

The War for Critical Minerals and Capital Resources

November 2024



The War for Critical Minerals

“To lead the global market, a nation must command not only the most advanced technologies but also the critical minerals that make them possible. By relinquishing control of these essential resources, we’ve given China a strategic edge—one that extends beyond economics and into global power. At the **Critical Minerals Institute**, our mission is to shine a light on this urgent issue, connect with leading experts, and equip stakeholders with the knowledge needed to reclaim control over these essential resources and secure a balanced future in the race for global power.” – Tracy Hughes, [Critical Minerals Institute \(CMI\)](#)



What are we Warring for?

The idea that always resonates deeply with me is this: for a nation to lead in the global market, it must command the most advanced technologies known to humankind. But as powerful as these technologies are, they are useless without the materials necessary to build them. The crucial materials I'm referring to—rare earths like Neodymium (Nd), Praseodymium (Pr), Dysprosium (Dy), and Terbium (Tb)—are among the critical minerals that enable everything from the latest smartphones to electric vehicles, aircraft, and cutting-edge defense systems. These rare earth elements are crucial in manufacturing permanent magnets, a core component of numerous modern technologies and one of the prioritized categories on the Critical Minerals Institute's (CMI) Hit List.

Technology Metals



Over time, we have inadvertently handed China the reins to control the flow of these minerals, placing ourselves in a precarious position. By securing these crucial resources, China has gained not only access to these materials but also the means to advance its technological capabilities, positioning itself as a global leader. These minerals are aptly named “Technology Metals”—a term coined by CMI’s Co-Founder and Co-Chair, [Jack Lifton](#)—because they are indispensable to the high-tech industries of today and the future.



Global Power in a Microchip?

In my work and conversations with peers, industry experts, and colleagues, it's clear that the struggle over these critical minerals has become a new kind of frontline in the race for global power. This isn't just about trade or market dominance; it's about which nations will hold the future in their hands.

Who we are.

The **Critical Minerals Institute** (CMI) is a global organization dedicated to addressing the challenges and opportunities in the critical minerals sector. At its core, CMI offers an online site, developed by industry experts, which serves as an essential resource for businesses, government officials, and anyone seeking accurate information on critical materials. This site provides methodologies for defining the true value of these materials and explains why they are deemed essential. CMI's mission is to bring clarity to a market often clouded by misinformation, offering pricing frameworks and expert guidance to support the growth of businesses navigating this complex landscape.



The CMI Hit List



The **Critical Minerals Institute (CMI)** is at the forefront of this effort, helping to bring clarity and strategy to the discussion. CMI maintains a “Hit List” of 20 essential minerals deemed critical for sustaining economic growth. This curated list draws from a careful review of 10 international lists, which track a total of 51 critical minerals worldwide. By prioritizing these minerals based on their role in key industries and vulnerabilities in supply chains, CMI helps countries and companies alike to understand where their strategic efforts must focus.

The Full CMI Hit List includes:

Antimony (Sb)	Cobalt (Co)	Copper (Cu)	Fluorspar	Gallium (Ga)
Germanium (Ge)	Graphite	Lithium (Li)	Magnesium (M)	Nickel (Ni)
Niobium (Nb)	PGMs (Platinum Group of Metals)	Rare Earth Elements (REEs)	Silicon (Si)	Tantalum (Ta)
Tellurium (Te)	Titanium (Ti)	Tungsten (W)	Uranium (U)	Vanadium (V)

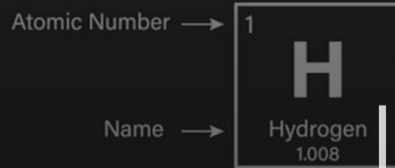
Periodic Table of the Elements

CMI has identified the global supply sources for many of the critical minerals



- Gallium: China 98%
- Germanium: China 94%
- Magnesium: China 88%
- Graphite: China 77%
- Tungsten: China 81%
- Antimony: China 48%, Tajikistan 25%
- Silicon (Silicon Metal): China 69%
- REEs (Rare Earth Elements): China 69%
- Vanadium: China 68%
- Indium: China 66%
- Fluorspar: China 65%

Periodic Table of the Elements

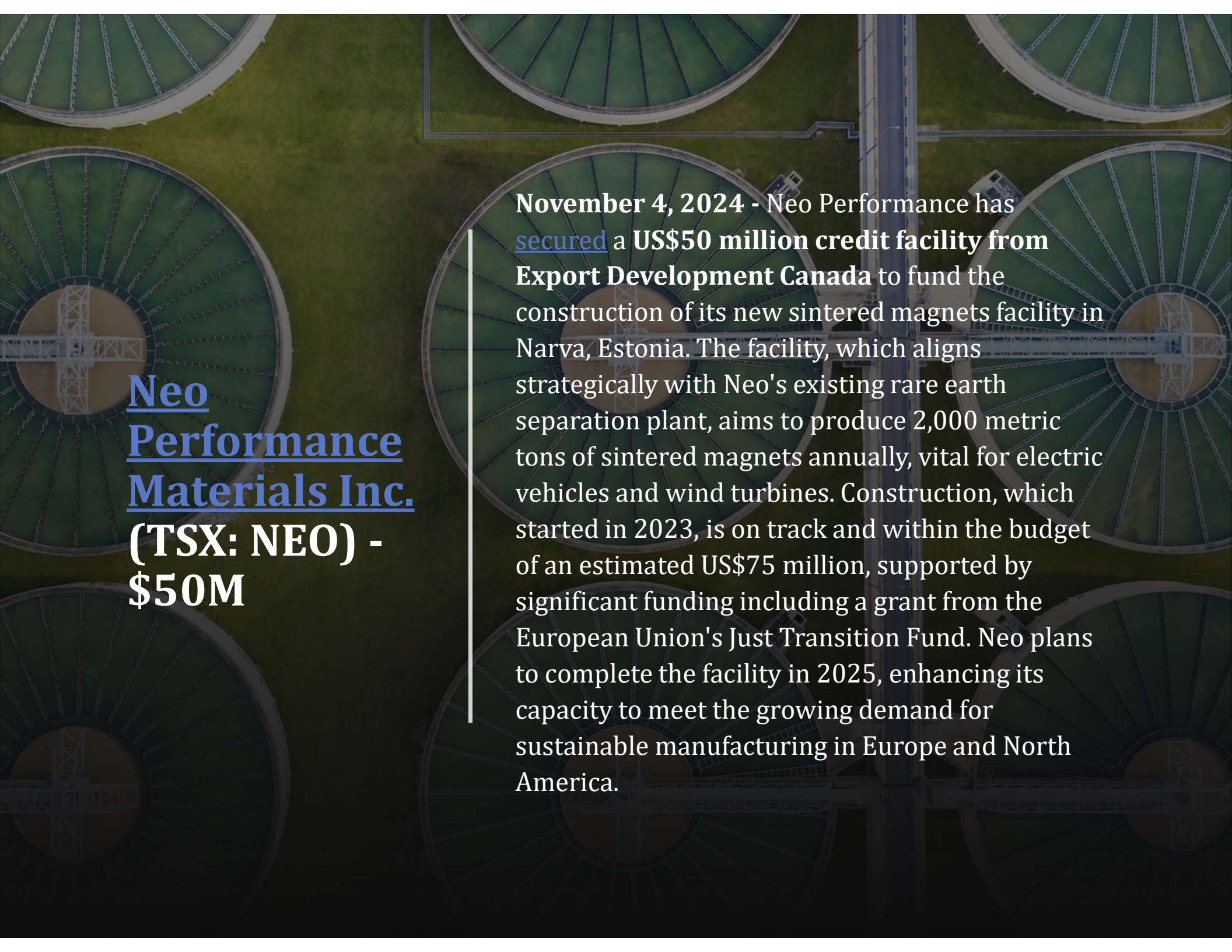


With China dominating production in numerous cases

- Tellurium: China 59%
- Titanium (Titanium Metal): China 36%, Mozambique 19%
- Nickel: Indonesia 50%
- PGMs (Platinum Group Metals): South Africa 49%, Russia 30%
- Lithium: Australia 48%, Chile 24%
- Tantalum: DRC 41%, Rwanda 22%
- Cobalt: DRC 74%
- Copper: Chile 23%, Misc. 14%, Peru 12%
- Uranium: Kazakhstan 45%, Namibia 12%
- Niobium: Brazil 90%

A leopard is shown in a natural, grassy environment, looking directly at the camera. The image is dark and has a semi-transparent black overlay. A vertical white line is positioned to the left of the text. The text is white and reads:

The Hunt for
Capital
Resources is On.



**Neo
Performance
Materials Inc.
(TSX: NEO) -
\$50M**

November 4, 2024 - Neo Performance has [secured](#) a **US\$50 million credit facility from Export Development Canada** to fund the construction of its new sintered magnets facility in Narva, Estonia. The facility, which aligns strategically with Neo's existing rare earth separation plant, aims to produce 2,000 metric tons of sintered magnets annually, vital for electric vehicles and wind turbines. Construction, which started in 2023, is on track and within the budget of an estimated US\$75 million, supported by significant funding including a grant from the European Union's Just Transition Fund. Neo plans to complete the facility in 2025, enhancing its capacity to meet the growing demand for sustainable manufacturing in Europe and North America.


**American
Rare Earths
Limited (ASX:
ARR | OTCQX:
ARRNF) -
\$450M**

October 22, 2024 - American Rare Earths has received its first [reimbursement](#) of over A\$450,000 (US\$304,000) from the Wyoming Energy Authority grant. The funds support the development of the Cowboy State Mine at Halleck Creek, including exploration drilling, environmental studies, and prefeasibility assessments. This milestone highlights significant progress and underscores the company's commitment to advancing the project towards its 2025 goals.



**Lithium
Americas
Corp. (TSX:
LAC | NYSE:
LAC) -
\$625M**

October 28, 2024 - [Lithium Americas](#) has secured a substantial \$2.26 billion [loan](#) from the U.S. Department of Energy under the Advanced Technology Vehicles Manufacturing Loan Program to fund the construction of Thacker Pass in Nevada, aiming to enhance domestic lithium production for electric vehicles. The loan will be complemented by an investment agreement with General Motors, who will acquire a 38% stake in Thacker Pass for \$625 million, which will also help fund construction and operational costs. Thacker Pass is expected to initially produce 40,000 tonnes per annum of lithium carbonate, with the project anticipated to generate around 1,800 jobs during construction and 360 jobs during its operational phase.

The background of the slide is a photograph of an industrial facility, likely a battery manufacturing plant, with large cylindrical tanks and complex piping structures. The image is dimly lit, giving it a blue and grey color palette.

Nano One® Materials Corp. (TSX: NANO) - \$12.9M

September 26, 2024 - Nano One has received a \$12.9 million [grant](#) from the U.S. Department of Defense to support the expansion of its lithium iron phosphate (LFP) production capabilities in North America. This funding is part of the Defense Production Act's Title III program and aims to enhance energy security by developing a resilient LFP battery supply chain in the United States and Canada. The grant will be used to increase production capacity at Nano One's facilities in Candiac, Québec, and Burnaby, British Columbia, from 2024 through 2026. This project builds on previous funding and partnerships to boost commercialization efforts and strengthen North America's position in the global LFP market, a key component in energy storage and electric vehicles.

**NioCorp
Developments
Ltd. (NASDAQ:
NB | TSX: NB) -
\$800M**

May 6, 2024 - [NioCorp Developments](#) has [received](#) a preliminary, non-binding indicative term sheet from the U.S. Export-Import Bank (EXIM) for a potential \$800 million debt financing for its Elk Creek Critical Minerals Project. This preliminary offer follows EXIM's initial due diligence findings under a Preliminary Project Letter, which also outlines the ongoing due diligence and loan application process that NioCorp is actively engaging in with EXIM. NioCorp aims to develop the Elk Creek site in Southeast Nebraska to produce critical minerals like niobium, scandium, titanium, and possibly rare earth elements, which are vital for various industrial and technological applications.



Lynas Rare Earths Ltd. (ASX: LYC) - \$258M

Lynas Rare Earths Ltd. (ASX: LYC) - August 1, 2023

[Lynas Rare Earths](#) has enhanced its partnership with the U.S. Department of Defense (DoD) through a new [contract](#) for its Texas facility, which will receive approximately \$258 million from the U.S. government to construct the Heavy Rare Earths separation component. This contract, an update from a previous \$120 million commitment, reimburses Lynas for all allocable construction costs following recent design and cost revisions. The project, pivotal for national security and high-tech industries in the U.S., aims to establish a resilient rare earth supply chain, distinguishing Lynas as the sole large-scale producer of separated Heavy Rare Earths outside China. The Texas facility, expected to be operational by FY2026, will process rare earth minerals primarily sourced from Lynas's Australian operations.

CMI gives special priority to the top five Critical Minerals on its Hit List

1. **Copper (Cu):** A fundamental material for electrical applications, copper is crucial for both renewable energy systems, like solar and wind power, and conventional energy infrastructure. Its excellent conductivity and durability make it indispensable in wiring, power generation, and transmission.
2. **Lithium (Li):** Central to the production of rechargeable batteries, lithium powers electric vehicles, grid storage, and portable electronics. As the world transitions to renewable energy, lithium's role in energy storage solutions makes it vital for a sustainable future.
3. **Platinum Group Metals (PGMs):** These metals, including platinum, palladium, and rhodium, are essential for reducing emissions in catalytic converters, enabling clean hydrogen production in fuel cells, and supporting various industrial processes. Their unique catalytic properties make PGMs irreplaceable in modern green technologies.

The Top 5 Continued

4. Rare Earth Elements (REEs): Used in high-performance permanent magnets, REEs like Neodymium (Nd), Praseodymium (Pr), Dysprosium (Dy), and Terbium (Tb) are essential for electric vehicle motors, wind turbine generators, and advanced defense systems. Their magnetic strength and resistance to demagnetization are critical for the efficiency and durability of these applications.

5. Uranium (U): The primary fuel for nuclear energy, uranium provides a reliable, low-carbon power source that supports energy independence and stability. Its ability to generate vast amounts of energy from a small amount of material makes it crucial for meeting global energy demands.

The CMI Watchlist Review

The **Critical Minerals Institute (CMI)** compiles its Hit List by analyzing and synthesizing data from prominent international sources that track essential minerals for economic resilience and technological advancement. CMI's list is derived from key references, including the USA DOE Critical Minerals List (2023), the USA USGS Critical Minerals List (2022), the Canadian Critical Minerals List (2024), Australia's Critical Minerals List and Strategic Materials List (2023), the Australian Critical Minerals Prospectus (2024), and New Zealand's Critical Minerals List (2024). Additionally, it incorporates insights from the UK Critical Minerals List (2022), the European Critical Minerals List (2023), Japan's Critical Minerals List (2020) alongside Japan's 2024 addition of uranium to its critical minerals, the South Korea Critical Minerals List (2023), and the Indian Critical Minerals List (2023). These sources collectively inform CMI's strategic prioritization of minerals that are fundamental for sustaining economic growth and reducing supply chain vulnerabilities.

What we offer.

In addition to its online resources, CMI connects its members with exclusive offerings, including monthly Masterclasses led by top professionals and the weekly **Technology Metals Report (TMR)**, a must-read for global industry news. CMI also hosts the annual **International Critical Minerals Expo & CMI Summit IV**, where industry leaders will meet in Pasadena, CA, on May 14-15, 2024, to discuss “The War for Critical Minerals and Capital Resources.” To access these invaluable tools and more, visit CriticalMineralsInstitute.com.

For more
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For more information on the **International
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themed *The War for Critical Minerals and Capital
Resources*, please contact Alexander Oliver,
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visit criticalmineralsummit.com or [mineral-
expo.com](http://mineral-
expo.com).