Industrial Strategy and 2024 National Defense Authorization Act. However, absent sufficient and alternative sources, implementation of this priority on the scale needed has been lacking. Central Asia, the South Caucasus, and Ukraine could play a vital role in this transition, given an abundance of available minerals, a desire to develop this sector of their economies, and a shared interest to promote greater connectivity with Western economies.

These three regions hold a collective abundance of strategic minerals. Due to a global reliance on Chinese sources and refining capabilities, however, Central Asia, the South Caucasus, and Ukraine's resources have often been overlooked until recently. Kazakhstan leads the region in its reserves of critical minerals, and it alone holds more Uranium than any other single nation, enjoying approximately 43% of global supply. The largest of the Central Asian republics also ranks third in global chromite production, producing significant amounts of copper, aluminum, and zinc, used for metal manufacturing, and aerospace technology, according to Kazakhstan's Minister of Industry and Construction. Central Asia (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan, and Uzbekistan) overall holds 38.6% of global manganese ore reserves, 30.07% of chromium reserves, and 12.6% of zinc reserves, all of which are essential in the production of steel, batteries, and aerospace technologies.



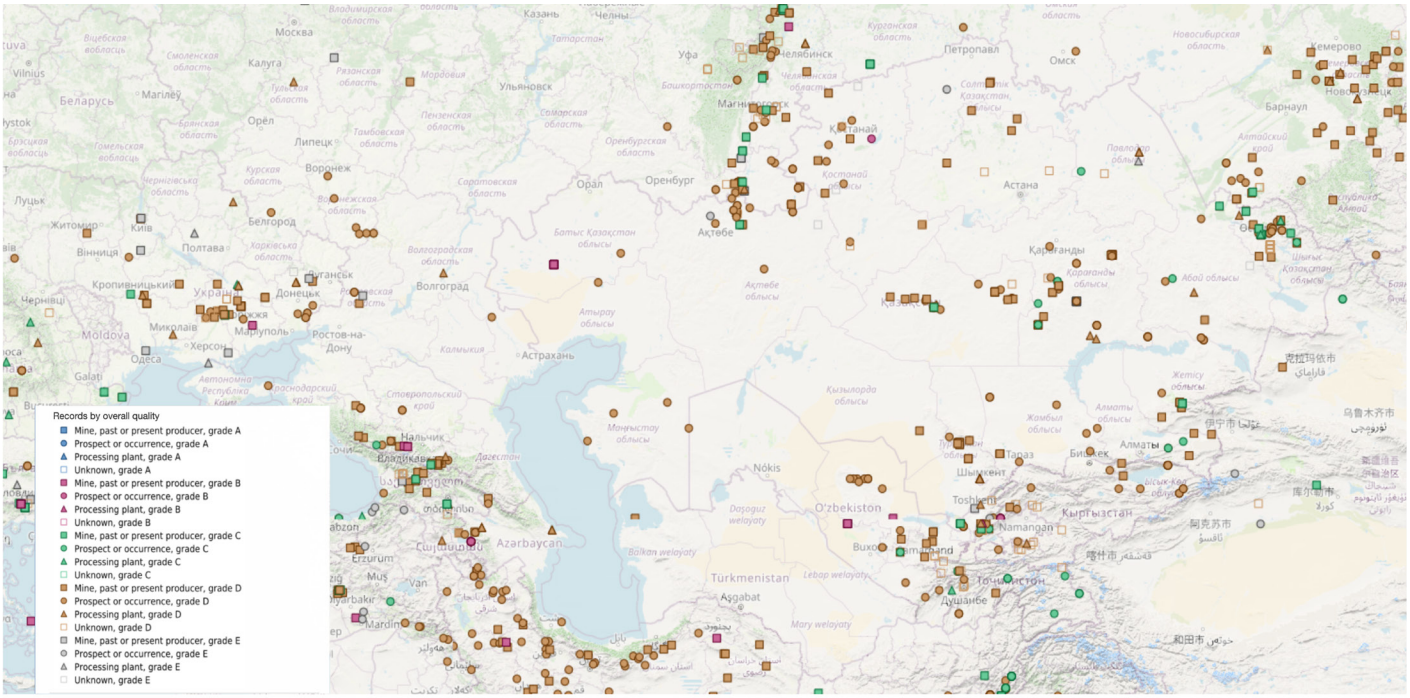
Less recognized, the South Caucasus (Georgia, Armenia, and Azerbaijan) are also home to significant critical mineral deposits, though comparably less than Central Asia. These minerals include copper and zinc, used for defense technology. Across the Black Sea, Ukraine has

consequential reserves of lithium and rare earth metals valued in the trillions of dollars. Ranking seventh globally in manganese extraction, Ukraine holds major deposits of zirconium silicate, graphite, and lithium, used for defense and energy technologies. Ukraine's extraction of graphite is limited, and lithium deposits have gone untouched due to the ongoing war and the need for new mining technology and investment.



Source: One Earth

Ukraine and Countries in the South Caucasus and Central Asia could benefit from developing their mining sectors as a way to enhance their sovereignty. As Western markets seek outside sources of critical minerals, these nations can develop new export economics, independent of their past relationships, and redefine their value.



Source: USGS

Current Efforts

Thus far, the United States has started some initial efforts to acquire critical minerals and offset its reliance on China. Several high-level meetings of American and Central Asian leaders, including in the C5+1 format, have involved discussions about extracting critical minerals from the region and developing infrastructure to transport the resources outside of the region. The Middle Corridor trade and transportation route through Central Asia and the South Caucasus has likewise sparked high-level discussions as a potentially secure and sanctions-safe conduit for transporting goods, including minerals, from Central Asia and the Caucuses to western markets and avoiding transit through Russia. These efforts have not just been exclusive to the United States amongst western nations. Recognizing the strategic importance of uranium for energy and the abundance of it in Central Asia, French President Emmanuel Macron attended several high-profile meetings with Central Asian and Caspian region leaders in late 2023 to strengthen these trans-continental alliances.

As need continues to grow and economic ties surrounding strategic minerals evolve with the western world, the region will gain a new relevance to U.S. policymakers. The former-Soviet regions of Central Asia, the South Caucasus, and Ukraine have historically been dominated by Russian political and economic influence. More recently Central Asia finds itself increasingly economically dependent on the PRC. A robust economic relationship with the United States and its allies based on the trade of strategic minerals offers a counterweight to Chinese and Russian influence. With more independence over their foreign economic relationships the region will be greater protected from the dominance of its neighbors and free to integrate further with the western world.

The United States needs a new strategy towards the region that enables it to take advantage of these new opportunities. Fostering national resilience, inter-regional connectivity, and a decoupling from the PRC and Russia should be priorities of the next presidential administration. More deposits must be identified, facilities for extraction and processing must be expanded, and the Middle Corridor must be further developed. The United States can facilitate this development. In order to understand the impact this could have, the next articles in the Caspian Policy Center's Strategic Mineral Series will focus on the use of those minerals present in the region for U.S. defense, communications, manufacturing, and energy needs. Future articles will explore the specific resources present in each country and U.S. government action on this issue in greater depth.

Note: The series will review strategic minerals defined as a broad category of minerals crucial to U.S vital interests. The review will include the USGS designated critical minerals list and several additional materials when relevant to the context and region.

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