Why mining matters for sustainability

While mining may appear at odds with sustainable investing, the transition to a low-carbon economy relies on both innovation and the responsible sourcing of key natural resources. We use our active management approach to find companies we think are working to be part of the solution to climate change.

Resource rich, opportunity heavy

Australia has a geological advantage in that many of the materials critical for the global energy transition are found in abundance. Iron ore, copper, lithium and rare earths can all be found in its mineral-rich terrain. This has made mining a cornerstone of the Australian economy and a heavy constituent of the ASX 300, accounting for almost 20% of the index[1].

The economic value this sector brings must be balanced with our ethical investing approach, and we believe that supporting transition leaders offers meaningful opportunity to engage with companies. Companies focussed on finding solutions to the inherently energy-intensive process of mining can contribute to a more sustainable world by improving their own operational practices. Because of the sector's scale, when a miner reduces its water use, electrifies its haulage fleet, or integrates renewable energy, the effects on emissions can be material. The output of their operations can also contribute to a greener future, with the minerals they extract holding foundational roles in renewable energy systems, electric vehicles, and battery storage. This provides opportunities for investors holding transition leaders that will benefit from the long-term trend towards net zero.

There is no perfect company in sustainable investing. Across the value chain in any sector, there are environmental, societal, and governance considerations, and these vary depending on the ethical viewpoint of investors. Mining has obvious environmental and societal concerns, and we are mindful as active investors to use our approach to avoid companies that we think do not belong in an ethical portfolio - U Ethical avoids dozens of companies whose mining operations involve thermal coal, uranium, or other fossil fuels. We support those that are making commitments to enact meaningful change and engage with companies to improve.

The companies we have included in our portfolio mine the critical metals needed to make a sustainable transition. We recognise that mining companies face significant structural challenges, and it will be a long journey to decarbonising this industry. The companies that are already taking steps are positioned to outperform laggards and benefit from structural tailwinds. Holding these companies reflects our values to deliver strong financial outcomes while supporting real-world change and responsible stewardship.

Steel: the backbone of a sustainable future

Although most of Earth's iron lies deep in its core, approximately 5% of the planet's crust contains this essential metal making it Earth's second most abundant metal. Iron has been used by humankind for thousands of years with ancient tools and ornaments illustrating humans' cultural history. The Iron Age, which followed the Bronze Age, marked a turning point in human civilisation, with iron tools advancing agriculture and enabling broader land cultivation.

Today, iron in the form of steel, is enabling the transition from fossil fuels in our electricity generation, transport networks, and buildings. Renewable energy contributed over one third of Australia's electricity mix in 2023, with wind power contributing 12%[2]. Wind generation offers a clean energy source and will be a key part to a sustainable energy mix, with steel playing an integral role in wind energy infrastructure - making up approximately 70% of a turbine's mass[3].

Steel also underpins rail infrastructure - a lower-emission transport option - valued for its strength, ductility, and reliability. From the tracks and bridges to train carriages and components, steel is a high-performing bedrock. Buildings made from steel can benefit from the metal's high strength-to-weight ratio, which allows for reduced material usage without compromising durability or safety. Utilising steel's thermal properties can also improve buildings' insulation and reduce reliance on heating and cooling systems, helping to reduce household energy demand.

While the initial production of steel is energy intensive and will continue to contribute to carbon emissions, we understand that to build efficient, long-term solutions, it will be a necessary component, alongside other metals, in many future, green-focussed projects.

Copper: powering the electrification effort

One of the other key metals used in these projects is copper. Copper's exceptional electrical conductivity makes it indispensable in the global shift towards electrification. Copper plays a significant role in electric vehicles (EVs), renewable energy systems, and grid infrastructure.

In electric vehicles, copper is used extensively in motors, inverters, wiring, and charging infrastructure. Each EV contains over three times as much copper as a conventional internal combustion engine vehicle, and with global EV sales projected to account for over 40% of all new car sales by 2030 - and over three quarters in markets like China[4] - demand is set to accelerate.

Copper also plays a vital role in wind and solar energy. In wind turbines, copper is used in generators and grounding systems, while in solar panels, it connects photovoltaic cells and carries generated electricity to homes and businesses. Power lines and substations - the arteries of our electricity grids - rely heavily on copper to distribute clean energy efficiently. As economies electrify and integrate more renewable energy, copper's unique properties make it an essential material for building the resilient, low-carbon infrastructure of the future.

Lithium: batteries for storage and mobility

The success of the clean energy transition hinges on the ability to store power efficiently and reliably. Lithium is a foundational material in battery technologies that enable the storage and use of renewable energy. It is central to the functionality of lithium-ion batteries, which power everything from smartphones and laptops to electric vehicles and grid-scale energy storage systems.

One of the key challenges facing renewable energy is intermittency - and lithium-based storage technologies are central to overcoming this limitation. Harnessing nature's wind and sun rays brings a solution to zero-carbon energy production, but no innovation will change that the sun does not always shine. Lithium batteries help solve this existential problem by storing excess energy when production is high and releasing it when demand peaks.

Lithium batteries now power billions of devices and vehicles globally - a ubiquitous technology that underpins modern mobility and energy use. Battery storage is an emerging industry but one that is likely to grow as renewable energy makes up a larger proportion of electricity generation, and stabilising of the grid is required. As the world accelerates towards decarbonisation, lithium will remain a cornerstone of energy storage innovation.

Rare earths: the unseen catalysts of innovation

Rare earth elements are a group of metals that have unique optical, magnetic, and catalytic properties that make them critical to the performance of many low-emission technologies. Despite their name, rare earth elements are relatively abundant in the Earth's crust, though their extraction is technically complex due to geological dispersion. China is the leading producer of rare earths, but with 4% of the global supply[5], Australia is a significant player in the mining of these critical materials and may become more important as geopolitical relations evolve.

Across a range of renewable technologies, rare earths are important ingredients to improved performance. Strong magnets are needed in wind turbines and electric motors, solar panels need them to improve the durability and flexibility of their thin-film cells, and batteries benefit from higher density and lifespan through the addition of these materials. Rare earths have played an essential role in translating emerging technologies into scalable, commercial solutions.

A strategy for reducing our dependency on fossil fuels is not possible without practical alternatives. Jevons paradox is when making something more efficient leads to using more of it, not less. This is evident in energy consumption, which has continued to grow even as we create better appliances and equipment. Despite efficiency gains, total energy demand continues to rise - reflecting society's reliance on energy-enabled productivity, mobility, and quality of life.

Reducing emissions, therefore, will require investment in innovative solutions and clean energy production to enable energy consumption to continue, but in a more sustainable form. This will not be possible without the raw materials that form the foundations of these innovations. To continue the transition, iron, copper, lithium, and rare earths must continue to be affordable, and thus supply must rise to meet our growing demands. Renewable energy and battery storage offer a cleaner future and the only viable way to net zero, but that requires miners.

Investment Case Studies

The mining companies in the U Ethical portfolio have potential to benefit from the increase in material demand outlined above, as well as from their alignment to sustainability in their own operations.

Fortescue, a leading iron ore producer, has set a target to achieve zero operational emissions by 2030 - one of the most ambitious decarbonisation plans in the sector. Its 'Real Zero' strategy includes renewable energy investments such as an 100MW solar farm and Project Roadrunner, a battery-electric haulage truck prototype.

Sandfire, a copper producer, has committed to achieving net zero operational emissions by 2050, with interim goals to source 50% of its electricity needs from renewable sources by 2030.

The company is actively integrating low-carbon practices across its operations. A standout example is its MATSA operation in Spain, which already sources 100% renewable energy. In addition, Sandfire is investing in water treatment and reuse technologies to address the water-intensive nature of copper mining.

Lynas Rare Earths is Australia's largest producer of rare earth materials and is advancing efforts to reduce the environmental impact of its operations, particularly in energy usage and emissions. At its Mt Weld site in Western Australia, solar, wind, and battery energy storage systems are being integrated with a natural gas power station, which will replace the existing carbon-intensive diesel power station. The hybrid system is expected to meet up to 70% of the project's energy needs with renewables by 2026.

While resource extraction is inherently energy-intensive, responsible mining practices and innovation are critical to reducing its environmental footprint - and enabling the broader energy transition. More of the metals these companies are mining will be essential to make a sustainable transition to a net-zero future.

The companies that we invest in illustrate the innovation and change needed to reduce power usage in mining operations. We believe that, with the right strategies and accountability, these companies can be instrumental in enabling a sustainable and resilient low-carbon economy.

Taylor Halliday
Investment Specialist

Sources:
[1] S&P / ASX 300 Index.
[2] Australian Government Department of Climate Change, Energy, the Environment and Water, 2025.
[3] National Renewable Energy Laboratory. Cost of Wind Energy Review, 2015.
[4] International Energy Agency, 2025.
[5] World Population Review, Rare-Earths Reserves by Country, 2025.

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