

Critical minerals – The power factor in commodities

Critical minerals are increasingly playing a key role in the development of electromobility, renewable energy and digitalization – and thus in shaping future developments.

IN A NUTSHELL



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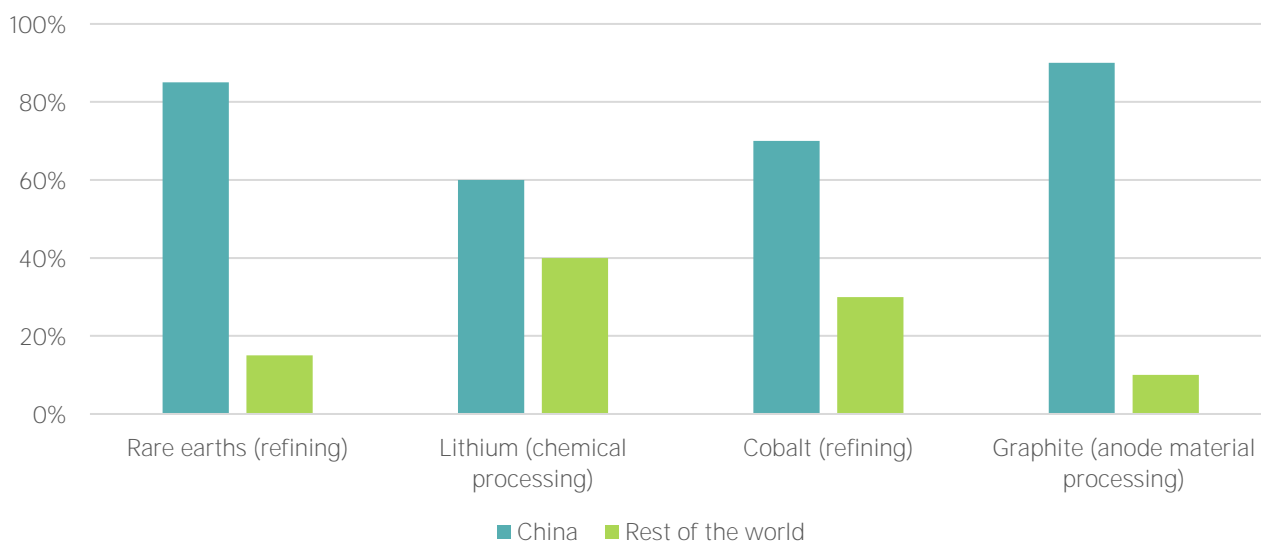
- Critical minerals are better understood as a structural theme than a cyclical commodity trend, given their role in key technologies and their distinct market structure.
- The decisive bottlenecks tend to arise less in mining than in refining and downstream processing, resulting in a high degree of technological and geopolitical concentration along the value chain.
- For investors, we think the key long-term implication may lie less in short-term price moves and more in structurally constrained and strategically important segments of the value chain.

Critical minerals have moved from the periphery of commodity markets to the center of economic, industrial and geopolitical strategy. Unlike traditional commodities, they are defined less by volume or price cycles and more by their functional irreplaceability. They are indispensable inputs for key technologies that underpin electrification, digital infrastructure and modern defense systems. This makes them a structural theme rather than a cyclical one.

What distinguishes critical minerals from classical commodities is the nature of demand and supply. Demand is driven simultaneously by three largely independent forces: the energy transition, the rapid buildout of digital and AI-based infrastructure, and rising security and defense requirements. Each of these trends is politically supported, long-term oriented and relatively insensitive to short-term economic slowdowns. Together, they create a persistent demand profile that cannot easily be offset by cyclical weakness in individual end markets.

On the supply side, however, responsiveness is limited. While many critical minerals are geologically abundant, economically viable deposits and, more importantly, processing capabilities are scarce and highly concentrated. The decisive bottlenecks lie not primarily in mining, but further downstream: in refining, separation, metallization and the production of sophisticated intermediate goods such as permanent magnets or battery chemicals. These stages are capital intensive, technologically complex, environmentally sensitive and slow to scale. Decades of industrial policy have led to a high degree of geographic and technological concentration, particularly in China, which today dominates large parts of refining and magnet production (see chart).

Global concentration of critical minerals processing (share of global refining capacity)



Sources: International Energy Agency (IEA), Global Critical Minerals Outlook 2025, DWS Investment GmbH as of 5/21/25

This concentration gives critical minerals a geopolitical relevance that goes far beyond classical trade dependencies. Control over processing stages translates directly into strategic leverage. Export controls, licensing regimes and technology restrictions have turned certain minerals into instruments of power, with effects that often extend well beyond national borders. For Europe and the United States, this creates structural vulnerabilities that cannot be resolved quickly, even with ambitious industrial and raw materials policies.

These characteristics also help explain why prices often provide misleading signals. Markets for critical minerals tend to be small, opaque and heavily influenced by political intervention. Low or volatile prices do not necessarily indicate sufficient supply or low strategic value. At the same time, the incentive prices required to develop alternative supply chains outside existing centers of control are often significantly higher than current spot prices suggest.

For investors, this implies a shift in perspective. The central question is less about short-term commodity price movements and more about where scarcity becomes binding along the value chain. Companies positioned in structurally constrained segments – particularly in processing and downstream applications – may benefit from durable demand, pricing power and policy support, even if volatility remains high. Broad “commodity beta” is therefore less informative than a granular, value-chain-based assessment.

Overall, critical minerals do not signal the start of a new commodity supercycle. Instead, they reflect a lasting transformation of the global economic order – one in which resilience, supply security and strategic control increasingly take precedence over cost efficiency. Understanding this shift is essential for interpreting both geopolitical developments and long-term investment dynamics.

If you are interested in the whole piece (English only), [here](#) is the link:

Glossary

Artificial intelligence is the theory and development of computer systems able to perform tasks normally requiring human intelligence

Critical Minerals are essential to economic activity and modern technologies—such as clean energy or digital infrastructure—whose supply is at risk due to limited availability or highly concentrated production.

A **commodity** is a basic good used in commerce that is interchangeable with other goods of the same type. Commodities are most often used as inputs in the production of other goods or services.

The International Energy Agency (IEA) is an autonomous intergovernmental organization which works to ensure reliable, affordable and clean energy for its 30 member countries and beyond.

Renewables are natural resources or sources of energy that is not depleted by use, such as water, wind, or solar power.

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