


Rare Earth Supply Chain Report

In-depth Analysis of the State of Rare Earth & Critical Mineral Supply Chain and Global Outlook

CrossDock Insights

ABOUT CROSSDOCK

CrossDock is a data-driven media platform covering the intersection of global trade and supply chains.

We go beyond the headlines to unpack the trends, policies, and geopolitical shifts that shape how the world's goods move. Our reporting blends credible data, historical context, and clear analysis to reveal the deeper forces at play in global commerce.

From structural changes in supply networks to trade policies rewriting market rules, every story is built on facts you can trust and insights that matter.

For decision-makers, industry leaders, and anyone seeking to understand the systems powering the world economy, CrossDock offers the context and clarity that turn complexity into perspective.

THIS REPORT AUTHORED BY: SHYAM GOWTHAM V

CROSSDOCK'S COVERAGE WERE FEATURED IN:

FP Foreign Policy

FT FINANCIAL TIMES

NYSBA

Deloitte.

TABLE OF CONTENTS

EXECUTIVE SNAPSHOT

Critical minerals are the indispensable building blocks of modern technology, underpinning the United States' economic competitiveness and national security. These materials are essential for a vast range of strategic applications, from the advanced semiconductors that power our digital economy to the batteries for electric vehicles and the components of renewable energy systems. They are also crucial for manufacturing cutting-edge defense equipment, including missile guidance systems and fighter jets.

Despite their fundamental importance, the United States faces a profound and growing supply chain vulnerability. The nation remains heavily reliant on foreign sources to meet its critical mineral needs.

The latest U.S. Geological Survey (USGS) assessment highlights this dependency: the U.S. is 100% import-dependent for 12 of the 50 minerals on its official critical minerals list and imports more than half of its supply for another 29. This means that for the majority of these essential materials, a significant portion of the supply is beyond domestic control.

This vulnerability is overwhelmingly centered on a single geopolitical competitor: China. While China accounts for approximately 60% of global critical mineral production, its strategic dominance is even more pronounced in seperation, refining and making of final products

Who should read this?

This e-book is essential for supply chain professionals, trade strategists, and industry leaders in technology, defense, and clean energy – including policymakers and investors – who need to understand how access to critical minerals, especially rare earths, is reshaping global manufacturing.

It offers a clear, data-driven view of the market forces, geopolitical dynamics, and logistical realities driving this high-stakes sector.

Between 2020 and 2023, the US imported at least 29 key mineral commodities directly from China, exposing a dangerous reliance on a country with which it has a complex and often adversarial relationship.

This high degree of concentration and foreign control poses a significant risk of supply disruptions. The US is now racing to de-risk its supply chains, seeking to bolster domestic production, diversify its international partners, and invest in new technologies to secure its access to these vital resources.

KEY TAKEAWAYS

1. The U.S. is almost fully import-dependent for critical minerals and REEs. leaving key industries vulnerable to foreign disruption. The U.S. obtains about 72% of its rare earth imports from China

2. China controls nearly 90% of global rare earth refining, 87% of oxide separation, and 94% of magnet production. It also dominates battery-grade graphite (95%), lithium chemicals (70%), and refined copper (40%). This dominance was achieved through strategic investment, joint ventures, and aggressive pricing

3. The global transition to clean energy (EVs, wind turbines, solar farms) is driving an unprecedented surge in demand for critical minerals, with projections indicating a tripling by 2030 and quadrupling by 2040

4. China has repeatedly used its control over critical minerals as a strategic lever, implementing export restrictions and blocking exports

5. Countries like the U.S., EU, India, and the G7 are implementing aggressive strategies, including domestic production incentives and international alliances, to diversify supply chains and reduce reliance on China

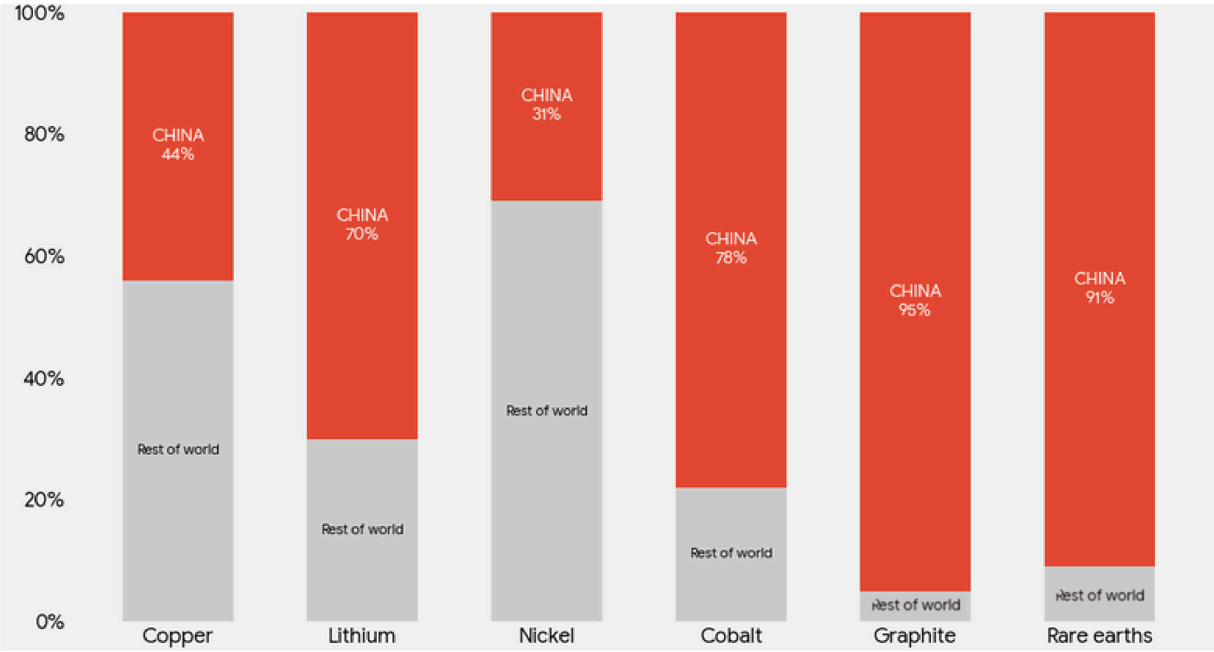
Headline Risk

Over-reliance on a single geopolitical actor — in this case, China — for critical minerals poses a severe and immediate threat to national security, economic stability, and the global clean energy transition. In addition to this, over the years, China has demonstrated its willingness to weaponize supply chains.

Action Recommendation

The United States must accelerate and expand multi-faceted strategies for supply chain diversification, including robust domestic mining and processing investments, international partnerships with resource-rich nations, and strategic stockpiling, to build resilience against future disruptions.

China's share of global refined critical mineral production (2024)

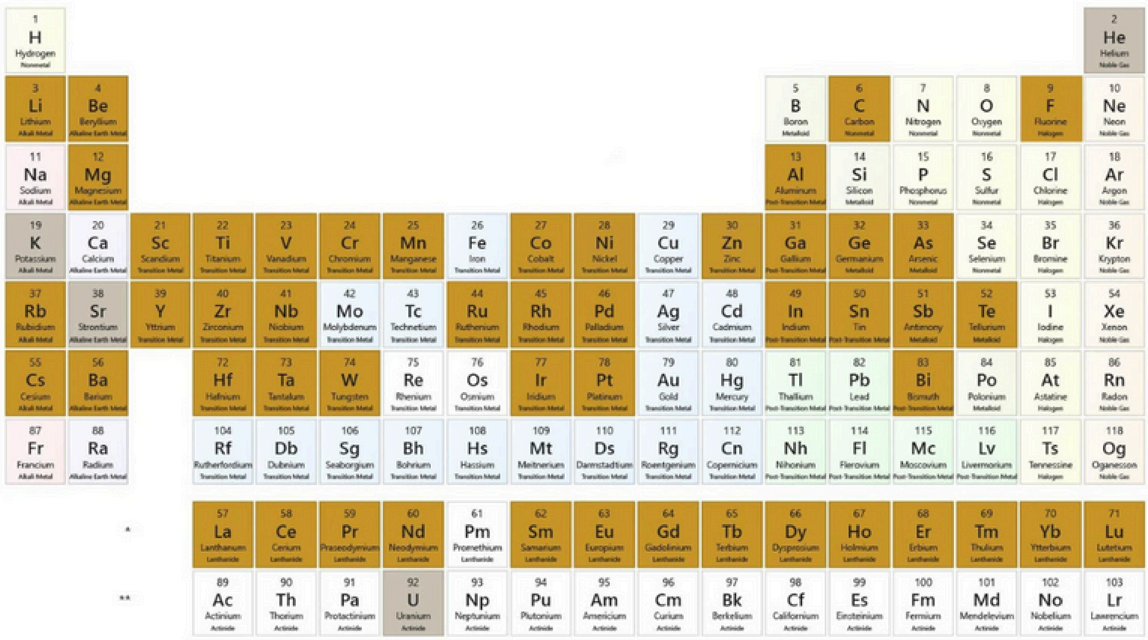


WHAT COUNTS AS A CRITICAL MINERAL

A "critical mineral" is generally defined as a non-fuel mineral or element that is:

- Essential to the economic or national security of a nation: Its absence or disruption would have significant consequences for key industries and defense capabilities.
- Vulnerable to supply chain disruption: This vulnerability can stem from factors such as geographic concentration of production, geopolitical instability, trade policies, or lack of domestic processing capacity.
- Serves an essential function in manufacturing: There are often limited or no viable substitutes, making them indispensable for specific applications.

It's crucial to note that the definition and specific list of critical minerals are not static. They evolve over time as new technologies emerge, supply and demand dynamics shift, and geopolitical landscapes change. Different countries and blocs (e.g., the United States, European Union) maintain their own lists based on their unique economic, industrial, and national security priorities.



Critical Minerals and Rare Earth Elements in the Periodic Table

WHAT COUNTS AS A RARE EARTH ELEMENT

Rare Earth Elements (REEs) are a group of 17 chemical elements in the periodic table. They include the 15 lanthanides (elements with atomic numbers 57 to 71) plus scandium (atomic number 21) and yttrium (atomic number 39). While they are often called "rare," they are not truly rare in terms of crustal abundance; instead, they are rarely found in economically viable, concentrated deposits.

Their unique physical, chemical, magnetic, and luminescent properties make them indispensable in a vast array of high-tech applications.

HOW THE US DEFINES AND UPDATES ITS LIST OF CRITICAL MINERALS

A "critical mineral," as defined by the Energy Act of 2020, is a non-fuel mineral whose secure supply is a matter of national interest. Its designation as "critical" is based on its importance to the U.S. economy and security, the vulnerability of its supply chain to disruption, and the severe impact that a shortage would have on key manufacturing sectors.

The United States defines and updates its official list of critical minerals based on a specific process mandated by law. This process is led by the U.S. Geological Survey (USGS).

Current US list count and governing bodies

The first list of critical minerals under the modern framework was published in 2018. This list, which contained 35 mineral commodities, was created following Executive Order 13817 and was published by the Department of the Interior through the U.S. Geological Survey.

The current official list, released in 2022, as mandated by the Energy Act of 2020, identifies 50 mineral commodities. While the USGS, a part of the Department of the Interior, is the primary body responsible for generating and publishing the list, its creation involves an extensive multi-agency assessment.

> *The first official USGS critical minerals list was published in 2018 with 35 minerals, updated in 2022 to include 50 minerals*

Criteria for inclusion

According to the Energy Act of 2020, a "critical mineral" must meet the following criteria:

- It is a non-fuel mineral or mineral material.
- It is essential to the economic or national security of the U.S.
- Its supply chain is vulnerable to disruption.
- It serves an essential function in a product, and its absence would have significant consequences for the U.S. economy or national security.

The list is not a permanent designation; it is a dynamic document that is updated periodically to reflect current data and policy priorities.

DEMAND LANDSCAPE

The demand for critical minerals is increasingly driven by a handful of high-growth sectors, particularly those central to the global energy transition and technological advancement.

The following table provides a snapshot of the demand landscape in 2024, outlining the key minerals and the typical supply chain dependency challenges for each sector:

Sector	Demand	Key Minerals	Concentration Risk Score
EVs and Energy Storage	CAGR around 9% between 2024 and 2035	Lithium, Cobalt, Nickel, Graphite, Manganese, Copper	High. >80–90% of refining concentrated in China.
Defense and Aerospace	CAGR of about 4% between 2024 and 2035	Gallium, Titanium, Tungsten, Rare Earth Elements (e.g., Neodymium, Dysprosium), Platinum Group Metals (PGMs)	Very High >85–90% of refining/processing concentrated in China ~60–70% of critical inputs sourced from limited countries
Chips and Data Centers	CAGR of 12.5% from 2025 to 2030	Gallium, Germanium, Indium, Copper, Cobalt, Nickel, Rare Earth Elements	High. ~65–70% of key materials sourced from China >80% of refining/processing controlled by China
Renewables and Grid-Scale Storage	CAGR of 7% from 2025 to 2030	Copper, Aluminum, Rare Earth Elements, Lithium, Manganese, Graphite, Zinc, Vanadium	High. ~70% of essential minerals mined in a few countries (China, DRC, Indonesia

EV AND ENERGY STORAGE

In 2024, the demand for electric vehicles (EVs) saw a major milestone, with global sales exceeding 17 million, a 25% year-on-year increase. China maintained its position as the leading market, with sales soaring by almost 40%, while the United States also saw steady growth, with sales reaching 1.6 million units and a year-on-year increase of 10%, according to the International Energy Agency.

This surge in EV sales directly correlated with the demand for key battery minerals. The IEA's "Global Critical Minerals Outlook 2025" reports that the energy sector, propelled by EVs and battery storage, was responsible for 85% of the total demand growth for critical minerals like lithium, cobalt, and graphite.

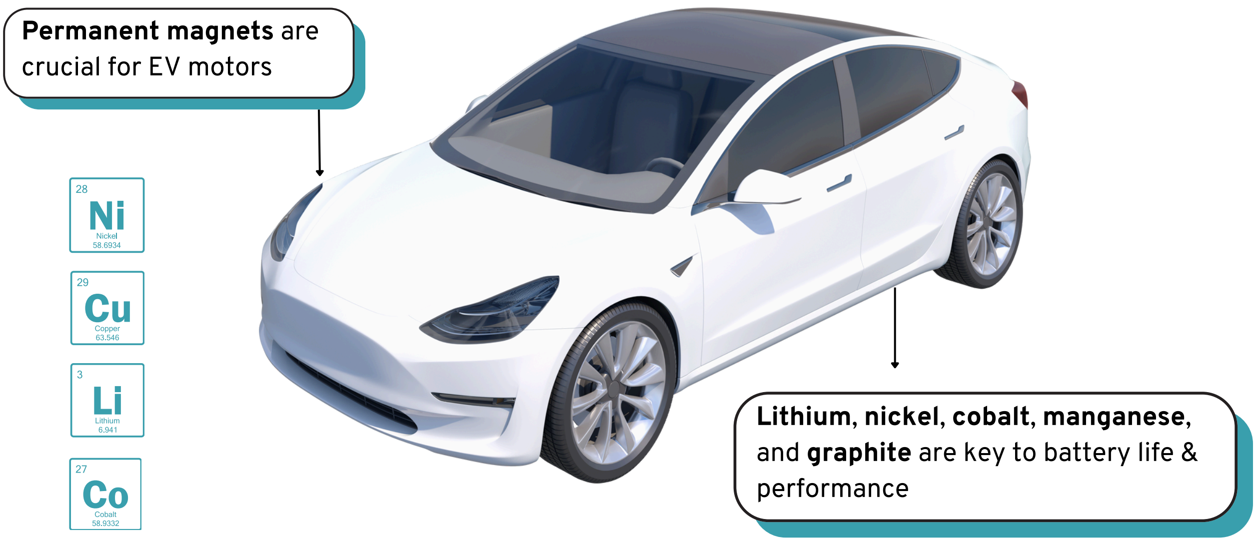
Take Tesla, for example. According to its 2023 Impact Report, every Tesla EV is built on a foundation of critical minerals—its batteries rely heavily on lithium (8kg), nickel (39kg), and cobalt (13kg); the anodes are made from graphite(66kg); and the electric motors use rare earth elements(0.5kg) to function efficiently.

The demand for lithium, in particular, saw a dramatic increase of nearly 30% in 2024, significantly outpacing its growth in the previous decade.

A key trend driving battery demand in 2024 was the increased adoption of cobalt-free batteries, specifically the lithium iron phosphate (LFP) chemistry.

LFP batteries, which do not contain cobalt, made up almost half of the global EV battery market, a remarkable resurgence from their less than 10% share in 2020.

This shift was initially driven by the high prices of nickel and cobalt in 2021-2022, but their continued market dominance is sustained by their lower cost and improved energy density.



DEFENSE AND AEROSPACE

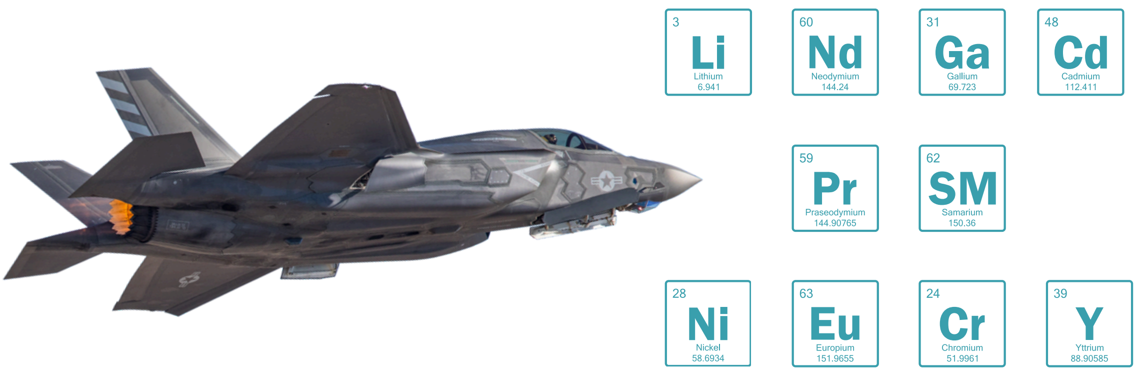
You're in the middle of a war. Time is running out. You need to ramp up production—missiles, tanks, fighter jets, radar systems—fast. But you can't. Because minerals essential to making those weapons are controlled by a rival nation. That's the reality with rare earth elements and the United States' defense sector.

Critical minerals aren't just strategic assets in today's clean energy transition—they're also the backbone of 21st-century warfare. The U.S. defense industrial base relies heavily on these elements to build the modern arsenal. According to the National Minerals Association, the Department of Defense uses 7,50,000 tons of minerals. From jet propulsion and advanced munitions to night vision systems and electronic warfare gear, critical minerals quietly power the high-tech machinery of the U.S. defense sector.

17 elements on the periodic table that fall under the category of rare earths are entirely needed for the production of various military equipment.

For example, yttrium is crucial for radar and infrared detection, while neodymium-iron-boron (NdFeB) magnets are used in radar, sonar, and electronic warfare systems. Gallium and Germanium are also vital for high-frequency electronics and advanced radar, and cobalt is used in jet engine superalloys and magnetic stealth materials.

Titanium is essential for airframes and jet engines due to its exceptional strength-to-weight ratio and corrosion resistance. But nowhere is this mineral dependency more striking than in the U.S. military's crown jewel: the F-35. Each F-35 fighter jet contains about 900 pounds of rare earth elements, built into everything from the engine and radar to its munitions and flight controls, according to the U.S. Department of Defense. The demand climbs even higher at sea: a single Virginia-class submarine (SSN-774) uses over 9,200 pounds of rare earth materials, based on estimates from the National Mining Association.



Critical Minerals and Rare Earth Elements Used in F-35

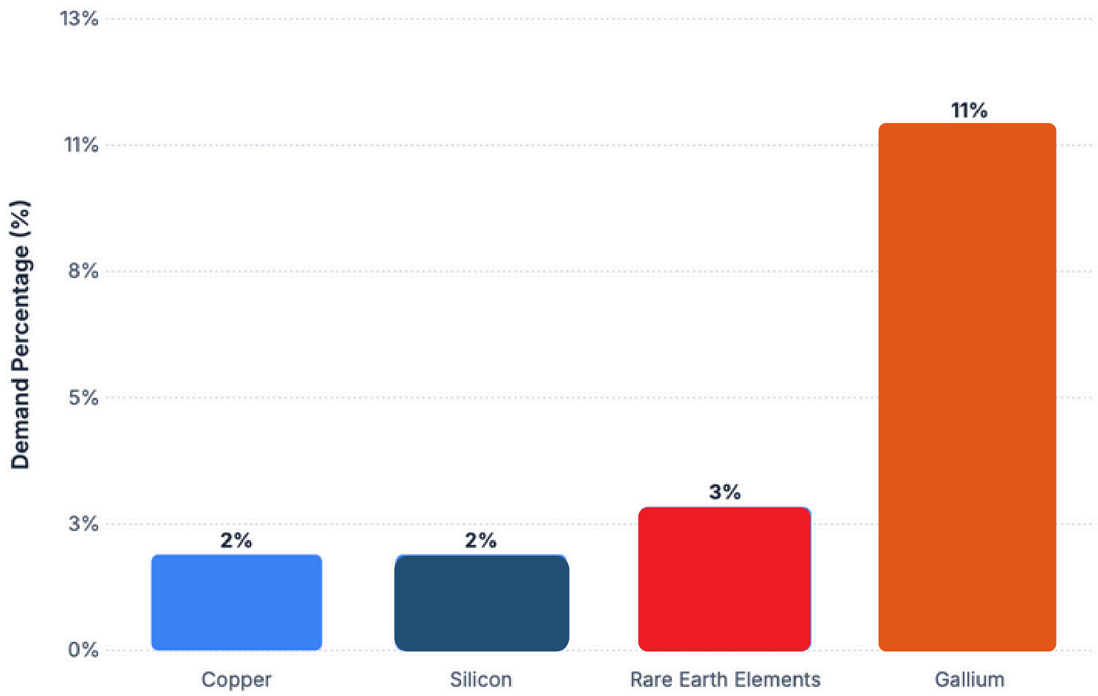
CHIPS AND DATA CENTERS

The demand for minerals in the chips and data center sector is surging at an unprecedented rate, primarily due to the explosive growth of AI applications and the concurrent build-out of AI-focused data centers worldwide. These facilities require vast amounts of power and complex infrastructure, making them a significant new driver of critical mineral consumption.

According to estimates from the IEA, copper use in data centers could range from 250 kilotonnes (kt) to 550 kt by 2030, which equates to 1-2% of global copper demand. This figure could be even higher if the pace of AI acceleration outstrips current expectations. The IEA also projects a remarkable impact on other critical minerals, with data centers alone pushing global demand for gallium to 11% and for silicon to nearly 2% of their respective total demand by 2030.

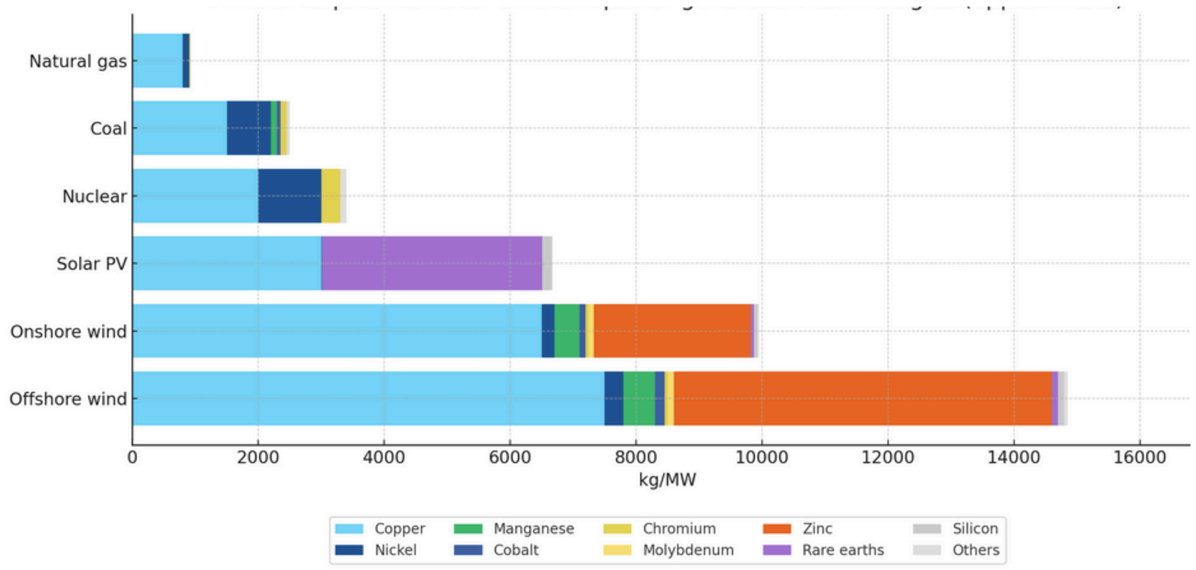
According to Copper Development Association, a typical data center requires 5,000 to 15,000 tons of copper. In comparison, hyperscale AI-focused data centers can demand up to 50,000 tons—over three times more—due to significantly higher power density, heat generation, and advanced networking needs that only copper's electrical and thermal properties can reliably support. The scale of this mineral demand is underscored by the massive investments being made by major tech companies.

For instance, in July 2025, Google announced plans to invest $25 billion over two years to expand its data centers and AI infrastructure across the United States. Meta is reportedly building a $10 billion AI data center in Louisiana. Other tech giants are making similar commitments.



Projected Demand Percentage of Critical Minerals Used in Data Centers by 2030

RENEWABLES AND GRID-SCALE STORAGE



Data Source: IEA; Critical Mineral Requirement for Different Power Generation Technologies

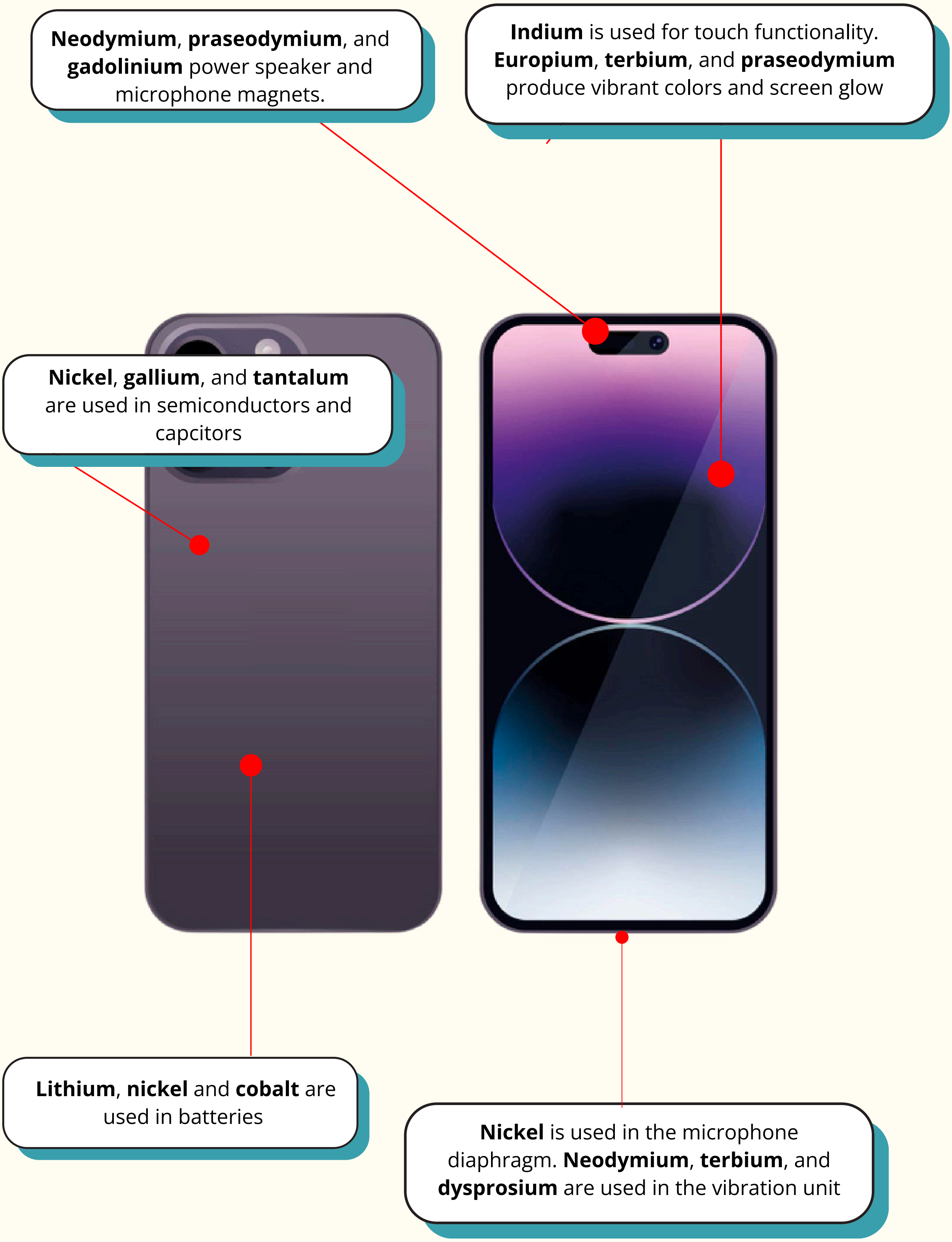
The transition to renewable energy sources is driving a significant demand for critical minerals, which are essential for both power generation and the grid infrastructure needed to transmit and store that power. In 2024, global renewable capacity additions surged by an estimated 25%, with wind and solar PV accounting for 95% of this growth. This trend has created an unprecedented demand for a range of critical materials such as cobalt, tellurium, and rare earth elements.

Let's take the example of copper and aluminium. These are the indispensable building blocks of the modern grid. They are used in vast quantities for wiring, cables, and transformers in both power generation facilities and the distribution networks that deliver electricity to consumers.

According to IEA's 2024 outlook, clean energy technologies (e.g., solar, wind, EVs, storage) already account for about 29% of copper demand in 2024. According to analysts, the annual growth for aluminium in energy-transition applications is expected in the 3–5% range, aided by substitution in some cabling and where copper supply is constrained.

In 2024, over 90% of the United States' refined copper imports came from just three countries– Chile, Canada, and Peru – according to USGS. In fact, the bulk of U.S. aluminium imports is also highly concentrated, with Canada alone accounting for more than 60% of total imports in 2024, followed by the United Arab Emirates and China.

CRITICAL MINERALS IN A SMARTPHONE



GLOBAL MINING & REFINING

LITHIUM

When it comes to global lithium production, Australia tops the list. It is responsible for roughly 35% of global lithium production – 88,000 tons – according to USGS Mineral Commodities Summary 2025.

Most of this mineral wealth is concentrated in Western Australia. The Greenbushes lithium mine, often cited as the largest hard-rock lithium mine globally, anchors Australia's dominance in spodumene extraction.

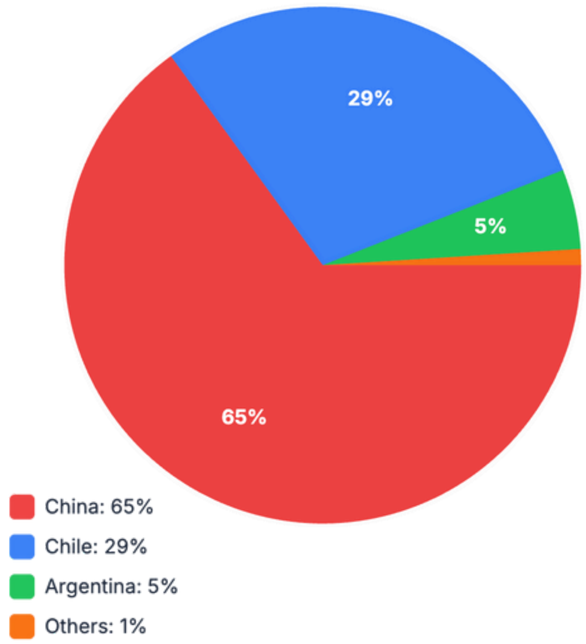
Other major players in the global lithium supply include Chile, which produced around 40,000 metric tons; China, with 30,000 tons; Argentina, at 20,000; Brazil, at 3,000; and Zimbabwe, at about 1,000. In total, global lithium production reached 240,000 metric tons in 2024, 18% higher than the year before in response to strong demand from the lithium-ion battery market.

Interestingly, Chile holds the number one spot when it comes to lithium reserves, with 9.3 million tons, followed by Australia with 7 million tons. At least 60 percent of the world's available lithium resources are found in South America's ABC triangle (Argentina, Bolivia, Chile), according to the US Geological Survey.

Global lithium consumption reached an estimated 220,000 tonnes in 2024, marking a 29% increase from the revised 2023 total of 170,000 tonnes. However, despite strong year-on-year demand growth, concerns over a short-term oversupply—combined with slower-than-expected EV sales in the first half of 2024—led to a significant decline in lithium prices throughout the year.

In 2024, the United States imported the vast majority of its lithium from just two countries: Chile accounted for 50% of U.S. lithium imports, while Argentina supplied 47%, with the remaining 3% sourced from other countries, according to the latest USGS data.

GLOBAL LITHIUM REFINING CAPACITY



Despite ranking only ninth in global lithium resources, it dominates where it counts – the refining and downstream value chain. According to S&P Global and the World Economic Forum, over 60% of the world's battery-grade lithium is refined in China. Its grip tightens further down the chain: from processing to battery production, China commands a staggering 70–90% market share. Even by 2030, Chinese control over cathode and anode manufacturing is expected to hold firm. And despite a wave of U.S. project announcements, analysts don't see America capturing more than 15% of the lithium-ion market.

GRAPHITE

China is the world's leading producer of graphite. In 2024, it produced approximately 1.27 million metric tons, accounting for an estimated 78% of the global supply, and China refined over 90% of the world's graphite into battery-grade materials.

According to GlobalData's Global Graphite Mining to 2030 report, the world's natural graphite reserves total an estimated 290 million tonnes as of January 2025, with China accounting for 28% of that global reserve base (81 million metric tons), followed by Brazil (74 million) and Mozambique (25 million).

Despite efforts to diversify supply chains, China remains the cornerstone of both current graphite production and future availability.

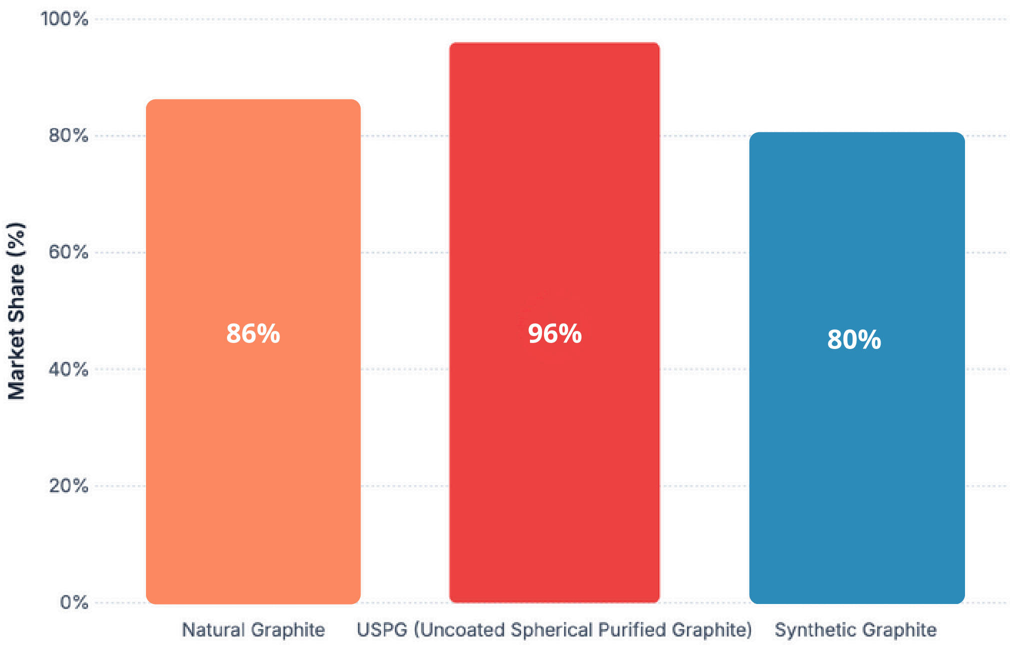
The U.S. Commerce Department is also preparing to impose preliminary anti-dumping duties of 93.5% on graphite imports from China

The US imports nearly 42% of its graphite supply from China. What's worth noting is that among all critical battery materials, graphite stands out as especially vulnerable to supply disruptions. This is due to a lack of viable alternatives for battery anodes and a heavy geographic concentration of supply.

Global graphite consumption increased by 8% in 2024, reaching 4.8 million metric tons, with the majority of the demand growth stemming from the battery sector.

Natural graphite production is projected to grow at a robust 15.6% CAGR, reaching over 3.78 million tonnes by 2030.

CHINA'S MARKET SHARE OF GRAPHITE PRODUCTION IN 2024



Data Source: Benchmark's Natural and Synthetic Graphite Forecast

COPPER

According to the U.S. Geological Survey, worldwide copper production reached 23 million metric tons in 2024.

Chile leads the global supply, with 5.3 million metric tons extracted, accounting for nearly 24% of total production. It is followed by the Democratic Republic of Congo, which produced 3.3 million metric tons, and Peru, which contributed 2.6 million metric tons.

Among other key producers, China mined 1.8 million metric tons in 2024, while the United States extracted 1.1 million metric tons. According to a S&P Global report titled *The Future of Copper*, the demand for copper is set to increase to 50 million metric tons by 2035 and 53 million metric tons by 2050.

According to UN Trade and Development, global copper demand is set to surge by over 40% by 2040.

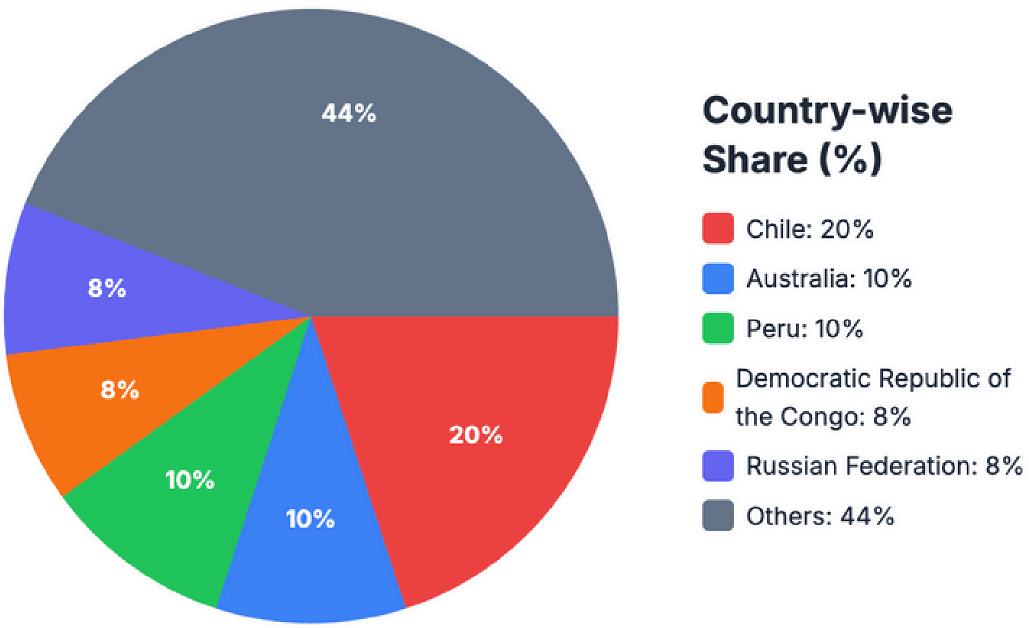
To close the gap, the world may need to develop 80 new copper mines and mobilize nearly $250 billion in investment by 2030.

Geologists have uncovered over 20 million tons of high-grade copper in China's Qinghai–Tibet Plateau, with potential reserves estimated at up to 150 million tons. This positions the region as a major global copper hub and could significantly boost China's influence in the copper market.

In 2024, China dominated refined copper production, accounting for 44–57% of global output, while Chile held roughly 10%, Japan around 6–7%, and both Russia and India contributed about 5% and 4%, respectively

In July 2025, the United States announced a sweeping 50% tariff on copper imports, effective August 1, as part of a broader effort to safeguard national security and domestic supply chains.

COUNTRIES WITH MAJOR RESERVES OF COPPER



Data Source: USGS

RARE EARTH ELEMENTS (REE)

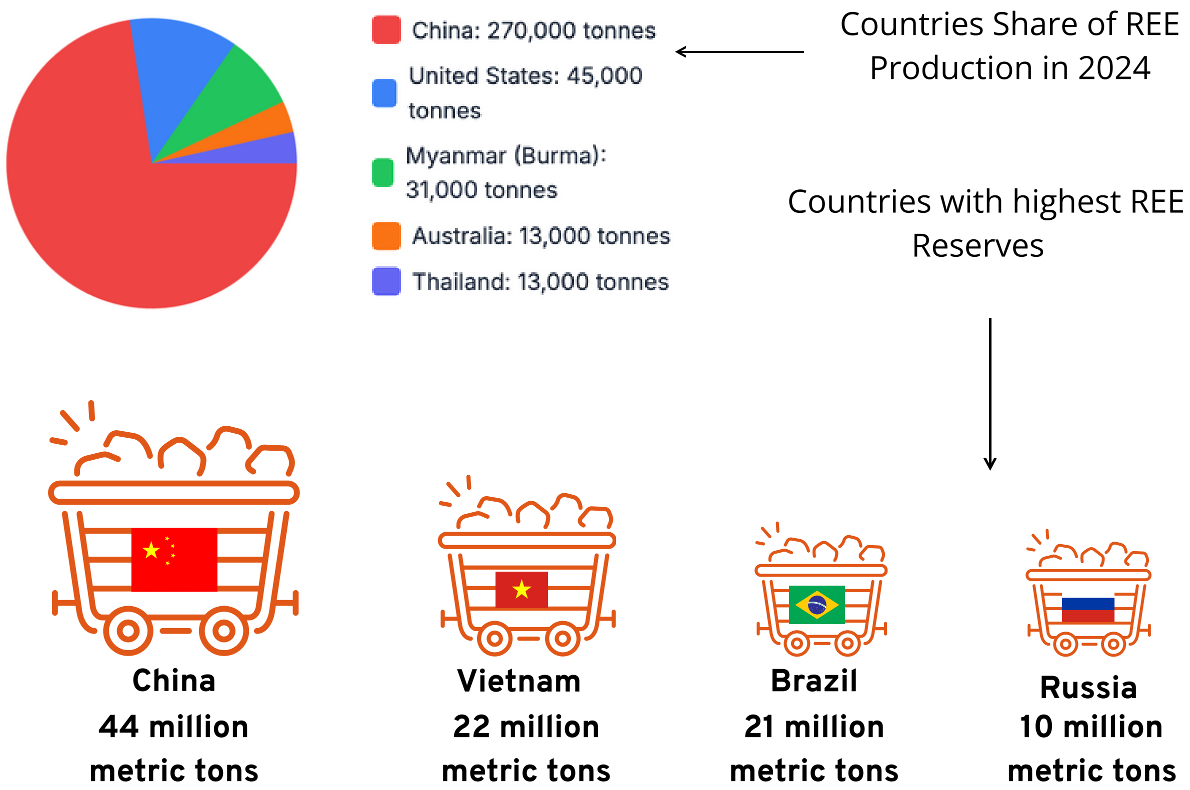
China remains the undisputed leader in global REE production, accounting for 270,000 tons—nearly 69% of global output. The United States, Australia, and Myanmar followed distantly with 45,000, 13,000, and 31,000 tons, respectively, according to USGS.

But the bigger story lies in the reserves. China leads globally with 44 million metric tons of rare earth reserves, followed by Vietnam (22 million metric tons), Brazil (21 million), Russia (10 million metric tons), and India (6.9 million metric tons). The U.S. holds 1.9 million tons, while emerging sources, such as Greenland, Tanzania, and South Africa, report smaller but notable reserves.

Recently, Kazakhstan has discovered a massive rare earth metals deposit at the Kuirektykol site in the Karaganda region, estimated to contain up to 800,000 tons, with the broader Zhana Kazakhstan area potentially holding over 20 million tons. The deposit includes critical elements like cerium, lanthanum, neodymium, and yttrium.

Even though several countries hold substantial reserves of critical minerals, China's dominance in the sector remains unmatched. Decades of strategic investment in mining, refining, and processing capacity have given Beijing a firm grip on the global critical mineral supply chain.

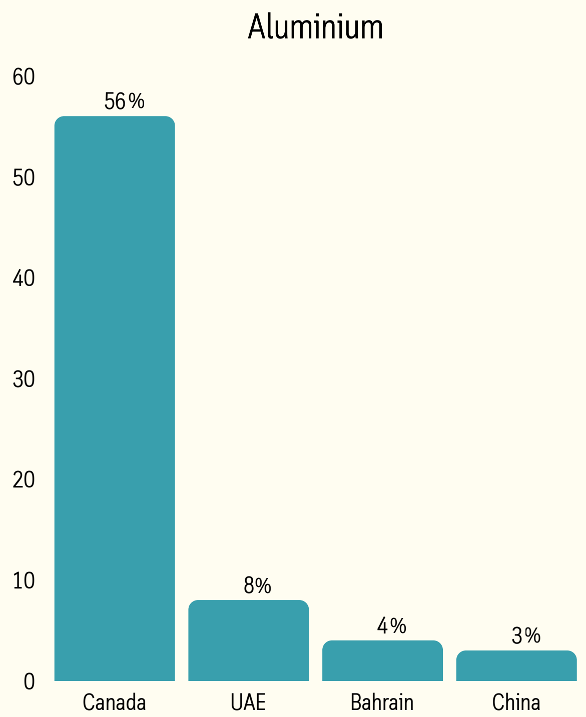
CHINA'S RARE EARTH ELEMENTS DOMINANCE

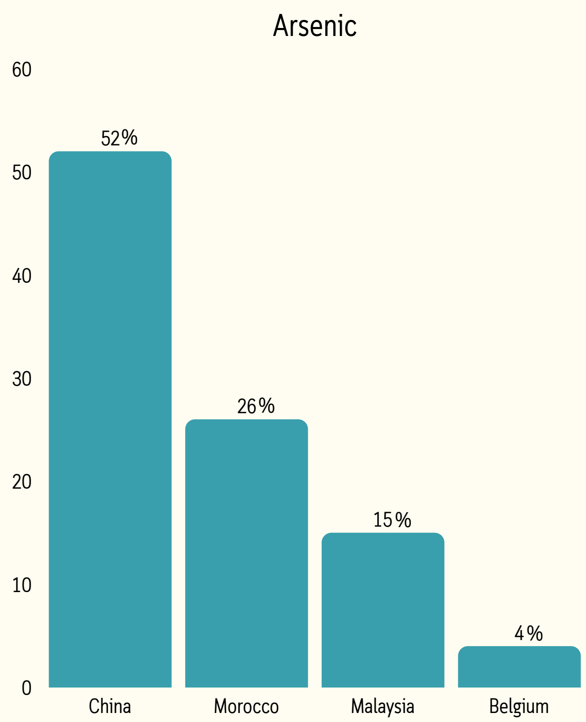


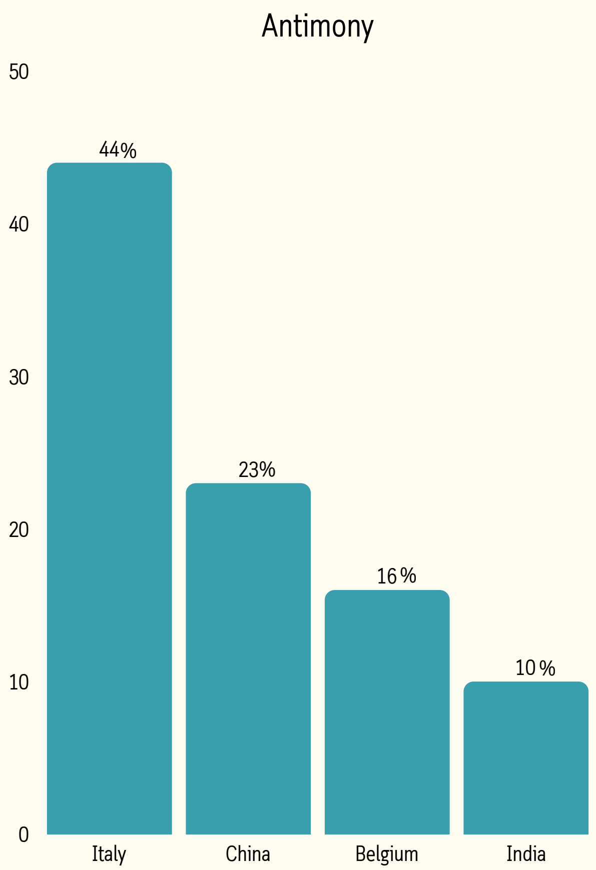
Data Source: USGS

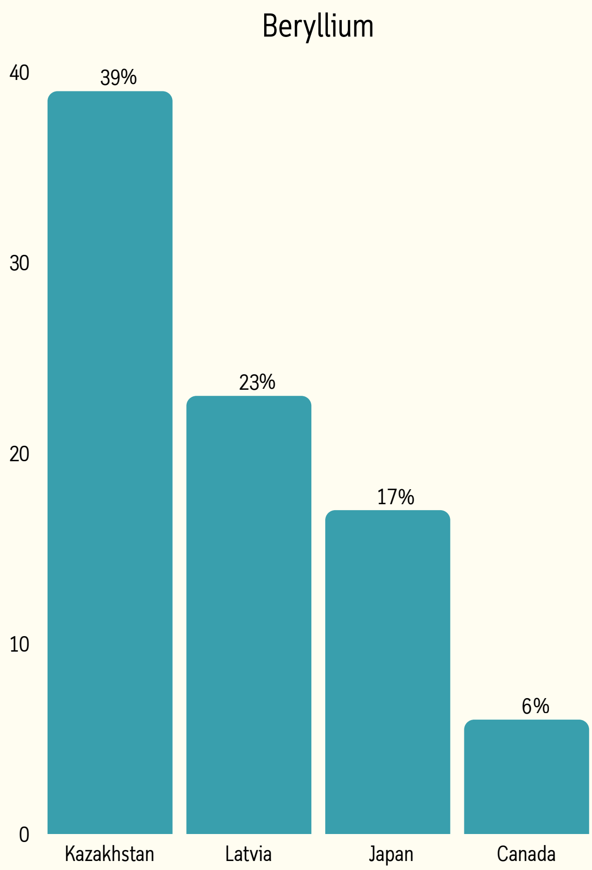
US IMPORTS OF CRITICAL MINERALS

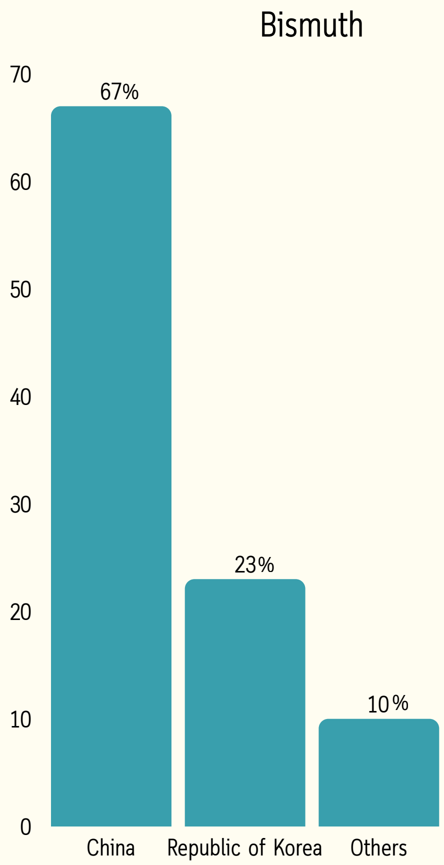
The following graphs break down the US imports of critical minerals from other countries in percentages. The data is sourced from USGS's Mineal Commodities Summary 2025

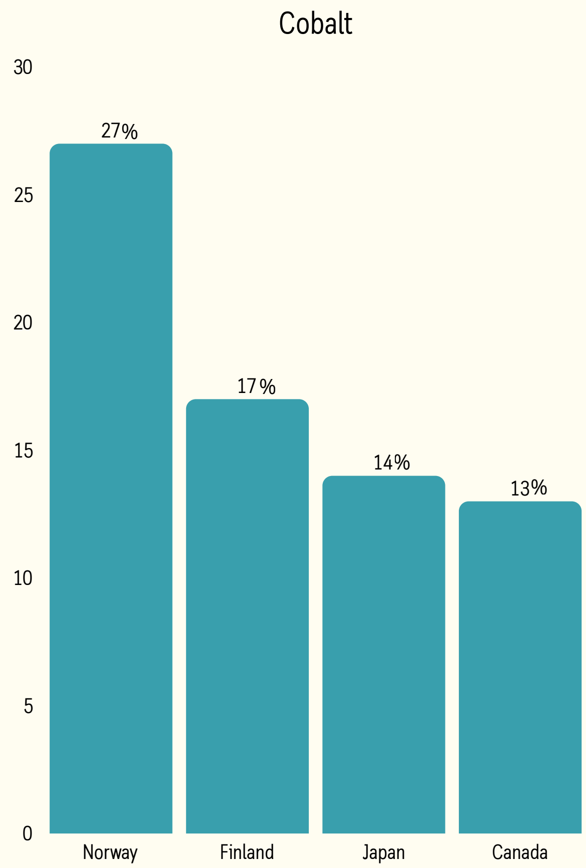


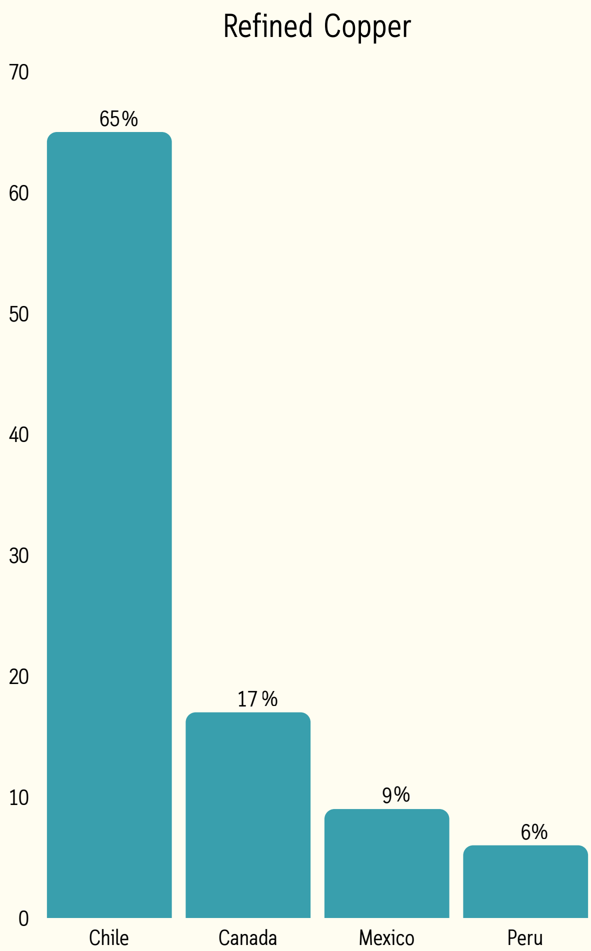


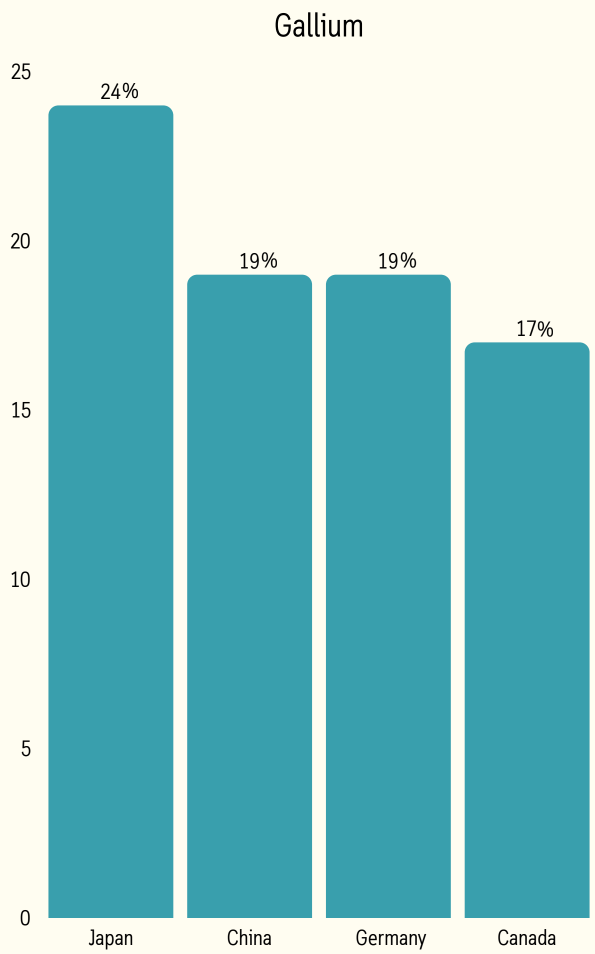


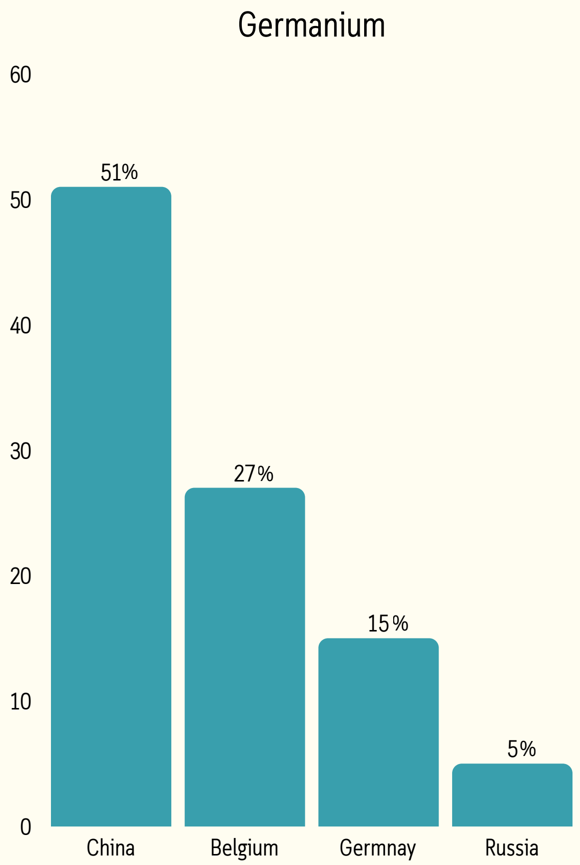


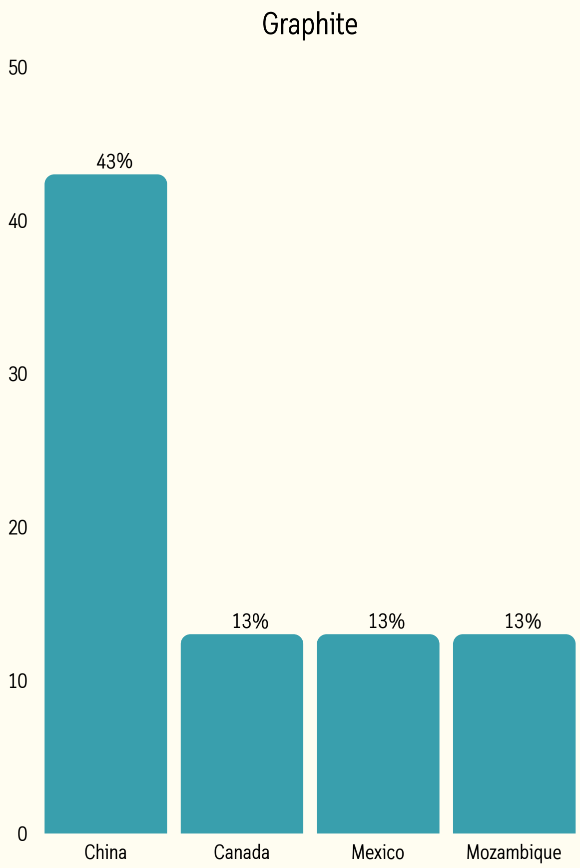

Bismuth
70
60
50
40
30
20
10
0
67%
23%
10%
China
Republic of Korea
Others

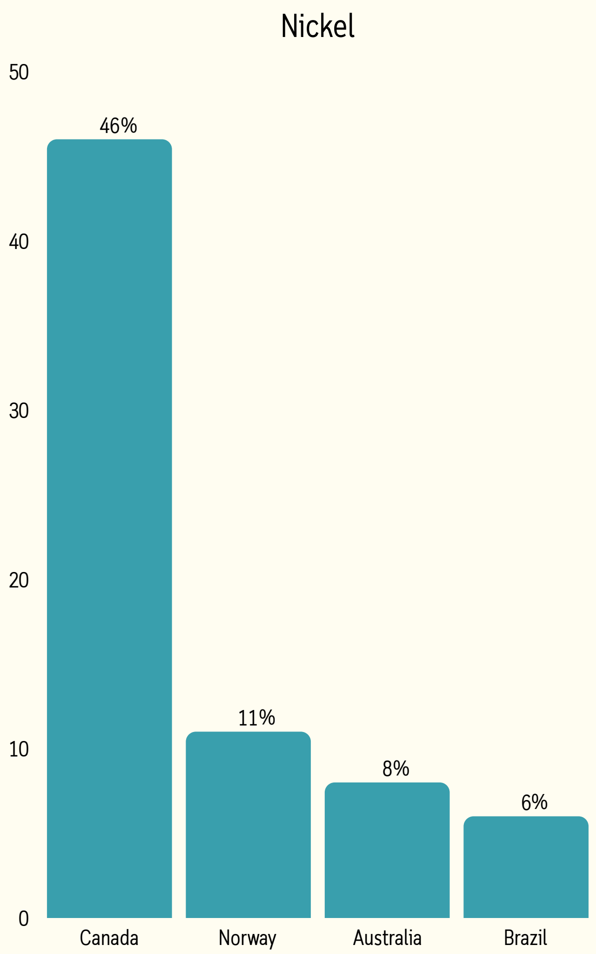

Cobalt
30
25
20
15
10
5
0
27%
17%
14%
13%
Norway
Finland
Japan
Canada

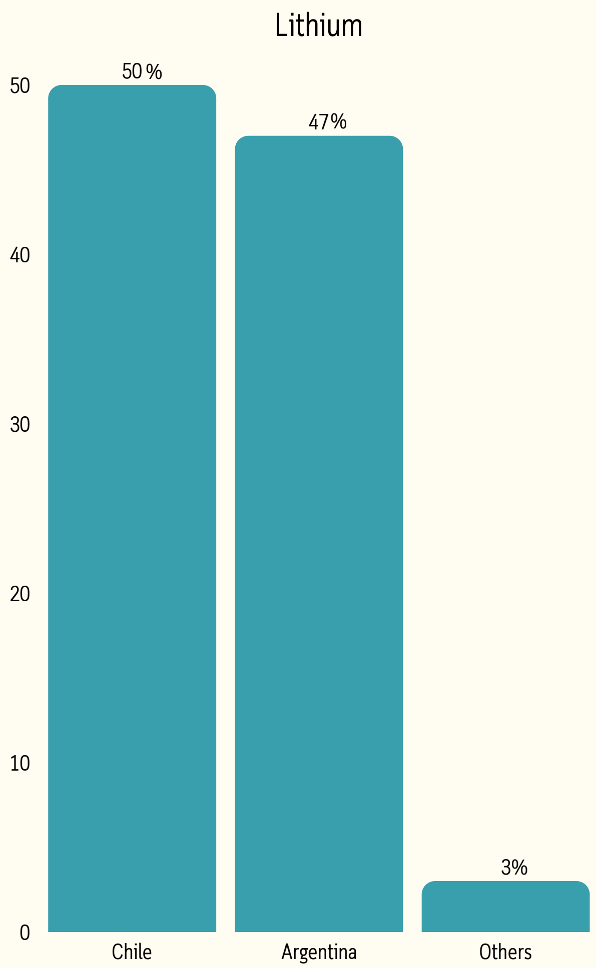

Refined Copper
70
60
50
40
30
20
10
0
65%
17%
9%
6%
Chile
Canada
Mexico
Peru

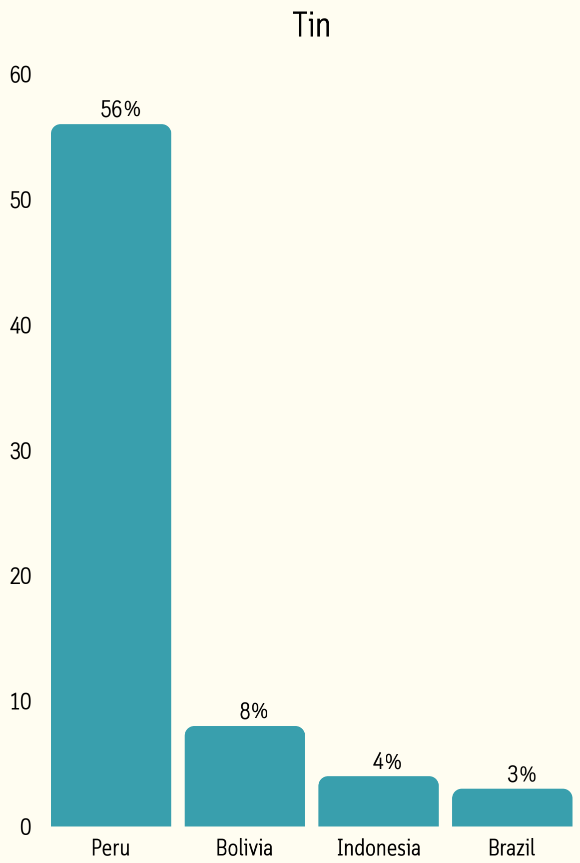

Gallium
25
20
15
10
5
0
24%
19%
19%
17%
Japan
China
Germany
Canada

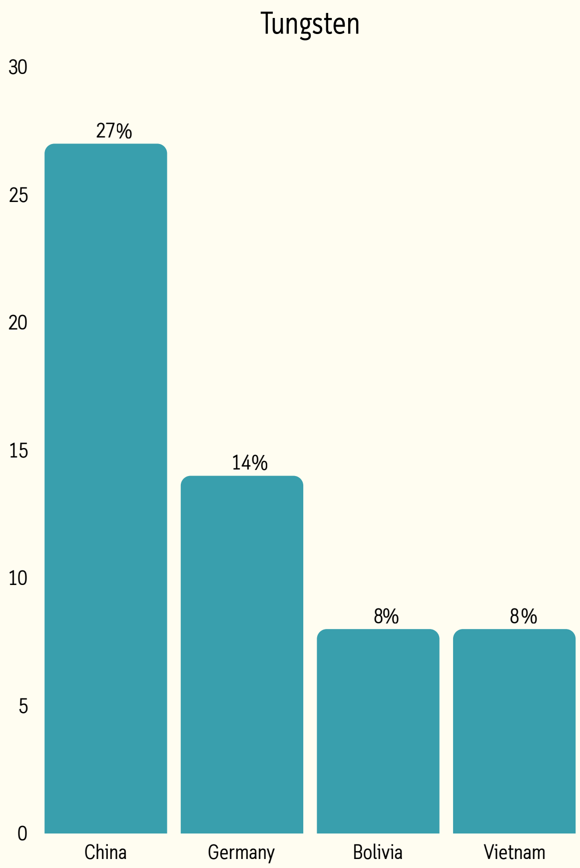

Germanium
60
50
40
30
20
10
0
51%
27%
15 %
5%
China
Belgium
Germnay
Russia

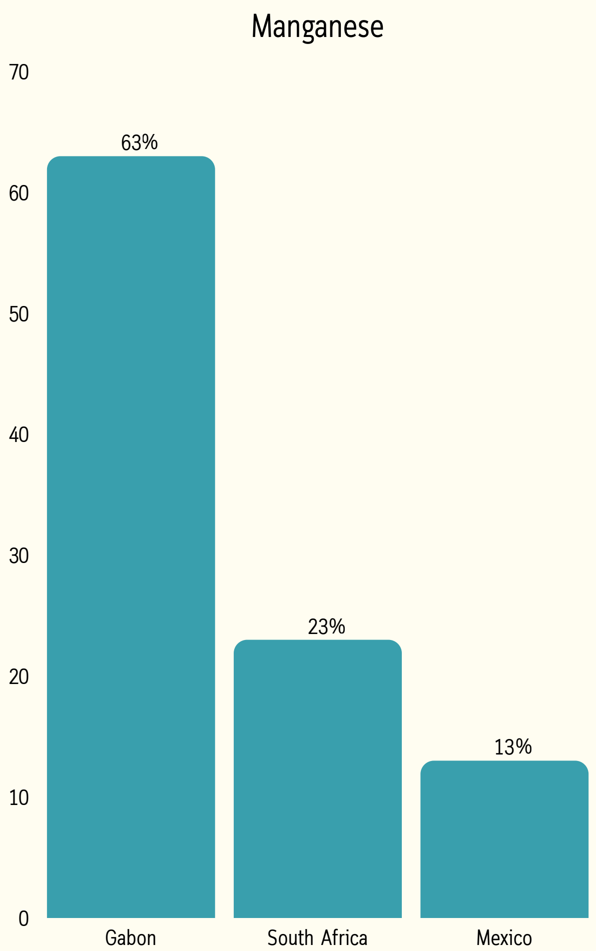

Graphite
50
40
30
20
10
0
43%
13%
13%
13%
China
Canada
Mexico
Mozambique

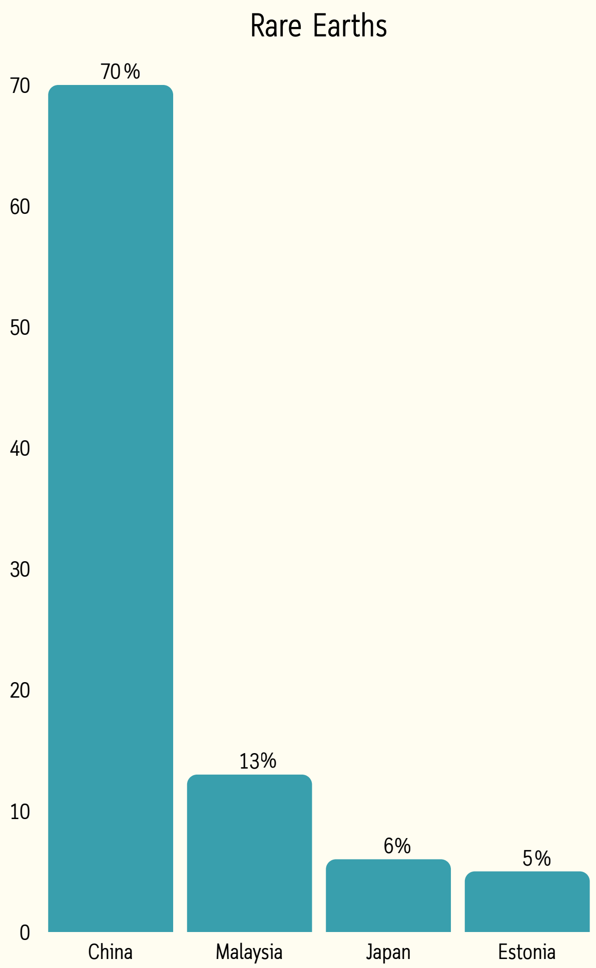

Nickel
50
40
30
20
10
0
46%
11%
8%
6%
Canada
Norway
Australia
Brazil


Lithium
50
40
30
20
10
0
50 %
47%
3%
Chile
Argentina
Others


Tin
60
50
40
30
20
10
0
56%
8%
4%
3%
Peru
Bolivia
Indonesia
Brazil


Tungsten
30
25
20
15
10
5
0
27%
14%
8%
8%
China
Germany
Bolivia
Vietnam


Manganese
70
60
50
40
30
20
10
0
63%
23%
13%
Gabon
South Africa
Mexico


Rare Earths
70
60
50
40
30
20
10
0
70 %
13%
6%
5%
China
Malaysia
Japan
Estonia

CHINA'S RARE EARTH DOMINANCE

The rare earth supply chain has three main steps: mining, refining, and manufacturing. First, raw materials are mined from the earth. Next, they're chemically refined into high-purity oxides. Finally, those oxides are used to make magnets and other advanced components.

To build technical expertise in these areas, the Chinese government invested billions of yuan in scientific research and metallurgical innovation.

A significant example is the Program 973 (also known as the National Basic Research Program), launched in 1997 to fund cutting-edge research in rare earth science, including separation chemistry, alloy development, and magnet performance. Furthermore, state-sponsored institutes, such as the Baotou Research Institute of Rare Earths, were tasked with making China the global center for rare earth research and development.

This investment in R&D is reflected in China's patent filings related to rare earth elements. According to a South China Morning Post report, as of October 2020, China had filed for 25,911 patents, far ahead of the US, which had filed 9,810 patents, Japan, with 13,920 patents, and the European Union, with 7,280 patents, since the first US filing in 1950.

If one part of China's critical mineral dominance was built on technology and long-term planning, the other came from a more tactical playbook: driving down prices to eliminate the competition.

China was able to sell refined critical minerals —such as neodymium and dysprosium—at prices well below the global average. As a result, refining, the most expensive and complex part of the supply chain, was hit the hardest. Western producers, especially in the U.S., were unable to match the artificially low costs and began shutting down operations.

Rare Earth Patent Filings since 1950

China
25,911
Patents Filed

Japan
13,920
Patents Filed

United States
9,810
Patents Filed

European Union
7,280
Patents Filed

Data Source: South China Post

One of the classic examples is Magnequench, a rare-earth magnet factory and a GM subsidiary. In 1995, it was sold to a Chinese state-backed consortium. Within a few years, its U.S. operations were shut down and the equipment shipped to China—a direct consequence of price undercutting that made domestic production economically unviable.

Today, China controls nearly 90% of global rare earth refining, 87% of oxide separation, and 94% of magnet production, according to the Centre for European Policy Studies.

China is also the dominant global refiner of several key critical minerals, producing over 95% of battery-grade graphite, 95% of rare earth elements, 70% of lithium chemicals, and more than 40% of refined copper, according to the International Energy Agency's Global Critical Mineral Outlook 2025.

It also controls 70% of global cathode production, 85% of anode production, and a staggering 78% of the world's EV battery cell manufacturing capacity. China produces 92% of the world's neodymium-iron-boron (NdFeB) magnets. According to a *Financial Times* report, China controls at least 80% of all stages involved in manufacturing solar panels, and around 60% of the supply chain for wind turbines and electric vehicle batteries. When it comes to certain niche materials used in batteries and specialized components, China's market share edges even closer to 100%.

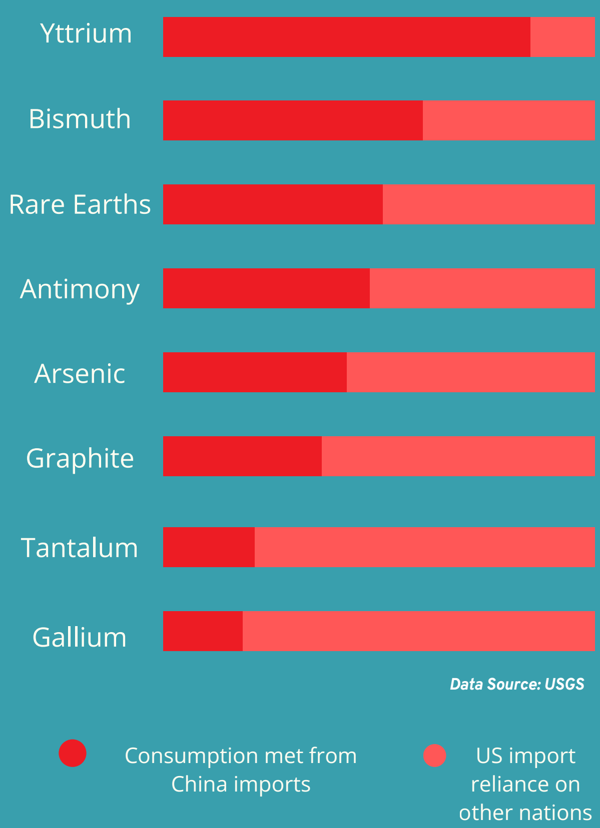
Export Controls and Licensing Regimes

China has a strategic approach to managing its critical mineral exports, using a combination of licensing requirements and quotas. These controls are often framed as measures to protect national security, the environment, or to conserve resources. However, they also serve as a powerful geopolitical tool.

Exporters must apply for licenses to ship certain minerals out of the country. This system allows the government to approve, delay, or deny shipments on a case-by-case basis. This gives Beijing a flexible lever to restrict or permit shipments at will, without an outright ban.

These controls often target specific minerals that are crucial for high-tech industries and defense applications, where China has a near-monopoly on refining and processing.

U.S. Critical Minerals Reliance on China



Price Setting Power

China's dominance in the refining and processing of critical minerals gives it immense power to influence global prices. For example, after skyrocketing in the early 2020s, lithium prices plummeted by over 80% in 2023 and 2024, partly due to China's massive supply expansion.

OTHER HIGH-RISK HUBS

Indonesia - Nickel

Nickel is the backbone of both stainless steel and electric vehicle (EV) batteries, and no country has more of it than Indonesia. In less than a decade, Indonesia transformed from a raw material exporter into the world's largest refined nickel producer. But if you scratch beneath the surface, it's written in Chinese all over!

As of 2023, Chinese firms controlled roughly 75% of Indonesia's nickel refining capacity, according to a report by C4ADS, a research organization based in Washington, D.C. The shift began with Indonesia's 2014 ban on the export of unprocessed nickel ore, which aimed to force companies to invest in domestic smelting. While many Western firms balked at the new rules, Chinese companies embraced the challenge, bringing with them massive amounts of capital, construction know-how, and state-backed loans.

According to the report, two companies dominate the sector:

- Tsingshan Holding Group, the world's largest stainless steel producer, began investing in Indonesia as early as 2009. Its flagship operation, PT Indonesia Morowali Industrial Park (IMIP), now houses over 50 companies that employ more than 80,000 people. Initial funding for IMIP included a $1.2 billion loan from China Development Bank.

- Jiangsu Delong Nickel Industry Co., which owns stakes in several of Indonesia's largest refineries, including PT Virtue Dragon, PT Obsidian Stainless Steel, and PT Gunbuster Nickel Industry. Combined, these operations account for over 38% of national refining capacity.

Together, Tsingshan and Jiangsu Delong account for over 70% of Indonesia's total nickel refining output.

Democratic Republic of Congo - Cobalt

The DRC's overwhelming dominance in global cobalt production (providing about 70% of the world's supply) creates a single-source risk. Any political instability or a change in government policy in the DRC could disrupt the entire global supply chain.

Another risk is the Chinese involvement.

A significant portion of the DRC's cobalt is mined by Chinese companies or is sent to China for refining. Between 2000 and 2021, Beijing directed over $13 billion in aid and subsidized loans to mining and processing operations in the DRC, 95% of it to sites where Chinese companies held equity stakes.

A defining feature of China's strategy has been its use of joint ventures and limited-recourse project finance to reduce risk and increase ownership. In the DRC, this meant partnering with the Congolese state mining company Gécamines to develop cobalt-copper projects where China's firms hold the majority stake and rights to output through long-term offtake agreements.

This places a strategic bottleneck in the hands of one country, creating a geopolitical vulnerability for the U.S. and Europe.

Myanmar - REE

Myanmar is a crucial source of heavy rare earth elements. Following the 2021 military coup, Myanmar is in the midst of a civil war. Most of the REE mining is concentrated in areas controlled by ethnic armed groups, not the central government. This creates a highly volatile situation where control of the mines can change hands, leading to sudden supply disruptions.

The lack of a stable central government has led to a boom in unregulated, illegal, and informal mining, often run by local militias and Chinese-backed companies. The vast majority of REEs mined in Myanmar are smuggled across the border to China for processing. This further solidifies China's near-monopoly on the global rare earth supply chain.

China's imports of rare earth oxides from Myanmar

Year	Imports (metric tons)
2020	~16,000
2021	~19,000
2022	~11,000
2023	~42,000
2024	~35,000

According to Chinese Customs data, Myanmar's rare earth exports to China began to rise significantly in 2018, reaching a peak of nearly 42,000 metric tons by 2023.

Reports suggest that much of this supply consisted of heavy rare earth elements—such as dysprosium and terbium—processed through environmentally risky and often illicit mining operations in Myanmar's Kachin and Shan states. According to reports, Myanmar accounted for about 57% of China's total rare earth imports last year.

WEAPONIZATION IN TRADE

2010 China-Japan REE embargo

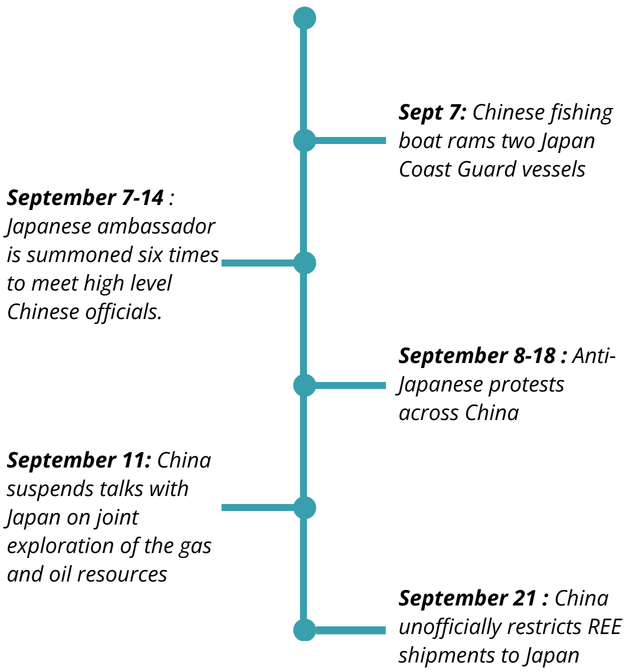
The 2010 China-Japan rare earth element (REE) embargo was a pivotal event that exposed the vulnerability of global supply chains. The trigger for the embargo was a territorial dispute between the two nations in the East China Sea. After a Chinese fishing trawler collided with Japanese coast guard vessels near the disputed Senkaku/Diaoyu Islands, the Japanese authorities arrested the trawler's captain. In a retaliatory move, China halted its exports of REEs to Japan. This was a significant action, as Japan was heavily dependent on China for approximately 90% of its REE supply.

The impact of the embargo was immediate and profound. It sent a shockwave through Japanese industries, causing a panic over potential production shutdowns. Rare earth prices skyrocketed, creating a temporary bubble in the global market.

While the embargo lasted only about two months, it served as a stark wake-up call for Japan and the rest of the world. The primary lesson learned was the danger of over-reliance on a single source for critical materials.

In response, Japan swiftly implemented a comprehensive strategy to diversify its supply chain, including investing in mining projects abroad, promoting recycling, and developing alternative materials. A significant example is Japan backing Australia's Lynas, the world's largest non-Chinese producer of rare earth elements.

China-Japan REE dispute timeline (2010)



Gallium and germanium controls

The export controls on gallium and germanium by China were a significant event in the ongoing technological and trade rivalry with the United States. The trigger for the controls was a tit-for-tat escalation in which the U.S. and its allies imposed new restrictions on the export of advanced semiconductor technology and chipmaking equipment to China.

In a retaliatory move, China imposed export bans on gallium, germanium, and antimony to the U.S., citing national security concerns. The decision triggered market volatility and sharp price surges across all three minerals. Antimony—crucial for semiconductors and defense applications—saw prices soar to record levels, reaching $39,500–$40,000 per metric ton in Rotterdam.

OUTLOOK AND RISK MITIGATION PLAYBOOK

Policy Response

Securing critical minerals is a bipartisan goal in Washington, with both Democratic and Republican administrations and lawmakers taking action. This support is evident in several key pieces of legislation and executive actions:

Executive Orders

Both the Trump and Biden administrations issued executive orders to address critical mineral supply chain vulnerabilities. For example, President Trump's Executive Order 13817 in his first term and President Biden's Executive Order 14017 both aimed to improve the management and security of these essential resources.

Key Legislations

Landmark laws have allocated billions in federal funding to support domestic critical mineral initiatives. These include the Inflation Reduction Act (IRA), the Infrastructure Investment and Jobs Act, and the CHIPS and Science Act. These laws provided funding for mining, processing, and recycling projects, as well as tax credits for clean energy technologies that use domestically sourced critical minerals.

Recent Devlopments

The current Trump administration has taken significant steps to address the nation's critical mineral supply chain vulnerabilities with a particular focus on cooperation with private industry.

> *The United States was once the world's largest producer of lucrative minerals, but overbearing Federal regulation has eroded our Nation's mineral production*
>
> - **From EO 142241 signed by President Trump on March 20, 2025**

Recent Developments

In March 2025, an executive order titled "Immediate Measures to Increase American Mineral Production" was issued to reestablish the United States as a dominant force in critical mineral production.

This order, among other things, explicitly invoked the Defense Production Act (DPA) to accelerate domestic production. The DPA gives the government broad authority to influence industry in the interest of national security, including the ability to provide financial support and create demand for essential materials.

This executive order also expanded the definition of "critical minerals" to include other materials like copper, uranium, and gold, which are crucial for both defense and clean energy technologies. The order directed federal agencies to expedite permitting for priority mining projects and to prioritize mineral production on federal lands.

DoD partnership with MP Materials

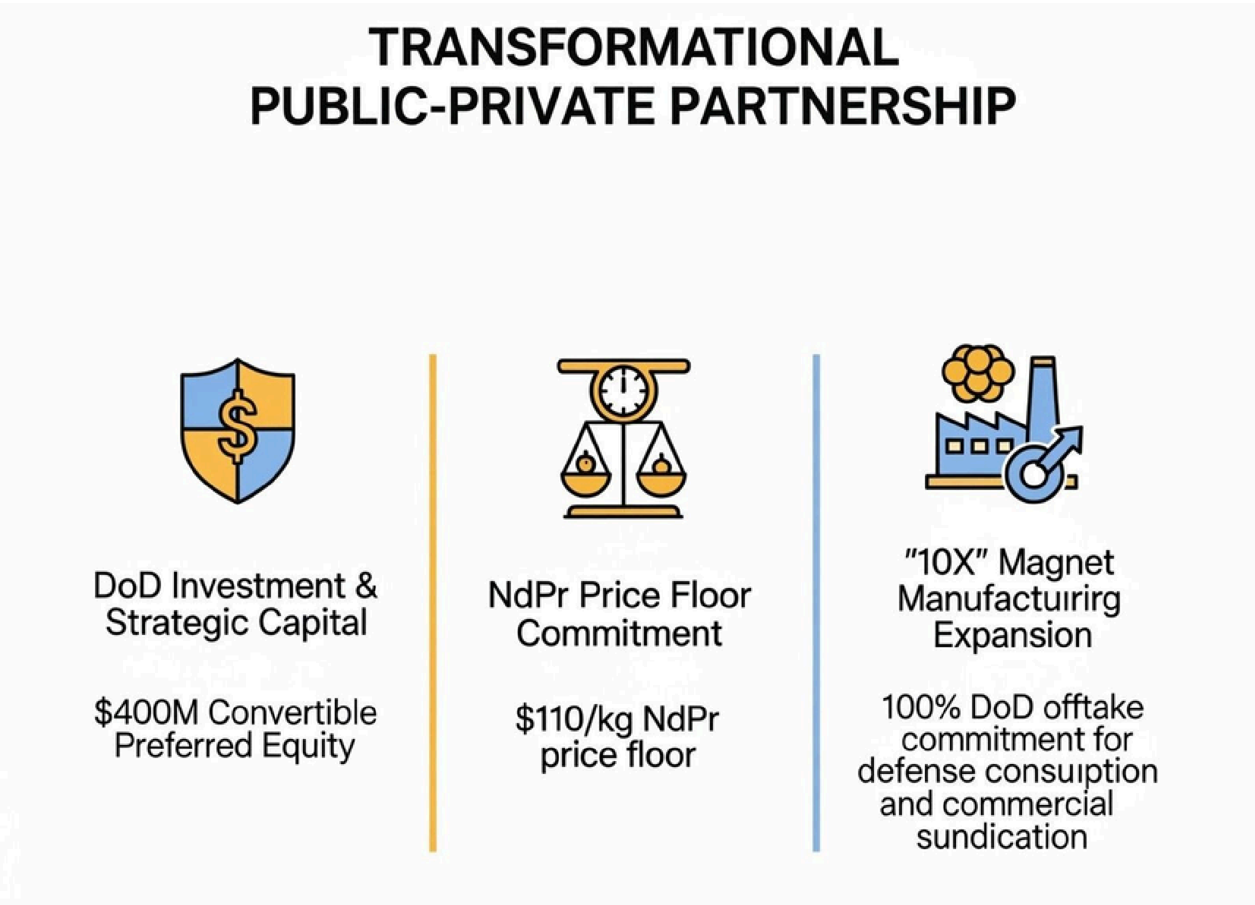
In July 2025, the Department of Defense (DoD) announced a multibillion-dollar deal with the company to build a secure, end-to-end domestic rare earths supply chain. This partnership is particularly noteworthy for its use of both supply- and demand-side policy tools to support the expansion of MP Materials' capabilities.

Key aspects of the deal include:

Significant Investment: The DoD is making a substantial financial commitment, including a purchase of $400 million in preferred stock, which could give the government a 15% stake in the company, and a $150 million loan.

Price Floor Commitment: A 10-year price floor of $110 per kilogram for neodymium-praseodymium (NdPr) oxide was established. This mechanism aims to de-risk the investment for MP Materials by guaranteeing a minimum return, even if global market prices drop due to competition from countries like China.

Offtake Agreement: The DoD has committed to a 10-year offtake agreement, promising to purchase 100% of the magnets produced at a new facility that MP Materials will construct. This provides a guaranteed market for the company's products. This partnership represents a significant shift in U.S. policy.



$1 Billion Funding from DoD

On August 13, 2025, the U.S. Department of Energy (DOE) unveiled plans for nearly $1 billion in upcoming funding opportunities aimed at scaling domestic mining, processing, and manufacturing capacity for critical minerals and materials. The initiatives—aligned with President Trump's Executive Order on Unleashing American Energy—seek to reduce U.S. reliance on foreign suppliers, enhance national security, and bolster industrial competitiveness.

Byproduct Recovery from Industrial Facilities: $250 million to pilot recovery of valuable mineral byproducts from industrial and coal-based processes.

Rare Earth Elements Demonstration Facility: $135 million to demonstrate domestic refining of rare earths from mine tailings, waste streams, and deleterious materials, with academic partnerships and 50% cost-share requirements.

Battery Materials Processing & Recycling: $500 million to expand U.S. processing, manufacturing, and recycling of battery-critical minerals, including lithium, graphite, nickel, copper, aluminum, and rare earths, with a 50% cost-share requirement.

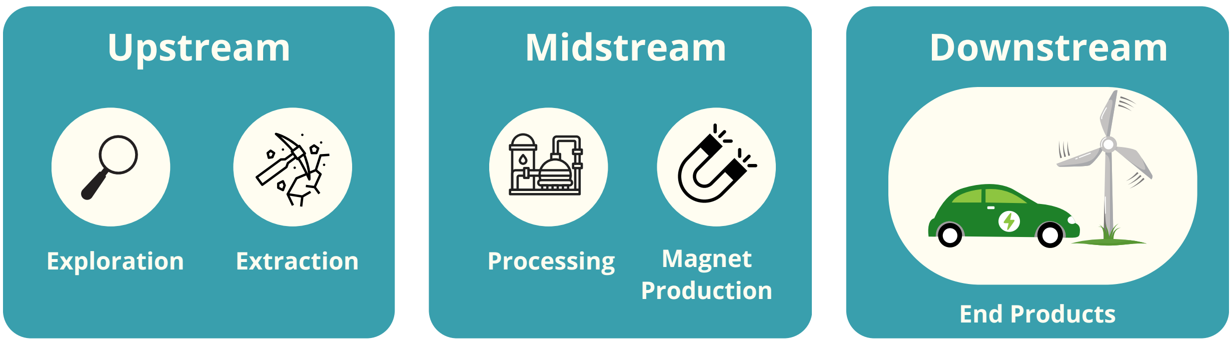
Interests in Private Sector

North Carolina–based Vulcan attracted strong investor interest in its latest funding round, which valued the company at about $250 million. The round was led by Altimeter Capital, a technology-focused investment firm with a track record that includes backing OpenAI and Uber.

Vulcan, which had earlier raised $10 million in seed funding, inaugurated a pilot magnet manufacturing facility in Durham, N.C., in March 2025. The company has already produced initial magnets for both military and commercial customers and maintains a strict policy of sourcing only from the U.S. and allied countries, avoiding any material, equipment, or software from China.

In its recent report, Oklahoma-based USA Rare Earth announced that it has signed 12 MoUs and joint development agreements, representing up to 300 metric tons of annual production of neo magnets for customers in the aerospace and defense, data center, and automotive sectors.

Rare Earth Supply Chain



Critical Mineral Recycling

Recycling is already a key part of the supply chain for several critical minerals, with varying degrees of maturity. The viability depends heavily on the specific mineral, the product it's used in, and the availability of feedstock.

Lead: Lead-acid batteries have long been a success story for recycling, with a recycling rate of over 99% in the United States. The process is well-established, economically viable, and supported by a robust collection infrastructure.

Copper and Aluminum: These are traditional metals with high recycling rates, often sourced from construction materials and industrial scrap. Copper recycling is particularly important as a supply deficit is emerging. The availability of copper scrap is expected to surge from around 2030, with end-of-life electric vehicles (EVs) and energy storage systems becoming a major source.

Cobalt and Nickel: These are key components in lithium-ion batteries. While recycling rates are still relatively low for end-of-life batteries, the industry is rapidly developing. New technologies and increased battery production are driving the creation of new recycling facilities. For now, a significant portion of recycled cobalt and nickel comes from manufacturing scrap, but this is expected to shift to end-of-life batteries.

REEs: Recycling of REEs, particularly from magnets, is a growing area. The government's cooperation with companies like MP Materials and other initiatives is aimed at developing a closed-loop supply chain for rare earth magnets. Recently, Apple has entered a $500 million partnership with MP Materials to build a domestic supply chain for rare earth magnets. As part of this deal, a new recycling line at MP Materials' Mountain Pass facility will be built in partnership with Apple.

Strategic Collaboration with Allied Countries

The U.S. has been leading and participating in a number of multilateral and bilateral initiatives to build a broad coalition focused on critical mineral security.

Minerals Security Partnership (MSP)

This U.S.-led alliance, launched in June 2022, is a key example of ally-shoring in action. It brings together 14 developed countries and the European Commission to ensure that critical minerals are produced, processed, and recycled according to high environmental, social, and governance (ESG) standards. The MSP aims to de-risk and promote private-sector investment in the critical minerals sector globally.

Quad Critical Minerals Initiative

Quad Critical Minerals Initiative (QCMI) The foreign ministers of the Quad nations (Australia, India, Japan, and the United States) have launched the QCMI to address China's control over rare earths and other essential materials. The initiative aims to diversify sources of minerals like lithium, nickel, and graphite and coordinate policies and standards to build a more resilient supply chain within the Indo-Pacific region.

Bilateral Agreement

The U.S. has also forged specific agreements with key allies. For example, a U.S.-Japan Critical Minerals Agreement was signed in 2023 to secure a supply of five key minerals for EV batteries (cobalt, graphite, lithium, manganese, and nickel)

Washington Accord

On June 27, 2025, the U.S. brokered a landmark peace deal between the Democratic Republic of Congo (DRC) and Rwanda in the Oval Office – potentially ending decades of conflict and offering the U.S. unprecedented access to the DRC's vast critical mineral reserves. Rich in cobalt, copper, coltan, and lithium, the DRC is vital to powering clean energy and digital technologies.

Yet, this mineral wealth has long fueled war, with militias like M23 smuggling resources into neighboring Rwanda. China currently dominates both mining and refining in the DRC, controlling up to 80% of cobalt production and processing. The peace pact could shift this balance, enabling U.S. and Western access, especially through projects like the Lobito Corridor. But challenges remain: refining bottlenecks, investor hesitation, and the exclusion of key rebel groups from the deal. While the agreement signals hope, it may also ignite a broader contest with China over the global critical mineral supply chain.

DRC-Rwanda Peace

In a landmark diplomatic effort, the U.S. brokered a peace deal between the Democratic Republic of Congo and Rwanda in June 2025. The agreement is explicitly linked to increasing U.S. access to the DRC's critical minerals. The deal aims to foster regional cooperation and create a stable environment for mining and trade, thereby de-risking investments for Western companies.

Alternative to rare earth Magnets

A new wave of companies and researchers is working to break free from the reliance on rare earth magnets. The goal: motors and generators that either replace rare earth magnets with alternative materials or eliminate permanent magnets entirely.

In the West, the rare-earth-free race is running on two tracks. The first is alternative magnets – ferrite, manganese–aluminum–carbon (MnAlC), and iron–nitride (Fe-N) designs that can be slotted into existing motor architectures. The second is magnet-free motors – current-excited or switched reluctance designs that use copper coils instead of permanent magnets.

In the US, Minneapolis-based Niron Magnetics is scaling up its "Clean Earth" iron–nitride magnets, backed by GM, Stellantis, and Volvo Cars. It expects to begin construction on a pilot plant later this year with a planned capacity of about 1,500 tonnes annually, and aims to follow it with a full-scale, 10,000-tonne commercial facility targeted for 2027.

In the UK, Advanced Electric Machines (AEM) has ferrite-based permanent magnet motors already in commercial service, and recently partnered with Sterling Tools in India.

Several OEMs have already proven that high-performance EVs don't have to rely on rare earth magnets. BMW's fifth-generation eDrive uses a current-excited synchronous motor – no magnets, no rare earths – in models like the i4 and iX. Renault's Mégane E-Tech takes a similar wound-rotor approach, co-developed with Valeo.

Then there's Tesla. In March 2023, the company announced that its next-generation permanent magnet motor would use zero rare earth elements.

India is quietly building a rare-earth-free motor base of its own. Sterling Tools is working with the UK's AEM to manufacture magnet-free traction motors in Faridabad. Bengaluru startup Chara Technologies, in partnership with Greaves Cotton, is producing fully magnet-free motors for two- and three-wheel EVs.

Power Without Rare Earths

Alternative Magnets

- ***Ferrite, manganese–aluminum–carbon (MnAlC)***
- ***Iron–nitride (Fe-N)***

Companies Producing

Niron Magnetics

Advanced Electric Machines

Rare Earth Free Cars (select models only)

RENAULT

WHAT ARE OTHER COUNTRIES DOING?

European Union

The European Union passed its ambitious Critical Raw Materials Act in 2023. Through the act, the EU aims to mine at least 10% of its annual critical raw material consumption domestically, refine 40% internally, and ensure that no more than 65% comes from any single external source.

As part of the Act's implementation, the European Commission has now adopted its first-ever list of 47 Strategic Projects, representing a major step in reshoring the bloc's critical minerals supply chain. These projects collectively span 14 of the 17 strategic raw materials identified under the CRMA and are expected to mobilize €22.5 billion in capital investment.

The approved projects include 25 extraction, 24 processing, 10 recycling, and 2 substitution initiatives, with a heavy focus on minerals vital to battery production—such as lithium (22 projects), nickel (12), cobalt (10), manganese (7), and graphite (11).

According to the Commission, the EU is now on track to fully meet its 2030 targets for lithium and cobalt, while making substantial progress toward self-sufficiency in other key materials. To complement domestic efforts, the EU is also partnering with resource-rich countries like Zambia to secure diversified supply chains.

India

To build strategic autonomy in its clean energy transition, India has launched the National Critical Mineral Mission (NCMM) – a comprehensive initiative aimed at securing the supply of critical minerals and strengthening the country's end-to-end value chains. It covers the full spectrum of the critical minerals ecosystem, including domestic and overseas exploration, recycling, strategic stockpiling, R&D, and institutional governance.

It has set ambitious targets, such as conducting 1,200 domestic exploration projects and recovering 400 kilotonnes of recycled materials by 2031. Backed by a robust financial plan, the Indian government has allocated INR 16300 crores (USD 1.9 billion) in direct expenditure. The mission also aims to drive innovation with a target of generating 1,000 patents and building domestic capacity in mineral processing to reduce import dependence.

Canada

Canada is actively securing its critical mineral supply chains through a multi-faceted approach. A major pillar of Canada's plan is the Critical Minerals Infrastructure Fund (CMIF). This fund, providing up to $1.5 billion in federal funding until 2030, is specifically designed to support clean energy and transportation projects that are essential for developing and expanding critical mineral production.

Another crucial financial incentive is the Critical Mineral Exploration Tax Credit (CMETC), a 30% non-refundable tax credit for investors in flow-through shares.

This credit, introduced in Budget 2022 and recently extended, is specifically for exploration expenses targeting a list of key critical minerals. It is designed to attract the private capital needed for the high-risk, early-stage exploration of new mineral deposits

Canada is also a key player in international collaboration, as a founding member of the U.S.-led Minerals Security Partnership (MSP)

G7 Critical Minerals Action Plan

The Group of Seven (G7) economies are ramping up efforts to secure access to critical minerals that power everything from smartphones to wind turbines. At the G7 summit in Kananaskis, Canada, leaders agreed to a new Critical Minerals Action Plan, aimed at diversifying supply chains and accelerating investment into responsible mining and processing projects.

Although the draft statement avoided naming China directly, it pointed to the threat posed by “non-market policies and practices” that distort access to critical minerals, including rare earths used in magnet manufacturing.

The Action Plan commits members to "immediate and scaled investment" to overcome barriers such as permitting delays, market manipulation, and price volatility.

It encourages multilateral development banks and private sector lenders to increase capital flow into standards-based critical mineral projects, including through innovative financing tools that reduce risk and attract long-term investment.

REPORT SUMMARY

The global critical minerals landscape is probably on the verge of undergoing a profound transformation. Spearheaded by the US, other countries are also trying to build a domestic production of critical minerals and REEs. The core of this shift is a direct response to a strategic vulnerability: the overwhelming reliance on a single geopolitical actor, China, for both the supply and, more importantly, the processing of critical minerals.

1. The United States is heavily reliant on foreign nations for critical minerals, importing 100% of its supply for 12 of the 50 minerals on its official list. For a majority of the remaining minerals, a significant portion of the supply comes from foreign sources, with China being a primary supplier

2. China has established a chokehold on the global critical mineral supply chain by controlling an estimated 85% of downstream processing. This strategic dominance is particularly stark in rare earths, where it controls nearly 90% of refining, and in battery materials like graphite (95%) and lithium chemicals (70%)

3. China has repeatedly demonstrated its willingness to use its control over critical minerals as a geopolitical lever. Events like the 2010 rare earth embargo on Japan and the more recent export controls on gallium and germanium serve as stark warnings of this risk, causing market volatility and exposing national security vulnerabilities

4. In response to these risks, the U.S. and its allies are pursuing a multifaceted strategy. This includes direct government investments in domestic projects (e.g., the DoD partnership with MP Materials) and the formation of international alliances like the Minerals Security Partnership (MSP) and the Quad Critical Minerals Initiative (QCMI)

5. In response to these risks, the U.S. and its allies are pursuing a multifaceted strategy. This includes direct government investments in domestic projects (e.g., the DoD partnership with MP Materials) and the formation of international alliances like the Minerals Security Partnership (MSP) and the Quad Critical Minerals Initiative (QCMI)

APPENDIX

Suggested Reading

https://crossdockinsights.com/p/washingtons-favorite-miner-mp-materials

https://crossdockinsights.com/p/china-critical-mineral-refining-dominance

https://crossdockinsights.com/p/critical-minerals-with-the-highest-supply-chain-risk

https://crossdockinsights.com/p/drc-rwanda-peace-and-critical-minerals

https://crossdockinsights.com/p/critical-minerals-supply-chain

https://crossdockinsights.com/p/us-copper-supply-chain

References

https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/executive-summary

https://www.usgs.gov/news/national-news-release/us-geological-survey-releases-2022-list-critical-minerals

https://thebulletin.org/myth-renewable-energy/

https://www.instituteforenergyresearch.org/renewable/wind/big-winds-dirty-little-secret-rare-earth-minerals/

http://www.rareearthassociation.org/MIT-Ford%20Study.pdf

https://energy.usgs.gov/uswtdb/

https://nma.org/2021/12/06/rare-earths-to-develop-defense-projects-2/#:~:text=Considering%20an%20F%2D35%20Strike,the%20U.S.%20needs%20to%20build

https://www.defense.gov/News/News-Stories/Article/Article/4026144/securing-critical-minerals-vital-to-national-security-official-says/

https://www.sciencehistory.org/education/classroom-activities/role-playing-games/case-of-rare-earth-elements/manufacturers/case-study/

https://www.usgs.gov/news/national-news-release/usgs-projects-world-production-capacity-7-critical-minerals-and-helium

https://qz.com/1971108/chinese-rare-earths-giant-shenghe-is-building-global-alliances

https://www.iiss.org/globalassets/media-library---content--migration/files/research-papers/2025/03/iiss_critical-raw-materials-and-european-defence_25032025.pdf

https://copper.org/copperconversations/thought-leadership/us-opper-meet-surging-demand-ai-data-centers.php

https://carnegieendowment.org/research/2024/10/winning-the-battery-race-how-the-united-states-can-leapfrog-china-to-dominate-next-generation-battery-technologies?lang=en

https://unctad.org/publication/global-trade-update-may-2025-critical-minerals-copper

https://media.renault.com/all-new-megane-e-tech-electric-delving-into-the-heart-of-innovation-episode-3/

https://www.whitehouse.gov/presidential-actions/2025/03/immediate-measures-to-increase-american-mineral-production/

ttps://www.thinkchina.sg/politics/rare-earth-reality-check-limit-trumps-trade-gambit

https://archive.is/20250415002855/https://www.nytimes.com/2025/04/14/us/politics/china-critical-minerals-risk-military-programs.html#selection-767.0-770.0

http://webdoc.france24.com/lithium-energy-automobile-industry-bolivia-argentina-chile/

https://archive.is/20250714120716/https://www.bloomberg.com/news/articles/2025-07-14/china-s-cmoc-boosts-cobalt-production-despite-congo-export-ban#selection-1487.0-1487.244

DISCLAIMER

This report has been prepared by CrossDock for informational and educational purposes only. The information, analysis, and opinions expressed are based on sources believed to be reliable at the time of publication; however, no representation or warranty, express or implied, is made as to their accuracy, completeness, or reliability.

Nothing in this report constitutes legal, financial, investment, or professional advice, and it should not be relied upon as such. Readers are encouraged to conduct their own independent research and due diligence before making any business, investment, or policy decisions.

CrossDock and its authors disclaim any liability for any direct, indirect, incidental, or consequential loss or damage arising from reliance on the information contained in this report. All trademarks, service marks, and company names mentioned are the property of their respective owners and are used for identification purposes only.

YOU CAN REACH US AT

SUBSCRIBE FOR MORE STORIES

CrossDock Insights

Get FREE access to in-depth analysis of supply chain and global trade news every week