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The US-China rare earths deal shows the importance of critical materials in a new era of strategic interdependence

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*The accelerating shift to clean energy and advanced technologies is redrawing the map of global economic power. As nations and firms race to secure critical minerals, rare earths – small in trade value but high in strategic impact – have emerged as chokepoints for sectors from electric vehicles and wind power to AI and defence. With the US and China just agreeing to a one-year rare earth truce, **Viet Nguyen-Tien** and **Gavin Harper** revisit China's "0.1 percent rule", which limits rare earth exports, its potential to transform global supply chains, and the geopolitical risks that follow. As resource competition sharpens, resilience and innovation will be key to navigating this new era of strategic interdependence.*

On October 30th, US President Donald Trump and China's President Xi Jinping struck a deal during a meeting in South Korea to postpone China's export controls on **rare earths**, with Trump describing the meeting as a "12 out of 10". Trump's enthusiasm is a marker of just how important rare earths are to the 21st-century economy

Rare earth elements and value chains

Critical minerals are widely recognised as foundational to the green energy transition, AI-driven digitalisation and the global wave of rearmament. Yet at first glance, rare earths seem economically marginal. **In 2021, the total global export value of rare earths** was only about US \$0.59bn – a fraction of US \$1.5bn market for lithium, US \$4.2bn for nickel, or the US \$91bn copper market. Compared with the US \$951bn global petroleum trade, rare earths look like a footnote rather than a strategic fulcrum.

The reality, however, is more complex. Despite their name, rare earth elements are not geologically scarce. They are found in many countries and could, in principle, be mined more widely especially where environmental regulations are less stringent. China is currently the world's largest rare-earth miner, but its exports account for only about one-third of global annual demand. On the surface, this suggests that other nations could readily diversify supply.

The real source of vulnerability lies not in their volume or geology, but in the structure of the value chain. Over three decades, Beijing has built **dominance across nearly every stage of rare earth production** – with particularly tight control in the later, higher-value phases. China accounts for roughly 60 per cent of global extraction, 87 per cent of processing, 91 per cent of metal production, and a striking 94 per cent of permanent magnet manufacturing, especially of neodymium-iron-boron magnets. These magnets are vital for electric vehicles, wind turbines, advanced electronics and defence applications.

China has leveraged its resources and capabilities in the early part of the value chain to attract ever more businesses and components of the value chain to relocate to China, due to the abundant resources, low-cost material and a

concentration of capabilities. This has left Western firms exposed as capabilities have been lost over time.

Visiting Inner Mongolia in 1992, the late Chinese leader Deng Xiaoping said famously: “**The Middle East has oil and China has rare earths**”. This prescience around the future importance of this resource has been leveraged by China to build a capability that the world is now reliant on.

The power and threat of the 0.1 percent rule

In October 2025, Beijing introduced new rules requiring foreign companies to obtain Chinese government approval to export any product containing more than 0.1 per cent rare earths by weight and to declare their intended use. Officially described as *administrative management*, the measure gives China a powerful tracing tool and, potentially, a lever for future export restrictions.

According to the **OECD's 2025 Inventory of Export Restrictions on Industrial Raw Materials**, the number of export restrictions on critical materials has increased more than fivefold between 2009 and 2023. In 2023 alone, over 500 new raw material products were added to the list of products with at least one restriction, with 94 per cent of these net additions originating from just seven countries, with China playing the largest role. Even if not framed as an outright ban, such controls allow Beijing to shape market access indirectly.

From grams to great power: illustrative leverage

In 2024, China mined approximately 270,000 metric tonnes (t) of rare-earth oxides (REO) equivalent – the largest share of global production. Yet the strategic leverage lies not in the raw tonnage alone, but in China's dominance over the value chain and the licensing rule.

If we assume that most high-tech products (EV motors, wind turbines, ICT devices, green technologies, defence equipment) contain about 1–2 per cent REO by weight, then the 270,000t of REO could be embedded in roughly 13.5–27 million tonnes of downstream product. Processed rare-earth materials are dozens of times more expensive than raw REO. Assuming an average value of

roughly US \$10,000 per tonne for these final goods, the 0.1 percent rule gives China potential influence over an estimated US \$135–270bn worth of high-tech products – far exceeding the value of the raw materials.

Technology, capabilities and dependency

China's control extends beyond materials. It also maintains tight restrictions on rare earth processing and refining technologies, making it harder for other countries to build diversified supply chains. Over decades, China has accumulated deep technical expertise covering not just the processing of rare earths but also the equipment, tooling and tacit know-how essential for large-scale production.

For those in the West seeking to export Chinese-made equipment for processing rare earths, data is collected on the intended use of the equipment and who it will supply, further strengthening China's understanding of the use and applications of its products, and understanding of the supply chain.

Western economies, having ceded much of their rare earth magnet manufacturing capacity, now face a steep re-learning curve. Rebuilding technological capabilities will take time and significant investment, all while competing with China's entrenched cost and scale advantages. This highlights a critical dimension of resilience: supply security is not just about material access, but also about technological capability and innovation capacity.

Empirical evidence reflects this strategic exposure. Our forthcoming LSE Centre for Economic Performance discussion paper shows that risks linked to critical minerals – including rare earths – have increasingly been flagged by listed companies worldwide. Exposure to these risks has been associated with lower revenue growth, particularly in clean tech sectors. Classic profit-uncertainty models suggest that price volatility reduces expected returns, prompting firms to scale back output and investment – and underlining why building resilience through innovation, diversification and strategic stockpiling is increasingly essential.



“P20251029DT-2226” by **The White House, United States Government Work**

Resources wars, trade wars and the G2 truce

The wave of US–China trade tensions during Trump’s first presidency was bilateral, driven by reciprocal tariffs targeting specific sectors. The current wave is far broader, reflecting global fragmentation of trade and technology.

Where US tariffs operate on the demand side, China’s rare earth strategy works on the supply side, controlling key upstream inputs. This asymmetry gives Beijing leverage over global technology supply chains, amplifying geopolitical risks. Even limited disruptions could cascade through clean energy, electronics and defence sectors.

In response, President Trump’s administration has pursued **a series of initiatives to secure alternative rare earth supplies**. Most notably, an US \$8.5 billion deal with Australia was signed earlier this month, promising industrial cooperation and joint investment to build rare earth processing capacity outside China. In addition, Washington has reached agreements with Japan, Malaysia, Thailand, Vietnam and Cambodia, aimed at diversifying supply chains and strengthening industrial collaboration in the region.

Yet establishing a complex rare earth supply chain takes years – not to mention questions about the economic viability of such projects without supportive industrial policies. In the meantime, buying time matters. At the latest US-China “G2” meeting between Trump and Xi, the two leaders reached

a [one-year rare earth trade truce](#), which postpones China's export controls on the materials, alongside other measures including selective tariff reductions.

While the truce may be extendable, it remains a short-term tactic amid deepening geopolitical competition. For US allies and partners beyond the G2, securing reliable rare earth supplies will remain critical for the manufacture and deployment of next-generation technologies.

Beyond rare earths

Rare earths are not the only critical minerals where China holds structural advantages. [Similar patterns of dominance exist for lithium, cobalt, graphite, magnesium](#), tungsten, gallium, and germanium, among others, reflecting a broader geopolitical strategy that leverages resource control for economic and strategic influence.

As global demand for critical minerals accelerates, the intersection between resource security, technological sovereignty and geopolitical rivalry is becoming a defining feature of the 21st-century economy. The resilience of emerging technologies will depend not only on innovation but also on the ability to manage and mitigate resource dependencies.

This is the new era of strategic interdependence: control over even a small fraction of a material can influence entire industries. Building resilience – through diversification, technological innovation and cooperative frameworks – will be central to navigating this evolving global landscape. Collaboration across governments, firms, and research institutions will be essential to develop adaptive strategies, anticipate risks and sustain innovation in critical technologies.

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