ENERGY TRANSITION COMMODITIES: RIDING THE WAVE OF NEW DEMAND DRIVERS

Wood Mackenzie – Wood Mackenzie
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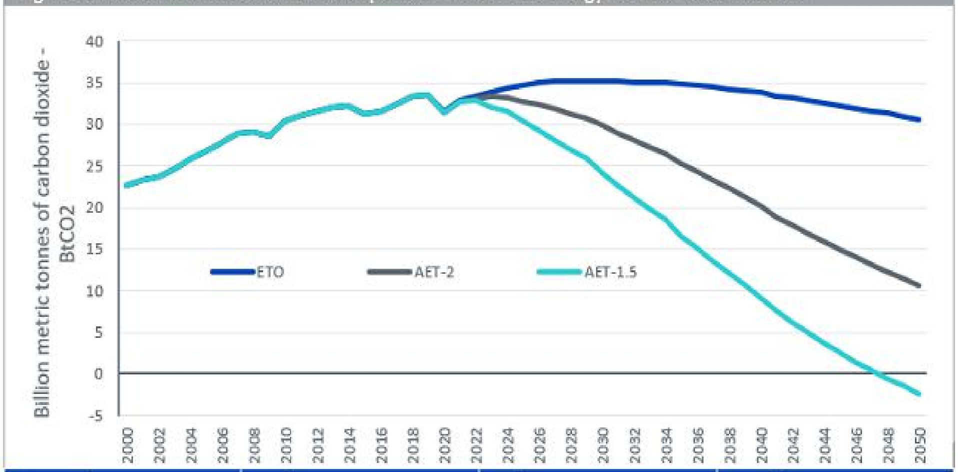
The Paris Agreement of 2015, with its ground-breaking commitment to limit greenhouse gas emissions to levels consistent with global warming of between 2 and 1.5 degrees this century, is a useful starting point for thinking about the features of the energy transition underway. The history of the energy system is one of almost constant transition; over time different fuels and different suppliers have competed for different markets. Even by the dynamic standards of the past, the current phase is unique. New demand drivers for commodities offer the opportunity for investors to support decarbonisation.

One effect of the Paris Agreement has been to prioritise new social objectives within the functioning of the energy system and the global economy it supports. These objectives can be summarised as the need to improve access to energy while reducing the environmental impacts energy production and consumption holds. More specifically, the global economy needs to service the demands of an estimated 10 billion people by 2050 – 25% more than today's nearly 8 billion – while reducing net greenhouse gas emissions levels by 100% over the same period. Wood Mackenzie (WM) has developed distinct scenarios for how the pursuit of these goals plays out (see Figure 1).

Figure 1: Wood Mackenzie Scenario Comparison - Global Net Energy-Related CO2 Emissions



Scenario	Net zero	Policy	Enablers
Energy Transition Outlook (ETO)	Not reached, consistent with 2.5-2.7 Degrees global warming	Evolution of current policies	Steady advancement of current and nascent technologies
2-Degree Scenario (AET-2)	2070 (Global), 2050 (Developed)	Aligned with upper limit of Paris Agreement	Electrification across all sectors and rapid decarbonisation of power supply
1.5 Degree Scenario (AET-1.5)	2050 (Global)	Aligned with most ambitious goal of Paris Agreement	Early peak energy, rapid hydrogen and carbon removal deployment, consumer shift

Source: Wood Mackenzie, 2022.

Forecasts are not an indicator of future performance and any investments are subject to risks and uncertainties.

The scale of the challenge is enormous. Equally broad are the means by which the global response to need for more energy and less emissions is being made. Electric vehicles (EVs), energy storage, charging, electricity transmission and distribution cables, solar and wind generation; hydrogen across the energy value chain we see regulatory, market and technology trends calling forth unprecedented levels of demand for certain mined commodities over the next 3 years (see Table1).

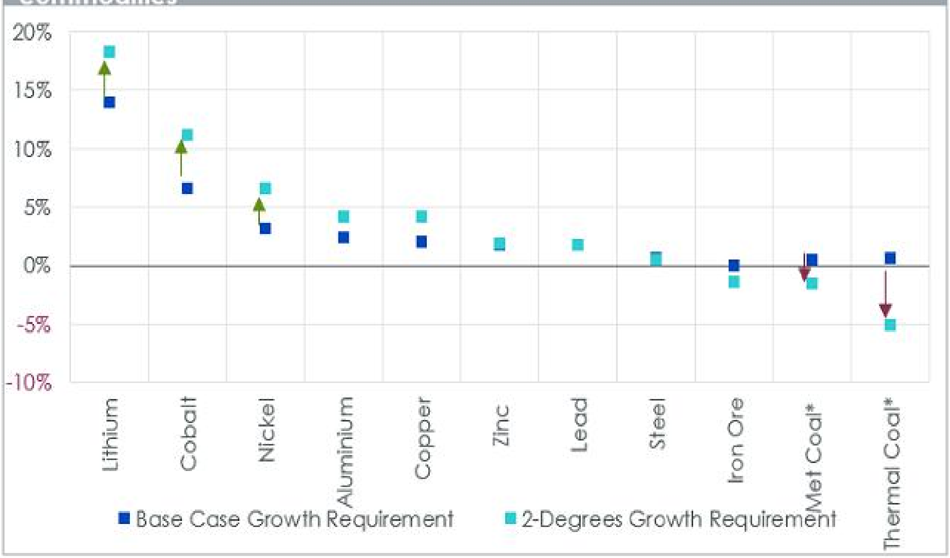
Table1: Energy Transition Commodities and Applications

	Electric vehicles	Transmis s-ion	Charging	Energy storage	Solar	Wind	Hydrogen
Aluminium	✓	✓	✓	✓	✓	✓	
Copper	✓	✓	✓	✓	✓	✓	
Gold							✓
Nickel	✓			✓			✓
Platinum							✓
Silver					✓		
Tin					✓		
Zinc	✓		✓	✓	✓	✓	

The extent of the demand for energy transition commodities plays out in different ways under Wood Mackenzie's Energy Transition Pathways. Many mined commodities enjoyed a strong rebound in demand after COVID-19 lockdowns hit consumption in 2020. The resurgent economy – specifically, the extraordinary demand for goods – has squeezed supply chains and lifted almost all commodity prices in energy and metals to near-record levels. Markets in key transition metals are also looking to the longer term, anticipating sustained investment in a green recovery pathway, focused on decarbonisation, and informed by the pace of change in energy markets.

A slower transition, like that detailed in our WM ETO pathway, where willingness and capacity to remake our energy system is variable across markets, brings upsides across the mined commodity complex. Limiting global temperature rises below 2 degrees through an accelerated transition requires a lower probability, higher consequence revolution in our energy system. The United Nations Climate conference climate conference of 2021 (COP26) confirmed the international community's commitment to this goal. And delivering this reconstruction would be transformative for the building blocks of the transition – metals (see Figure 2).

Figure 2: 10-year compound annual growth rate forecasts for mined commodities



Source: Wood Mackenzie, 2022.

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But the current projection for supply growth is not sufficient to meet technology needs. The resulting structural undersupply would typically lead to higher prices as manufacturers compete to secure raw materials. The question is what price level will be enough to incentivise the required metals capacity?

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