

Briefing Note: How Sustainable Finance Can Support UK Mining's Green Transition

The drive for a low-carbon economy has renewed interest in critical minerals mining in the UK - particularly in regions like Cornwall and Devon. These areas, with historical tin and tungsten mines and new lithium projects, are now seen as key suppliers of the materials essential for clean energy technologies. Yet mining remains a capital-intensive and environmentally sensitive activity. Mining projects often face long permitting timelines, community concerns, and growing scrutiny around environmental, social, and governance (ESG) performance. Traditional funding models are not always suited to these challenges. This is where sustainable finance can play a crucial role.

For the mining sector, sustainable financing instruments include green bonds, ESG-linked loans, project finance, and government grants tied to sustainability outcomes. These tools not only provide capital but can also support better environmental practices, community engagement, and long-term resilience. Such strategies must align investors' sustainability goals with the capital-intensive nature of mining.

What We Found: Mapping the Funding Landscape

Our recent analysis of 20+ UK-based mining and mineral processing companies and projects from 2020 to 2025 reveals several trends:

- **Grants and public funding** are widespread but typically small-scale. At least 11 companies in our sample received public grants (e.g. from Innovate UK, APC, SBRI), with values ranging from £ 500k to £24m. These grants supported feasibility studies, pilot plants, and early-stage R&D (lack of diversity).
- **Private equity and strategic investors** accounted for over £710 million in funding, often at pilot or construction stages. Notable examples include Cornish Lithium, which secured Series B funding from SQM and TechMet, and Tungsten West, which used a mix of equity and convertible loans.
- **The UK National Wealth Fund (NWF)**, a sovereign investor, participated in major equity deals with Cornish Metals and Cornish Lithium, backing the South Crofty tin mine and lithium extraction scale-up in Trelavour, respectively.
- **Crowdfunding** - While still modest in scale, crowdfunding has emerged as a complementary source of finance for UK critical minerals. In 2023, Cornish Lithium raised around £5.5m via Crowdcube to advance feasibility and demonstration work at Trelavour, while in 2024 Northern Lithium secured nearly £6m through two equity crowdfunding rounds to fund drilling and direct lithium extraction trials in County Durham.
- **Regional differences** – Funding volumes reveal notable geographical contrasts. Projects in Devon and Cornwall collectively raised around £200m across early-stage exploration

and mine development. By contrast, large-scale midstream and downstream facilities elsewhere in the UK - such as refineries and recycling plants - have attracted higher totals. This reflects both the capital-intensive nature of processing infrastructure and the need for balanced regional investment.

- **Project finance and bond structures** are less common but growing.
- Across all projects, 85% of total funding is directed to **pilot and demonstration activities**, and few projects have progressed beyond this stage. Early-stage R&D and discovery activities receive limited funding, partly because they require smaller budgets, and partly because such smaller-scale projects often do not qualify for larger public grant schemes.
- **Need for policy development** - The current funding landscape remains fragmented, relying on a mix of government funds, specialist investors and limited retail participation. To scale sustainably, there is a clear need for stronger policy frameworks: integrating green finance standards into industrial strategy, providing long-term incentives, and ensuring regional balance across the UK mining value chain.

Background and approach for our research

Our academic research so far highlights a complex interplay between mining investments and sustainability imperatives. Traditional mining finance has been characterized by high risk due to commodity price volatility and long project lead times (Jain et al., 2024). Scholars emphasized that underinvestment in new mines for critical minerals (like the elements lithium, cobalt, and rare earths) could impede the energy transition (The Economist, 2024). At the same time, reputational and ESG risks in mining - such as impacts on local populations, carbon emissions, water use, and biodiversity impacts - pose new challenges for financiers.

We see growing interest from mining industry in how to access sustainable finance. But many still have practical questions:

- ***What counts as ‘green’ mining?***
- ***Who qualifies for sustainable finance?***
- ***What options exist beyond traditional equity or debt?***
- ***And how can projects demonstrate their ESG credentials to potential funders?***

This policy brief describes our research that responds to those questions. Drawing on academic research, industry data, and case studies from across the UK mining landscape, we explain what sustainable finance can offer to the sector, how it is already being used, and what support is needed to unlock its full potential.

Tools to Unlock Sustainable Investment in Mining

To support a more resilient, lower-carbon mining sector that contributes fully to sustainable development, the UK needs funding mechanisms that reflect both the environmental, social and governance risks and the strategic value of critical minerals. A range of financial tools - some

already in use - can help projects attract capital while meeting sustainability expectations. Below, we outline key instruments and how they are being applied in practice in mining.

Government Investment Funds

Definition: Government investment refers to direct public capital participation—typically through the National Wealth Fund (NWF) or the UK Infrastructure Bank (UKIB) - where the government takes an equity stake in a company to co-finance large-scale strategic projects.

Recent examples include the NWF's £28.6 million equity investment in Cornish Metals, helping to reopen the South Crofty tin mine, and its equity funding to Cornish Lithium to advance lithium extraction technologies. Similarly, the NWF has provided £24m equity funding to Cornish Lithium to advance domestic lithium extraction and processing capacity.

Government Grants

Definition: Publicly funded financial support, usually non-repayable, provided by government bodies or public finance institutions to de-risk early-stage mining and processing projects. Grants often target feasibility studies, R&D, or pilot plants, and signal government confidence that can crowd in private capital. In the UK, common sources include Innovate UK, UK Research and Innovation (UKRI), and the Advanced Propulsion Centre's Automotive Transformation Fund (ATF), or the UK Shared Prosperity Fund.

Public grants remain one of the most accessible forms of early-stage finance, particularly for feasibility studies, pilot technologies, and innovation in extraction or processing. Between 2020 and 2025, at least 7 UK based companies in our dataset received grants from Innovate UK and the Automotive Propulsion Centre (APC), amounts typically ranged from £60,000 to £11 million.

Cornwall Resources is backed by the Shared Prosperity Fund to support tungsten exploration in Cornwall. Imerys British Lithium received £764000 Innovate UK support for its pilot plant for lithium extraction from granite in the St Austell area of Cornwall. Green Lithium Refining Ltd secured £631,000 (in 2022) and £1,500,000 (in 2025) funding through the Automotive Transformation Fund to carry out feasibility and demonstration for a large-scale lithium refinery at Teesport. These grants often serve as validation signals, helping companies unlock further private investment by demonstrating public sector confidence.

Green and sustainability-linked bonds

Definition: Debt instruments issued on capital markets to raise capital for projects with defined environmental or sustainability outcomes. Green bonds restrict the use of proceeds to eligible activities (e.g. renewable energy, rehabilitation), while sustainability-linked bonds adjust interest costs according to the issuer's ESG performance against agreed targets. In the mining sector, issuance in the UK remains very limited, so many of the examples highlighted here draw on significant international transactions that illustrate the instrument's potential.

Mining companies are landing on thematic bond markets, using proceeds to fund specific environmental improvements - such as renewable energy infrastructure, low-emission technologies, or mine site rehabilitation. While adoption remains limited, these instruments offer long-term potential to attract capital from ESG-focused investors. Globally, mining firms had

issued around \$6.3 billion in green bonds and \$4.3 billion in sustainability-linked bonds (SLBs) by early 2024 - still less than 0.3% of the total green bond market, highlighting significant room for growth. Some examples are listed below:

- In 2022, Anglo American Capital Plc issued a €745 million (~£630 million) SLBs, tied to its FutureSmart™ Mining programme, which includes hydrogen-powered haul trucks and other low-emission innovations across global sites.
- In April 2022, Fortescue Metals Group Ltd in Australia issued a \$800 million US green bond to finance renewable power and hydrogen infrastructure at its mining operations, largely relating to their renewable energy initiatives through the PEC and the Green Fleet Energy Hub
- Sociedad Química y Minera de Chile (SQM), a company dedicated to the extraction and processing of lithium, raised capital via green bonds for a sum of 750 million USD, maturing in 10 years with an annual yield of 6.5%, to support environmentally improved lithium extraction.
- In April 2020, Aluminium giant Rusal secured an ESG-linked loan facility exceeding \$1 billion, tied to environmental performance targets¹.

Sustainability-linked loans and revolving credit facilities

Definition: Loan structures where borrowing costs (interest margins) are linked to the borrower's achievement of measurable ESG targets. These facilities provide flexible capital while embedding sustainability incentives into standard corporate lending agreements.

An increasing number of global mining companies are using sustainability-linked loans (SLLs) and ESG-linked revolving credit facilities (RCFs) - financing structures that reward companies for meeting sustainability goals. These tools offer flexible capital while embedding ESG performance targets directly into loan terms. For example:

- Lundin Mining secured a \$2.55 billion credit facility tied to targets on greenhouse gas emissions reduction².
- In June 2023, Gold Fields Limited, a major gold miner, has announce that it has successfully refinanced its US\$1.2bn 2019 revolving credit facility (RCF)³. For the first time, the new facility is linked to the achievement of three of Gold Fields' key ESG priorities: gender diversity, water stewardship and decarbonisation.

By Q1 2024, leading critical mineral producers had arranged approximately \$26.2 billion in ESG-linked loan facilities globally⁴. These facilities often apply modest interest rate penalties or incentives (measured in basis points), but their real value lies in reputational impact - publicly aligning financing with sustainability performance. However, the effectiveness of these tools depends on robust ESG targets, third-party verification, and actual drawdown of facilities.

¹ <https://www.txfnews.com/articles/7009/rusal-pioneers-the-market-with-green-aluminium-financing>

² <https://lundinmining.com/news/lundin-mining-links-us-2-55-billion-credit-and-loa-123155/>

³ <https://www.goldfields.com/news-article.php?articleID=13157>

⁴ energypolicy.columbia.edu

Without meaningful conditions, such lending can risk becoming symbolic. At the same time, ESG-focused investment funds are stepping in to complement this space. The Climate Smart Mining (CSM), launched by the World Bank and partners in 2019, provides dedicated finance for improving the environmental footprint of mining⁵. Funds like VanEck's Green Metals ETF (GMET) and BlackRock's Climate Action portfolios channel equity capital into miners and refiners that meet ESG criteria - often focusing on companies generating at least 50% of revenue from 'green metals' like lithium, cobalt, and rare earths.

While no UK-headquartered critical mineral producers have directly accessed sustainability-linked loan schemes to date, Anglo American has adopted sustainability-linked financing instruments - such as its US \$100 million ten-year sustainability-linked loan with the International Finance Corporation - these are structured at the corporate level rather than for specific UK projects. The group's financing framework, which also supports its Woodsmith polyhalite mine in North Yorkshire, demonstrates how sustainability-linked mechanisms are being integrated across global operations. However, Anglo American has recently slowed development at Woodsmith to manage capital expenditure and focus on technical redesign and cost optimisation in response to shifting market conditions. To date, there remains limited evidence of UK-based mining companies directly accessing sustainability-linked loan or revolving credit facilities, indicating that the use of ESG-linked financing structures is still at an early stage within the UK mining sector.

Project finance and financing with ESG covenants

Definition: Financing arrangements - most often structured as non-recourse project finance but also including other forms of project-related lending - where repayment is secured by a project's cash flows and assets. Under these structures, lenders impose environmental and social conditions as binding loan covenants. Frameworks such as the Equator Principles require robust environmental and social impact assessments, stakeholder engagement, and mitigation measures, making sustainability performance a core financial risk rather than just a reputational issue.

Project finance-structured as non-recourse loans backed by a project's own cash flows and assets-is a widely used model in mining, particularly for capital-intensive ventures like processing plants or new extraction sites. When linked to sustainability conditions, it becomes not just a funding method, but a tool to raise ESG standards. Mining projects are like renewable generation and infrastructure assets. Volumes from production are forecasted and can be used to predict cashflows and size debt funding.

Banks and export credit agencies now apply the Equator Principles, a global framework adopted by over 100 financial institutions, which requires robust Environmental and Social Impact Assessments (ESIAs), stakeholder consultation, and mitigation plans as a condition for financing (González-Ruiz et al., 2021). In practice, this means lenders may:

- Require carbon emissions and water usage to stay within agreed limits,

⁵ <https://www.worldbank.org/en/topic/extractiveindustries/brief/climate-smart-mining-minerals-for-climate-action>

Critical Minerals Challenge Centre

Accelerating the Green Economy



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- Withhold disbursements until environmental milestones are met,
- Penalize non-compliance through pricing adjustments or event-of-default clauses.

This confirms ESG performance a core financial risk - not just a reputational issue. From a modelling perspective, mining projects share many similarities with renewable energy infrastructure: production volumes can be forecasted, control accounts track off-take or ramp-up periods, and funding is structured around staged milestones. For projects involving pilot or demonstration plants, early technical and environmental risk is often priced into the loan terms. By embedding sustainability requirements directly into funding agreements, project finance ensures that ESG compliance is not optional - but contractually enforceable, aligning investor priorities with long-term project resilience.

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