ESG Viewpoint

Can the demand for critical minerals be met responsibly?

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At a glance

- A secure and consistent supply of critical minerals is fundamental to the energy transition and to achieving net-zero, but demand is putting pressure on supply chains and costs, and risks polarising sentiment around the energy transition
- Supply concentration in countries such as China and Indonesia is a key concern in understanding how the price dynamics and responsible attributes of mining will develop, with tariff tensions rising between countries
- The race for critical minerals presents both opportunities and risk for investors, with the sector at a crossroads: will we see transparent and responsibly sourced supply chains adhering to rigorous ESG criteria, or a fixation on securing critical mineral supplies at any cost?
- We look at the likely outcomes from the situation and the role investors have in facilitating responsible supply chains

The energy transition is a material transition

Decarbonising the economy requires a significant scaling up of green technologies such as electric vehicles (EVs), solar photovoltaics, wind turbines and grid-scale battery storage. All of which require significant mineral inputs. A deficit of these "critical minerals" – such as cobalt, copper, lithium, rare earth elements, graphite and nickel – raises supply risks that could constrain the pace and scale of the energy transition.

The European Union (EU) has stated that it expects demand for rare earth metals and lithium to increase six- and 12-fold respectively by 2030.[1] Even scenarios that fall short of limiting global warming to 1.5°C see substantial mineral demand growth. For instance, copper demand is projected to increase from 25 million tonnes in 2022 to a staggering 35 million tonnes in 2030 under the International Energy Agency's Sustainable Development Scenario.[2]

Demand scenarios, like those published by the IEA, have triggered a wave of speculation about near-term "super cycles" in critical metals. As a result, we have seen many governments, such as the US and in the EU, introduce tariffs, international partnerships and domestic policies to secure supply and support the development of domestic supply chains. However, buoyant demand sentiment needs to be moderated by short-term realities such as the slowdown in Chinese construction, which has seen exports of refined copper reach record highs from May-June 2024[3]. This indicates a crucial weakness in one of the key demand pillars – 30% of copper today is used in Chinese real estate.

The increasingly volatile and polarising sentiment around the energy transition, particularly driven by US election uncertainty, also adds to the complicated picture on long-term versus short-term demand. In our view, the energy transition will be – and already is – bumpy. We are seeing different countries and regions progressing at different speeds; some reversing direction on climate goals; and some doubling down with strict legislation, leading to uncertainty on timelines for the scaling up of key enabling technologies. Near-term policy uncertainty is elevating the price volatility of critical metals, ultimately reducing new investments. For example, lithium prices surged more than 700% from 2021 to a peak in 2022 before moderating in 2024. Nickel prices also collapsed in 2024 after cheap Indonesian nickel, funded by Chinese companies, led to significant market oversupply. This saw leading miners like Australian giant BHP[4] announce suspensions to domestic nickel production.

However, we know that a secure and consistent supply of critical minerals is fundamental to achieving net-zero. Delaying investment in mines could lead to even more constrained supply chains if there is a surge in demand for critical technologies – for example, due to sudden policy shifts towards net-zero as climate change impacts bite. The development of new mines is already impeded by long permitting times in many regions, and is getting worse. According to S&P the average time for mines to come online has been steadily increasing from an average of 12.7 years from 2005-09, to 17.9 years in 2022-23.[5] Greenfield projects are also considered expensive and risky by the sector, and even more so for critical metals as decreasing certainty on the timeframe of the energy transition and technology scale-up translates to price volatility. More recently the sector has been focusing on mergers and acquisitions and new technologies to increase ore grades rather than developing new assets to increase exposure to metals like copper.

This mismatch in timelines and market sentiment could result in a race towards critical metals supply at all costs – by, for example, redirecting more supply to regions with poor human rights and labour policies, leading to heightening social and environmental risk.

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The new geopolitics of critical minerals

The responsible investor's dilemma

The mining sector is at a crossroads

Which scenario is the sector heading for?

What role can investors have in facilitating responsible supply chains?

[1] European Commission, In focus: Clean energy technologies, 15 May 2024
[2] IEA, Introducing the Sustainable Development Scenario, December 2019
[3] ING, China's Third Plenum provides little support to metals, 22 July 2024
[4] Forbes, Mining giants are worried that a flood of cheap Indonesian nickel could wipe them out, 26 February 2024
[5] S&P Global, Average lead time almost 18 years for mines started in 2020–23, 10 April 2024

The new geopolitics of critical minerals

Though commodity dependency has always been at the heart of trade dynamics, what is new is the focus on metals and minerals that have not previously driven trade relationships. Ensuring reliable, diversified supplies of critical metals has emerged as a strategic priority for the US and EU over recent years.

Supply concentration is a key concern in understanding how price dynamics and responsible attributes of mining will develop. Today, China controls approximately 60% of lithium refining, 40% of copper refining, and 90% of rare earth element processing capacity globally. The country also accounted for 44% of global lithium M&A investment (by value) over the past three years. Meanwhile, Indonesia's share of nickel production and refining increased from 34% to 52% and 23% to 37% respectively between 2020 and 2023. This trend towards supply consolidation has catalysed a renewed geopolitical focus on "mineral security" and resource nationalisation.[6]

Tensions have been rising. Tariffs on Chinese EV imports in the US, and proposed by the EU, could lead to retaliations from China, which ultimately holds the trump card in battery supply chains. Export restrictions on critical minerals by producer nations like China have increased five-fold over the past decade, from nine cases in 2009 to 49 cases in 2019.[7] Indeed, the European Union's 2024 Critical Raw Materials Act, which mandates that no one supplier can provide more than 65% of the EU's annual consumption of critical metals, and the US-led Mineral Security Partnership are reactive policies and initiatives designed to redraw the supply map.

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The responsible investor's dilemma

The race for critical minerals presents both new opportunities and risk for investors. Higher demand for "transition minerals" coupled with constrained supply could have meaningful earnings impacts for miners as prices rise. Furthermore, what has previously been a sector seen as problematic to ESG-conscious investors could see a perception shift to being seen as responsible transition enablers, widening the investor base.

While we recognise the key role metals play in the energy transition we are mindful that the need for supply cannot override other

[6] IEA, Global Critical Minerals Outlook 2024, May 2024

social and environmental factors. More systemically, the negative externalities of intensified extraction, such as human rights violations, biodiversity loss, water contamination and greenhouse gas emissions, also pose risks that could undermine the energy transition's core objectives of respecting human rights and avoiding undue costs to biodiversity and nature.

Trust in the sector's ability to manage these externalities has been low and remains fragile. There have been 630 allegations of human rights abuses filed at mines involved in the mining of transition metals[8] since 2010, of which 91 were in the past year.[9] Social concerns such as these have contributed to many investors avoiding the sector, particularly excluding it from funds with responsible investment tilts. Low trust and weak reputation apply to other stakeholders too. Community opposition has led to serious delays in permitting timelines and in some cases, like that of First Quantum Minerals in Panama, has led to mine closure (which in this instance accounted for 40% of group revenue[10]).

For responsible investors this presents a core dilemma: if we want to support investments into the energy transition, is it reasonable to not invest in mining? Here we argue that investors have agency in seeking best outcomes not by excluding companies, but rather by engaging with held companies on avoiding negative externalities and risks, as well as allocating capital to those miners that drive towards best outcomes.

The mining sector is at a crossroads

We think this period represents a crucial crossing point for the mining industry, which could define the role of miners in the energy transition. As a simple thought experiment, we imagine two scenarios as a starting point to how the sector could develop.

1 This scenario involves transparent and responsibly sourced supply chains adhering to rigorous ESG criteria. It could also see increased trust in the mining sector, allowing for more community buy-in for the development of new mines, which could reduce permitting and licencing time.

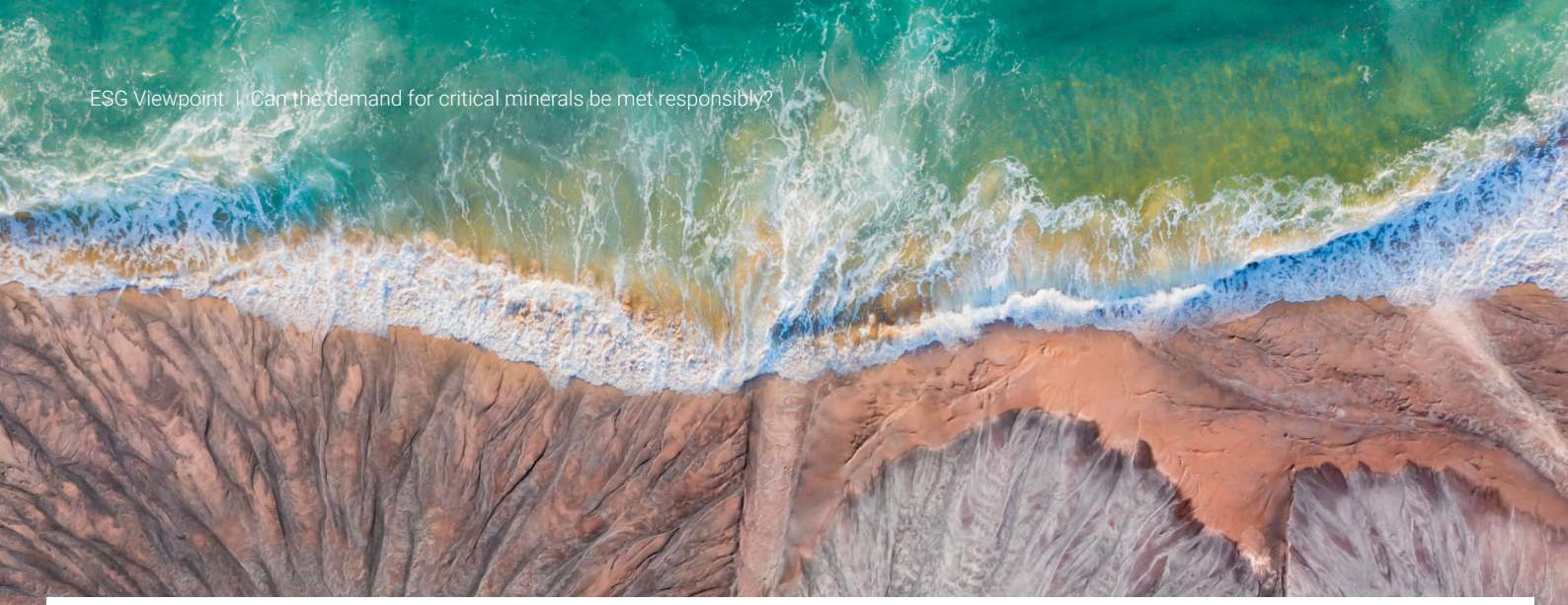
In this scenario we imagine a circular chain of events that eventually leads to smoother permitting and licencing, which can reduce risks of energy transition supply bottlenecks. For it to manifest the sector needs to build trust by, for example, investing in rigorous third-party auditing, such as via the Initiative for Responsible Mining Assurance (IRMA) standard; adhering to global principles, such as those set out by the International Council on Mining and Metals (ICMM); and ensuring community support and buy-in from the outset. With this in place, investors could become more confident that miners can be transition enablers.

We have seen some evidence of consumers' willingness to pay premiums for responsibly sourced materials. As a simple rule of thumb, those companies closest to consumers are driving demand for responsible investment. Some carmakers, for example, are pursuing this path through direct offtake agreements with miners who can demonstrate best practice. BMW has secured lithium offtake from mines they deem as best practice on ESG.[11] This agreement also benefits the company in its ability to directly secure long-term demand. However, although we may see some positive initiatives in the EV-lithium supply chain, we do not yet see evidence of other commodities and supply chains being driven by such a level of customer scrutiny.

2 The alternative is a "race to the bottom" – a fixation on securing critical mineral supplies at any cost, with bifurcated governance regimes, lax oversight, and consumers unwilling to pay sustainability premiums. This scenario could, at worst, tarnish the social license of the energy transition while perpetuating human rights abuses and environmental degradation. It could also see an increasing price differential between materials mined in different geographies, as the EU and US move towards onshoring or "friendshoring" of supply chains.

A race to the bottom ... could perpetuate human rights abuses and environmental degradation

[7] Reuters, Export restrictions mount on critical materials, says OECD, 11 April 2023
[8] Defined as bauxite, copper, cobalt, lithium, manganese, nickel and zinc by the Business & Human Rights Resource Centre
[9] BHRCC Transition Minerals Tracker, July 2024
[10] Reuters, First Quantum could remove copper concentrate from Panama mine after election, CEO says, 24 April 2024
[11] BMW Group, BMW Group steps up sustainable sourcing of lithium for battery cell production to ensure rapid e-mobility expansion, 30 March 2021



Which scenario is the sector heading for?

We recently attended the multi-stakeholder dialogues at the OECD's annual Forum on Responsible Mineral Supply Chains.[12] This painted a mixed pattern for the sector: persistent issues like poor ESG practices, community grievances and permitting delays continue to erode the sector's social licence to operate and ability to expand. However, noticeable changes are occurring: both US and European-listed miners report that robust ESG practices are essential for financing and market access. This is a result of increased investor scrutiny and a tougher regulatory environment driven by the EU. For example, the Corporate Sustainability Due Diligence (CSDD) directive is mandating companies to recognise, reduce and report their impacts on people and the environment, while the Battery Regulation obliges end users to carry out thorough supply chain due diligence – driving end users towards more scrutiny of suppliers. Companies across the whole supply chain will have to invest in robust auditing and traceability capabilities in order to comply.[13]

Despite increasing regulation, the picture is complicated by the international nature of mining supply chains. As we saw in the case of nickel, where cheaper Indonesian production, which in many cases was tied to deforestation and people displacement[14], flooded the market, not all operators are held to equal environmental and social standards. Increased regulation could also reduce appetite for projects in areas with higher social and environmental risks for US, UK and EU-listed miners who currently hold higher ESG standards. This risks driving perverse outcomes, as miners held to less scrutiny pursue these options. It remains to be seen how supply chain regulation drives harmonisation in ESG principles, but as it stands we could see the development of a bi-fractured mining sector held to very different standards, depending on to whom and where products are sold.

We could see the development of a bi-fractured mining sector held to very different standards

What role can investors have in facilitating responsible supply chains?

If investors want to enable Scenario 1, whereby transparent and responsibly sourced supply chains adhere to rigorous ESG criteria, then thorough due diligence and engagement should be the cornerstones of investment strategies and capital allocation frameworks. An exclusionary stance fails to acknowledge that mining is essential to the energy transition, and exclude those investors who want to incentivise best practice.

Regardless of investor intent, the increasingly geopolitical nature of the critical metals trade, coupled with new regulatory frameworks, is driving an increasingly complex outlook for the sector. As such, regardless of which scenario the sector takes, we see careful due diligence and purposeful engagement as core to minimising risk when investing in the mining sector.

[12] OECD Forum on Responsible Mineral Supply Chains, 21-24 May 2024
[13] European Commission, Corporate sustainability due diligence, 25 July 2024
[14] Mongabay, Indonesian nickel project harms environment and human rights, report says, February 2024

Meet the authors

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Albertine joined the Responsible Investment team in the summer of 2022, concentrating on climate change. Her background is in climate science and before joining she worked as a researcher and adviser at a range of academic, third- and public-sector organisations. When not working she enjoys spending her time reading, running and climbing.

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Claire joined Columbia Threadneedle Investments through the acquisition of BMO GAM (EMEA) in 2021, having been at BMO since 2018, and having worked in fixed income since 2015. When not working she enjoys spending time with her daughter, doing painting, baking and exploring the outdoors.

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Robert joined Columbia Threadneedle Investments in 2023 and covers European and UK Materials companies. Prior to joining the firm he worked as a Building Materials equity analyst at BNP Paribas Exane with a primary focus on UK-listed stocks. Previously, he worked within the Materials, Tactical Research & Strategy team at Goldman Sachs. He began his career at UBS where he qualified as an accountant. Outside of work he enjoys spending time with his two young children.

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