



THE UK CRITICAL MINERALS STRATEGY

The UK government has released its first Critical Minerals Strategy¹ (the UK Strategy), with the aim of ensuring that the minerals needed for the future of electronics, energy generation, transport, and military operations are extracted responsibly in sufficient quantities and are available through well-functioning and transparent markets.

In this guide, we take a closer look at what critical minerals are and why they are important. We then turn to the UK Strategy, and what it means for mining and commodities businesses in the UK and beyond.

What are “critical” minerals?

Many minerals have important uses. However, “critical” minerals are not only essential to a country’s economy, technology, or national security, but also subject to major risks to their security of supply.

One interesting feature of the definition of “critical” is that it is somewhat subjective. Critical minerals tend to be those on which a country is heavily import-reliant and this will vary from country to country. In addition, a mineral’s status will also change over time, with supply and demand. Table salt, for example, was once a critical mineral.²

Today, many critical minerals are metals crucial for high-tech sectors, including many rapidly growing clean energy technologies – from wind turbines and electricity networks to electric vehicles (EVs). They include, for example, rare earth metals, battery metals such as lithium and cobalt, and gallium, which is used in semiconductors.

Example: lithium (Li)

Lithium is commonly considered to be a critical mineral, and perhaps the ‘oil of the 21st century’. One of the main advantages fossil fuels have had over renewables is that they double as a storage medium for the energy they provide. Lithium-based batteries have changed that and have therefore been described as “*the last missing piece in the puzzle of a closed system based on renewable energy*”.³ Chile, Argentina, and Bolivia – together referred to as the “Lithium Triangle” – hold more than 75% of the global supply of lithium beneath their salt flats. China is another large producer, and Chinese firms (including giants Tianqi and Ganfeng) account for at least two-thirds of the world’s lithium processing capacity.⁴

Example: rare earth metals

Also known as “rare earth elements” or just “rare earths”, rare earth metals are a set of seventeen metallic elements that are widely used in high-tech goods and low carbon technologies. For example, neodymium, dysprosium and terbium are key components of advanced magnets. Some rare earth metals are actually relatively abundant in the Earth’s crust, but just rarely in concentrations high enough to make mining economically viable. China dominates global rare earth metal production with an 80-90% market share.

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1097298/resilience_for_the_future_the_uk_critical_minerals_strategy.pdf

² <https://www.americangeosciences.org/critical-issues/critical-minerals>

³ Bednarski, L. (2021) *Lithium: The Global Race for Battery Dominance and the New Energy Revolution*. London: C. Hurst & Co. (Publishers) Ltd.

⁴ <https://www.weekinchina.com/2022/07/the-lithium-opec/>

“The UK Strategy identifies a number of ‘challenges and constraints’ that put the supply of critical minerals at risk.”

The UK published its first list of the minerals it considers to be “critical” in the UK Strategy. It identifies them as “minerals with high economic vulnerability and high global supply risk”. The list is relatively short, with 18 entries, and will be updated on an ongoing basis following annual criticality assessments by the British Geological Survey.

The UK’s list of 18 critical minerals

Antimony	Bismuth
Cobalt	Gallium
Graphite	Indium
Lithium	Magnesium
Niobium	Palladium
Platinum	Rare Earth Elements
Silicon	Tantalum
Tellurium	Tin
Tungsten	Vanadium

There are two other categories identified in the UK Strategy – first, a “watchlist” of five minerals “with potentially increasing criticality due to rapidly growing demand or emerging global supply risks” and second, an unspecified set of “other important minerals”.

By contrast, the United States Geological Survey considers 50 minerals to be “critical” to the United States. These include nickel, which currently sits on the UK’s watchlist following the disruption caused by Russia’s invasion of Ukraine.

Why are critical minerals important?

As the UK Strategy notes, “[o]ur reliance upon critical minerals is by no means new. Yet, in recent years, their importance has taken on a new salience. Technological change – for example, in electronics, energy generation, transport and military equipment – means we will require large amounts of minerals that are currently only available in small quantities.”

The need to transition from fossil fuels to low carbon energy sources is well established, and countries are increasingly committing themselves to reach net zero targets. Clean energy technologies – such as EVs, wind turbines and photovoltaics – rely heavily on critical minerals. As a consequence, demand for critical minerals is expected to skyrocket. According to the International Energy Agency, the world in 2040 is expected to need **four times** as many critical minerals for clean energy technologies as it does today.⁵

Critical minerals are also significant in several key geopolitical and economic trends. For example:

The ESG challenge

Shareholders and investors are increasingly pushing for environmental, social, and governance (ESG) factors to be more highly prioritised by companies. Although critical minerals are crucial for clean energy technologies, their overall ESG impact is complicated. Author Guillaume Pitron refers to the “dark side”⁶ of clean energy. Mining critical minerals presents unique environmental and social challenges. For example, consider the fact that the chemicals used in rare earth mining can create air pollution, cause erosion, and leach into groundwater.⁷ Or that more than half of the world’s cobalt resources are located in the Democratic Republic of Congo (DRC), and over 70% of the world’s cobalt mining occurs there, yet it is estimated that around 15% of Congolese mining for cobalt in the DRC are children as young as six years old.⁸

The rise of China

Over the last 20 years, China has experienced an almost meteoric rise to become a global superpower, occupying a crucial role in the global economy, including within the critical minerals supply chain. Since as long ago as the 1980s, China has been building capabilities and establishing control of many critical mineral markets. China is now the biggest producer (either as a raw material or refined product) of 12 out of the 18 minerals on the UK’s critical list.

5 <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions>

6 Pitron, G (2021). The Rare Metals War: The Dark Side of Clean Energy and Digital Technologies. London: Scribe Publications.

7 <https://earth.org/rare-earth-mining-has-devastated-chinas-environment>

8 <https://humantraffickingsearch.org/resource/the-drc-mining-industry-child-labor-and-formalization-of-small-scale-mining/#:~:text=Child%20Labor%20Small-scale%20mining%20in%20the%20DRC%20involves,are%20children%2C%20some%20as%20young%20as%20six%20years.>



Renewed great power competition

The post-Cold War era of international relations is over, and great power competition has returned. US national security, for example, has “*formally reoriented ... toward an explicit primary focus on great power competition with China and Russia*”.⁹ The competition extends to supply chain security and critical minerals. European Commissioner Thierry Breton has recently stated, for example, that the EU “*need[s] to be more assertive ... in defending our economic interests ... when it comes to strategic raw materials*.”¹⁰ (For more information on the EU Critical Raw Materials Act, see our briefing [here](#).) The implications of renewed great power competition have been grimly brought into focus by Russia’s invasion of Ukraine in February 2022.

China’s dominance in critical minerals, in conjunction with this renewal in competition between great powers, has given cause for concern. In 2010, Chinese rare earth metal exports to Japanese companies were effectively ceased in response to the detention by Japan of a Chinese fishing boat captain following a collision near disputed islands over which China stakes territorial claims. It has also been reported that in 2020 China was considering restricting US access to rare earth metals in response to US arms sales to the island of Taiwan.¹¹

These factors, among others, have led many countries, including the UK, to develop strategies to ensure security of supply for the minerals which they consider critical to their economies.

What are the risks to security of supply for critical minerals?

The UK Strategy identifies a number of “*challenges and constraints*” that put the supply of critical minerals at risk. These include:

- Rapid demand in growth and long lead times: it takes years to develop mines and processing capabilities, which means demand could outstrip supply.
- Critical minerals are often by-products or co-products of mining for other commodities, so supply and demand can be disconnected.
- Geographic concentration: it is estimated that 75% of the most in-demand critical minerals is produced by just three countries, including China and the DRC.¹²
- State-subsidised market participants distort the market and will have an advantage over those not subsidised.
- Generally, critical mineral supply chains are complex, data is unreliable, and markets are subject to manipulation by those in control of supply.
- Recent global events – such as Russia’s invasion of Ukraine, the COVID-19 pandemic, and disruptions at global supply chain choke points – have caused disruptions and price volatility for many commodities, including certain critical minerals.

⁹ <https://csreports.congress.gov/product/pdf/r/r43838>

¹⁰ https://ec.europa.eu/commission/presscorner/detail/en/STATEMENT_22_5523

¹¹ <https://www.globaltimes.cn/content/1204683.shtml>

¹² <https://www.iea.org/reports/the-role-of-critical-minerals-in-clean-energy-transitions/the-state-of-play>



What is the UK Strategy?

The UK Strategy is based on three pillars:

A-C-E (Accelerate, Collaborate, and Enhance).

Accelerate growth of the UK's domestic capabilities – by maximising domestic production, encouraging the funding of critical mineral businesses, rebuilding skills in mining and minerals, promoting the UK as a centre of expertise, and accelerating a circular economy of critical minerals.

Collaborate with international partners – by engaging both multilaterally and bilaterally to incentivise diversification in the critical mineral supply chain and improve the resilience of supply to the UK.

Enhance international markets to make them more responsive, transparent, and responsible – by boosting ESG performance and seeking to “level the playing field” for UK businesses, developing well-functioning markets through data and traceability, and championing the UK as a centre of responsible mining and metals finance.

The UK also intends to establish a dedicated Critical Minerals Unit to act as the government's single point of contact with critical minerals businesses. This will focus initially on engaging stakeholders and bringing together existing expertise across government.

How will the UK Strategy impact mining and commodities businesses?

In the foreword to the UK Strategy, Kwasi Kwarteng¹³ writes that “[t]his government is taking action to ensure we remain in the game.” This reflects the reality that the UK is not a market leader in relation to critical minerals. A number of similar initiatives are already underway around the world, including in the US, the EU and Australia. It is reasonable to expect that there will be competition in securing supply from a number of nations, some of which will be further advanced in the process. In addition, those countries with domestic supply will have an advantage. We think it is realistic to be cautious about the global impact of the UK Strategy.

Nevertheless, the UK Strategy creates both opportunities and challenges for mining and commodities businesses. These include:

Opportunities¹⁴

- **Demand.** According to the UK Strategy, global demand for electric vehicle battery minerals (lithium, graphite, cobalt, nickel) is projected to increase by between 6 and 13 times by 2040, which exceeds the rate at which new primary and secondary sources are currently being developed. Optimism about future prices may lead to increased investment in extraction projects. However, we may also see large shortages and rocketing prices.
- **Government support.** The UK government commits to signposting financial support for domestic critical minerals businesses. The UK has a number of funds in place, including the Automotive Transformation Fund (**ATF**), which aims to develop a zero-emission vehicle supply chain in the UK by providing support for late-stage R&D and capital investment in strategically important technologies, including battery manufacturing. A number of rare earth and lithium projects have received funding already. Driving the Electric Revolution (**DER**) is another UK fund, which has already deployed over £8 million to projects related to critical minerals, such as rare earth recycling.
- **Freeports.** The UK Strategy highlights the UK as a strategic location for refining and midstream materials manufacturing, including through the recent freeports initiative. See our briefing on the UK's new freeports and whether they will help commodities businesses [here](#). One of the rare earth elements projects funded by the ATF is a facility located within the new Humber freeport.
- **Exploration and extraction regulation.** The UK government says it will “[r]eview mineral rights-related barriers to exploration and extraction” and “explore ways to improve the accessibility of mineral rights information to expedite critical mineral mine development”. This suggests there may be change aimed at easing the regulatory burden and bringing legislation up to date.
- **The London Metal Exchange (LME).** The LME has contracts for critical minerals such as cobalt, nickel, tin, and most recently, lithium. These are intended to allow stakeholders throughout the minerals supply chain to mitigate against price volatility. Questions have been raised around this following volatility in the nickel market in Spring 2022 which led the LME to suspend trading in nickel. These events are now the subject of several legal claims as well as reviews by the Bank of England and the Financial Conduct Authority. Separately, the LME is focusing on ESG, having built on its Responsible Sourcing policy with its LME Sustainability initiative. See our briefing [here](#). The LME has now rolled out its “*LMEpassport*”, a digital register which allows producers to share and highlight the sustainability credentials and metrics of their metals.

¹³ (then Secretary of State for Business, Energy and Industrial Strategy)

¹⁴ Many of the “Opportunities” also present challenges for businesses.

Challenges

- **Opacity and volatility.** The UK Strategy identifies opacity and volatility as key features of critical minerals markets at present. These characteristics create risk and uncertainty for businesses.
- **Manipulation.** Critical minerals markets have a long history of being manipulated by countries in control of supply. State-subsidisation of market participants is also a factor.
- **ESG risks.** Critical mineral supply chains are “*fraught with ESG issues and risks*”.
- **Rules of origin.** The Trade and Cooperation Agreement between the UK and the European Union is phasing in Rules of Origin which limit the proportion of imports from outside the UK and the EU that can be used to create EVs.

What should my business do?

Research: before trading in a particular critical mineral, research thoroughly the market, including the geopolitical actors and relationships that influence it.

Identify geopolitical risk: if you already trade in critical minerals, consider your supply chain's exposure to geopolitical risks and whether alternative suppliers or buyers would be available in the event of severe market disruption, a trade dispute, or even military conflict.

Identify ESG risks: carry out 'red flag' supply chain due diligence for ESG issues. If you are a producer of an LME brand, you will need to comply with the LME's responsible sourcing requirements, based on the OECD Due Diligence Guidance for Responsible Supply Chains of Minerals from Conflict-Affected and High-Risk Areas. Other mandatory regimes, such as the EU's Conflict Minerals Regulation, or the Dodd Frank Act for US publicly listed companies, may also apply.

Understand your contractual obligations: increasingly, we are seeing metals sale and purchase contracts containing bespoke responsible sourcing requirements.

Beware shortages at the LME: as demand for battery metals outstrips supply, pressure will increase on LME stocks as they become in demand for physical delivery.

What about UK businesses?

In addition to the above, UK mining and commodities businesses should:

- Investigate whether you are eligible for support under UK funds such as the ATF or the DER.
- Consider whether your business could benefit from the UK's new freeports.
- Monitor developments in the regulation of critical mineral exploration and extraction rights.
- Consider engaging with the new Critical Minerals Unit.

If you have any questions in relation to the above, or your legal rights or obligations, please contact the authors of this guide.



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