

Critical minerals – the once forgotten elements crucial to modern day technology – have made it to the top of the geopolitical agenda. A global battery arms race, driven by the advent of [electric vehicles](#) (EVs), has seen a step change in demand for lithium, nickel, cobalt, graphite, manganese and rare earths.

A supply demand mismatch, especially for [lithium](#), has created a tremendous raw material disconnect between those building gigafactories and EVs – and those that mine these elements critical for their function.

We have moved from a world where traditional commodities have taken second stage to the commodities of the future. And lithium-ion batteries and their key raw material inputs have taken centre stage in policy, namely the **US Inflation Reduction Act**.

But, other major economies such as the European Union, UK, and Australia are all establishing large-scale funding and associated legislation. The G7 Hiroshima Leaders' Communique mentions critical minerals 10 times, India's lithium reserves made front pages, as did Chile's proposed nationalization of the element. The EU just passed the Critical Raw Materials Act, and the US National Security Advisor mentioned minerals several times at his recent major policy speech.

This level of political attention is new, but such heights of the limelight never last long. A seismic technology shift is upon us as the world moves aggressively towards electric vehicles, sparking the dawn of the 'energy storage revolution' – a revolution currently led by China.

Five ways to act on critical minerals

At least five areas on critical minerals require urgent attention. **First**, understand the markets. The supply chains for this diverse set of minerals and chemicals are often small, illiquid, have poor transparency and even worse price discovery. Lithium carbonate's price rocketing from \$8,500/tonne in December 2020 to \$81,000/tonne in December 2022 underlines the aggressive nature of how these inflexible markets can flip.

Understanding of these critical minerals and their often complex supply chains is key to making the biggest decisions of this energy storage revolution.

Benchmark Mineral Intelligence has led the way in creating new price assessments for key critical minerals and sets the lithium industry reference and benchmark pricing. Yet the industry is still nascent, and with so many new companies entering the space, the mission for data transparency has just begun.

Secondly, diversify supply chains. The current supply chains are dominated by China. While China does not mine the majority of critical minerals domestically, it has a huge portion of the mid-stream processing capacity accounting for over 65% of all chemical refining, 80% of

cathode making, 93% of anode manufacturing, and 79% of battery cell making.

Joined up thinking from the mine to chemical plant to battery to EV is crucial for any form of dominance in this space. These oil pipelines of tomorrow are being built from scratch. The strategy as a result needs a fresh approach as well.

Third of all, focus on new places for advanced manufacturing. As the race is on to make advanced tech outside of the US, Europe and China, the benefits to developing economies of joining this modern competition would be tremendous. Lithium-ion batteries and the chemical plants that feed them create advanced 21st-century manufacturing jobs and generate trillions of dollars of downstream value.

Fourth, engage in sustainable mining and battery recycling. Lithium-ion batteries and the energy transition will require hundreds of new mines to be built around the world. New techniques and processes are available to mine differently, have more focus on waste streams and recycling, and employ cutting-edge data science, autonomous technologies and ways to minimize environmental hazards.

Battery recycling will solve about 20% of our raw material conundrum meaning most of our raw material needs will still come from the ground. Combining the world's best minds with a laser focus on mines is the only way to solve this challenge.

Fifth, any transition away from [fossil fuels](#) means mining. The world desperately needs these sustainable minerals and metals, and communities must see a real benefit and understand the trade-offs. This is especially poignant when considering Indigenous communities and creating new ways to generate jobs and wealth for those who own these assets.

The world is in a battery arms race

We must be clear: the world is in the midst of a global battery arms race. The decisions made by governments today will impact the geopolitical order of the next century, as we take our first step into this energy storage revolution.

Those that step boldly on [critical minerals](#) will have the sway of industry's power for the 21st century.

Source: World Economic Forum