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Financing the mining transition

2025

Executive summary

The mining sector is crucial to the global economy, supplying critical minerals and aiding the energy transition. With critical minerals so essential for renewable energy technologies to meet the global demand for net zero the mining industry finds itself in a position where demand for minerals such as copper, nickel, rare earths and lithium is experiencing significant growth. However, the industry has faced underinvestment over the past decade, raising concerns about future resource availability. After the commodity price downturn from 2012 to 2016, mining companies cut capital expenditures, focusing on cost control and shareholder returns, which weakened supply chains and reduced exploration. Although capital expenditure began to recover post-2017, it remains below historical highs. As a result, investment levels need to rise significantly in order to meet this demand. Capital availability is a pressing risk, especially for junior companies relying on equity markets. Central banks' monetary tightening has restricted new capital flow, impacting exploration funding. ESG considerations are influencing investment decisions, affecting mining companies' social licence and access to financing. To bridge the funding gap, innovative and nuanced financing models involving diverse sources and stakeholders are essential. Options like reserve-based lending, project financing, royalties, and streaming agreements offer flexible solutions but come with accounting and structural complexities. It is crucial to fully understand the accounting implications of any financing options, and BDO is well placed to assist in navigating through this.

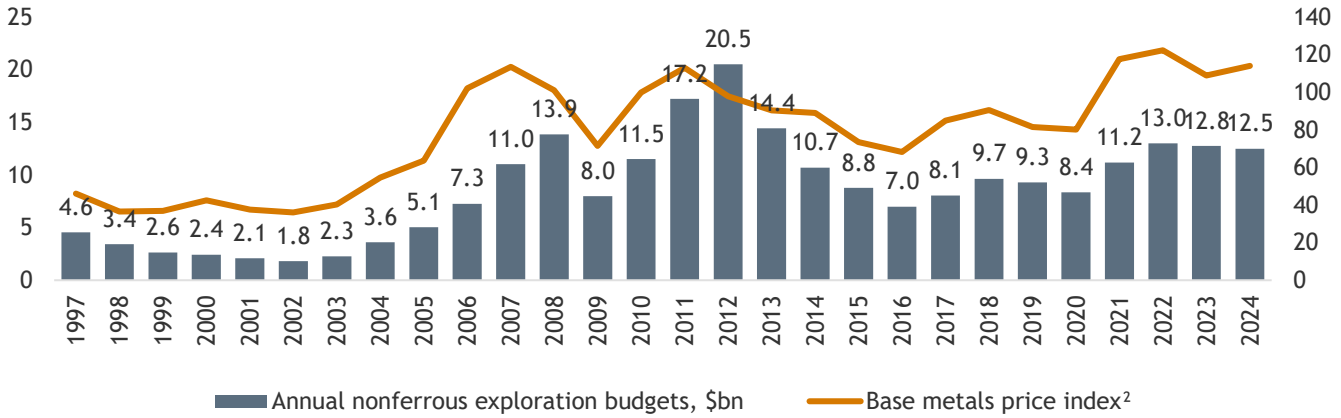
Adam Barallon
Director | Natural Resources & Energy

Get in touch to see how BDO can assist you in establishing or improving your strategic investment and financing solutions to support the mining industry's role in the global energy transition.

Underinvestment in the mining industry threats stalling the global energy transition

The mining sector plays a fundamental role in the development of global economy, providing essential raw minerals for various industries and supporting the low carbon transition. The industry has experienced a prolonged period of underinvestment over the last decade, raising concerns about future resource availability. Following the commodity price downturn between 2012 and 2016, mining companies responded by cutting capital expenditures and shifting their focus toward cost control and shareholder returns. Such an approach led to weaker supply chains and reduced exploration activity. Although capital expenditure began to recover after 2017, it still remains well below historical highs. According to S&P Global, global mining capex[1] was estimated to amount to $107.5bn in 2024, a 1.6% decline compared to 2023, and fall short of the 2013 peak by around $38bn, amid high inflation, elevated interest rates, as well as slower global economic growth. Exploration spending has followed a similar trend. Despite a surge in commodity prices in 2021-2022, many reaching or nearing the record levels of the 2011-2013 mining super cycle, exploration budgets have remained subdued, falling for the second consecutive year in 2024, reflecting wider economic challenges and internal funding. This indicates that the rise in exploration activity in the upcycle since 2020 has not been as strong as the early 2010s. Although commodity prices remain favourable, investment in new exploration projects has been limited as companies prioritise the optimisation of existing operations over the pursuit of higher-risk ventures. The decline in exploration spending has been further exacerbated by a cautious investment environment and conservative investor sentiment.

Annual nonferrous exploration budgets vs. commodity prices



As the world accelerates its shift away from fossil fuels, the mining industry faces growing pressure to supply the minerals essential for the decarbonisation and global energy transition. In particular, demand for critical minerals is projected to double or triple by 2030[3], yet current investment levels remain below what is needed to meet this surge. As a capital-intensive sector, mining requires substantial funding to scale capacity fast enough to align with the Net Zero targets. While planned investment are expected to deliver some growth, underinvestment threatens to delay production and constrain the supply of critical resources just as global demand intensifies.

Selected critical mineral requirements

$2.1tn

of new mining investment is needed by 2050 to meet the demand for raw materials in the Net Zero emissions world.

293

new mines are needed to meet global energy transition and battery demand; the largest numbers are for copper (61) and lithium (52).

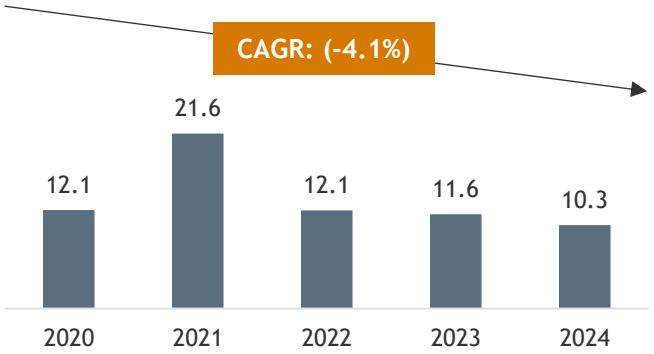
Source: World Bank website; World Economic Forum website; Resource Capital Funds website; S&P Global website; McKinsey website; BloombergNEF website; Mining.com website; Benchmark Source website; Media overview **Notes:** (1) Capex of the Top-30 global mining companies; (2) Annual price index (nominal), 2010=100. The base metal index includes aluminium, copper, lead, nickel, tin, and zinc; (3) According to IEA's Announced Pledges and Net Zero Emissions scenarios

Mining companies can explore a range of financing solutions to support their operations

Capital availability has become one of the most pressing risks for the sector in an environment where greater investment is urgently required to finance the energy transition. Mining industry, in particular junior companies, have relied on the traditional funding model, typically seeking to tap into equity markets in the global mining finance hubs. Yet, monetary tightening by central banks has restrained the flow of new capital, directly impacting junior explorers relying heavily on capital raisings to finance their exploration programmes. Investment decisions are increasingly being shaped by ESG considerations, putting pressure on mining companies' social licence to operate and limiting their access to long-term financing. Some investors are even planning to divest from mining firms due to their environmental impact. Investors are also deterred by the sector's inherent risk, e.g. volatile commodity prices, and favour industries with faster returns.

Junior mining companies, in particular, have faced persistent difficulties in securing funding during recent years. Unlike larger producers that generate sufficient internal cash flow to cover their expenditures, junior and intermediate miners depend heavily on external financing to fund their exploration activities. In 2024, capital raised by junior and intermediate miners dropped to its lowest point in five years. However, the total number of financing transactions increased by 2.0% compared to the previous year. Notably, the London Stock Exchange has seen its prominence decline as a listing venue for mining companies, now trailing behind key global exchanges in New York, Toronto, and Sydney. Since 2020, LSE-listed miners have raised just $8bn, less than a quarter of what has been raised on the Toronto and Sydney exchanges.

Funds raised by junior and intermediate mining companies globally, $bn



This growing mismatch between capital needs and availability highlights the importance of identifying different financing solutions across the mine development lifecycle. There is a broad range of financing options available at different stages of mine development, depending on the risk and funding needs which evolve at each stage.

Mining companies can explore a range of financing solutions to support their operations

Selected types of mining financing options across different mine development stages

Equity financing	Debt financing	Alternative financing
Common stock issuance, flow-through shares, warrants	Project financing, corporate bonds, bank loans, reserve-based lending	Royalties, streaming financing, crowdfunding
Stages: 1 2 3 4	Stages: 2 3 4	Stages: 1 2 3 4

Mine development stages: 1. Exploration → 2. Evaluation & development → 3. Construction → 4. Operations

Source: S&P Global website; World Economic Forum website; Appian Capital website; Visual Capitalist website; McKinsey website; Mining.com website; S&P Global — World Exploration Trends — [2024]; Media overview

To close the funding gap and drive sustainable growth in the sector, innovative and flexible financing models that integrate diverse funding sources and actively involve multiple stakeholders will be crucial. Companies should use the full range of financial levers to manage capital and returns through the cycle, including both traditional and alternative financing. Notably, there has been a significant growth in royalties and streaming deals focused on critical minerals, where producers receive upfront payments in exchange for a share of future revenues or products. Additionally, efforts to secure critical minerals supply chains have opened up new funding avenues.
For instance, technology companies and EV manufacturers have become more actively involved, entering long-term offtake agreements with mines and making direct investments across various stages of the value chain. With the rising demand for critical minerals and expected funding deficit, there are several financing options that might be of particular interest, such as reserve-based lending, project financing, royalties, and streaming agreements, as they offer tailored, flexible solutions that align well with the cash flow profiles and risk characteristics of mining projects. However, each of these structures comes with its own accounting quirks and structural complexities that must be carefully considered.

Reserve-based lending

Reserve-based lending (RBL) is a type of asset-based lending, primarily employed in the oil and gas sector. RBL is a borrowing-base facility, where the loan amount is determined by the projected Net Present Value of cash flows generated by the underlying oil and gas assets, taking in the account various factors, such as level of reserves, expected commodity prices, assumptions for opex and forecast for capex. As these criteria are often variable, the borrowing base amount is periodically recalculated, usually on the semi-annual basis. Borrowers are typically required to provide lenders with reserve reports prepared by independent experts. Repayment of the facility is made from the revenue generated through the sale of oil and gas produced from these assets.

Benefits and drawbacks of the reserve-based lending

From the lenders perspective, risks associated with the volatility in commodity prices is mitigated by the flexibility of RBL. Lenders might adjust loan parameters to maintain reasonable loan-to loan and cash flow coverage ratios.

RBL is directly linked to asset performance. If production underperforms or reserve estimates are revised downward, the borrowing base may shrink, potentially triggering larger than expected repayment in any given period.

RBL offers an attractive and adaptable financing structure, with borrowing capacity tied to projected production. The facility might be increased to support additional acquisitions or to reflect increased reserves and production.

As a bespoke financing solution, RBL requires extensive structuring and documentation, which can be time-consuming and costly. Also, RBL facilities usually come with more strict informational and due diligence requirements.

Its revolving nature allows borrowers to make prepayments without penalties or interest carry, making it a cost-efficient source of long-term liquidity.

While the revolving nature of RBL offers operational flexibility, borrowers are typically charged commitment fees on the undrawn portion of the facility.

These factors give rise to a range of accounting complexities, such as valuation of reserves or impairment testing, that companies must be managed and addressed to ensure accurate financial reporting under RBL arrangements.

Reserve-based lending

Recognition and measurement

According to IFRS 9, an entity must recognise a financial liability in its statement of financial position when it becomes subject to the contractual provisions of the instrument. At initial recognition, an entity measures a financial liability at its fair value, plus or minus transaction costs directly attributable to the acquisition or issuance of the financial liability, if it is not measured at fair value through profit or loss. All financial liabilities, except those meeting specific criteria, are subsequently measured at amortised cost using the effective interest method. However, under certain conditions, financial liability may be designated at FVTPL, with changes in fair value recognised in profit or loss, which potentially introduces volatility due to any fair value gains or losses. Changes in fair value related to changes in the entity's own credit risk are recognised in other comprehensive income. The effective interest method allocates interest income and expense at a constant rate over the term of the instrument. The effective interest rate of a financial liability is calculated at initial recognition and is the rate that exactly discounts the estimated future cash flows over the expected life of the financial liability to its amortised cost.

Valuation of reserves

Estimating the fair value of mineral reserves requires substantial judgement and relies on forward-looking assumptions that are inherently uncertain. In order to assess whether a volume of reserves is economically recoverable, a range of factors must be evaluated. Such aspects include projected market conditions and commodity prices, anticipated inflation and its impact on development and operating costs, the political stability of the operating region and its effect on future cash flows and discount rates, taxes, royalties, exchange rates and the availability and quality of labour, materials and equipment, that could also impact the development schedule and production costs. Given the significant judgment and assumptions involved in fair value estimates, third-party Competent Person Report (CPR) might be required to provide an independent view on the company's reserves for lenders and verify the assets, which might result in additional costs in the valuation process.

Impairment testing

Exploration and evaluation (E&E) assets must be assessed for impairment when indicators suggest that their carrying amount may exceed the recoverable amount. If such indicators are present, the entity is required to measure, present, and disclose any resulting impairment loss in accordance with IAS 36. Common triggers include expired exploration rights, absence of planned expenditure, unsuccessful exploration outcomes, signs that the asset may not be fully recoverable, significant declines in commodity prices, or changes in tax or regulatory conditions. Regular impairment testing can be complex and resource-intensive.

Implications

Recognition and measurement

Under IFRS 9, loans secured by mineral reserves must be recognised as financial liabilities. The initial measurement is at fair value, and subsequent measurement is at amortised cost using the effective interest method.

Impairment

The value of the reserves must be assessed for impairment under IFRS 6. If the carrying amount exceeds the recoverable amount, an impairment loss must be recognised.

Source: Trade Finance Global website; IFRS website; Norton Rose Fulbright — Reserve-based Lending. International Considerations — [2017]; Scor — Reserve-Based Lending & Insurance — [2019]; BDO Global — IFRS at a glance. IFRS 9 Financial Instruments — [2022]; BDO Global — IFRS Accounting Standards In Practice. An overview of IFRS 6 Exploration for and Evaluation of Mineral Resources — [2024/2025]; Media overview

Project financing

Project financing is a specialised form of financing that utilises a non-recourse or limited recourse financial structure. It is a loan arrangement that relies primarily on the project's cash flow for repayment, with the project's assets, rights, and interests serving as a collateral. Typically, the project is structured through a separate entity, a special purpose vehicle (SPV), formed specifically for purposes of the project and restricted to the conduct of its business. SPVs are commonly used to isolate financial risk, setting project financing apart from other forms of funding.

In 2023, the mining project finance loans totalled $2,309.9m in the Asia Pacific region, $373.7m in EMEA, and $211.0m in the Americas.

Benefits and drawbacks of the project financing

- ✓ Project financing enables effective risk allocation, allowing sponsors to limit their financial exposure while distributing project risks to lenders and other capable stakeholders.
- ✓ Due to the off-balance sheet nature, project financing allows sponsors to preserve their corporate credit capacity for other strategic uses.
- ✓ Project financing facilitates large-scale projects by raising funds based on project cash flows, not sponsor credit, and simplifies funding across multiple sponsors.
- ✗ Project financing might be more expensive compared to general corporate financing due to its complex structure, extensive documentation, and independent advice.
- ✗ Due to limited recourse and high risk, project financing involves extensive lender due diligence, strict covenants, and ongoing approval requirements, which can constrain project company operations.
- ✗ Arranging project financing can be complex and time-consuming, as it requires negotiating multiple contracts between the various parties involved.

Project financing often involves significant accounting complexities, which require careful consideration of IFRS-related challenges, such as control assessment, disclosure requirements, recognition and measurements, as well as consolidation.

Project financing

Control assessment

Determining control can be complex, especially if there are multiple investors with varying rights and obligations. IFRS 10 establishes a single control model that applies universally to all investor-investee relationships, including those involving structured entities. An investor controls an investee if it has all three criteria: power over the investee; exposure, or rights, to variable returns from its involvement with the investee; and the ability to use its power to affect the amount of the investor's returns. The assessment may be highly judgemental for entities where the power over an investee's relevant activities is shared by multiple investors or where activities are predetermined. Particular care is needed when multiple investors appear to share control in order to determine whether one investor has control (in which case IFRS 10 applies) or whether the arrangement results in joint control[1].

Disclosure requirements

Extensive disclosures are required under IFRS 12. In addition to the standard disclosure requirements, investors in consolidated structured entities must provide details of the risks associated with their investment. To fulfil this obligation, investors must disclose the terms of any contractual agreements that could require them (or their subsidiaries) to provide financial assistance to the consolidated structured entity. This includes any events or conditions that could result in a potential loss for the reporting entity. Financial or other support, such as purchasing assets from or instruments issued by the structured entity, may have been provided even in the absence of a contractual obligation (for example, due to reputational risk). The entity must disclose the type and amount of such support (including cases where the parent or its subsidiaries helped the structured entity secure financial support), along with the reasons for providing it. Additionally, the reporting entity must disclose any current intentions to provide such support.

Recognition and measurement

Project financing is generally recognised as a financial liability. In accordance with IFRS 9, at initial recognition, an entity measures the financial liability at its fair value. Unless specific criteria are met, which project financing typically does not satisfy, all financial liabilities are subsequently measured at amortised cost. Additionally, under IAS 23, borrowing costs directly attributable to the acquisition, construction or production of a qualifying asset must be capitalised as part of that asset's cost. This is a requirement rather than an accounting policy choice, as financing relates to assets that take a substantial period of time to become ready for use.

Implications

Recognition and measurement

Project financing is typically recognised as a financial liability under IFRS 9. The initial measurement is at fair value, and subsequent measurement is at amortised cost.

Consolidation

Under IFRS 10, if the project is structured as a separate legal entity, the group must assess whether it controls the entity and, if so, consolidate it.

Source: Lexology website; APMG International website; IFRS website; LSEG Deals Intelligence — Global Project Finance Review — [2023]; Mayer Brown — The Plus and Minus of Project Finance — [2020]; BDO Global — IFRS in Practice — [2022/2023]; Media overview **Notes:** (1) In which case IFRS 11 Joint Arrangements applies

Royalty financing

Royalty financing is a form of alternative financing in which a mining company grants a royalty company the right to receive the percentage of the revenues generated from the sale of metals produced from a specific mining operations. In exchange for an upfront capital, the royalty company earns ongoing payments tied to a share of the mine's revenue from extracted and sold metals.

Common types of royalty financing:

- Net Profit Interest Royalty entitles its holder to receive a portion of net profit derived from the sale of minerals
- Net Smelter Return Royalty entitles its holder to receive a share of gross revenues generated by the mine, minus transportation, smelter, and refining costs
- Gross Proceeds Royalty is calculated as a percentage of gross revenue from the sales of mine production, with no additional costs deducted.

Royalties and streaming financing have grown from $2.1bn in 2010 to over $15bn by 2019. The growth occurred amid a challenging environment for raising capital in public debt and equity markets, as investor appetite for the mining and commodities sectors diminished compared to earlier boom periods.

Benefits and drawbacks of the royalty financing

For mining companies, royalty financing provides access to capital without diluting the interests of existing shareholders or incurring debt, while payments are only made when the mine is producing and generating revenue.

Not properly structured royalty financing might complicate integration with other forms of financing, as it can be seen as having senior cash flow claims, potentially discouraging project finance or other debt providers from participating.

Unlike prepayment agreements, royalty financing does not require the company to deliver a fixed volume of output, thereby allowing greater operational flexibility.

Royalties can reduce a mine's net present value, which could make it less appealing to prospective buyers.

For royalty holders, the model offers exposure to the project's revenue potential without requiring direct involvement in operations, development risks or capital expenditure, making it a lower-maintenance investment.

Royalties are often tied to a particular asset, meaning the investor's returns depend solely on that asset's performance. If the asset faces cost overruns or operational issues, the royalty holder bears the risk.

While royalty financing offers distinct benefits and poses certain drawbacks in terms of capital structure and investor alignment, it also brings specific accounting challenges, for instance, in the topic of performance obligations or estimating transaction price, that must be carefully managed to ensure accurate financial reporting.

Royalty financing

Estimating transaction price

Before estimating transaction price, an entity must determine whether the transaction falls within the scope of IFRS 15 or a different accounting standard, e.g. IFRS 9 for the sale of part of the asset or IFRS 16 in case of substitution rights, which requires significant judgement. Determining the transaction price involves further judgement, especially if the royalty payments are variable. The transaction price may be affected by the nature, timing and amount of consideration, and must take into account factors such as significant financing components, variable components and amounts payable to customers (e.g. refunds and rebates), as well as non-cash amounts. When assessing the transaction price, entities must evaluate the impact of variable consideration, estimating it using either the expected value method or the single most likely amount. The presence of variable consideration requires considerable professional judgement, which may affect the timing of revenue recognition. IFRS 15 requires the disclosure of significant judgements made when determining the transaction price, including the methods, inputs and assumptions used.

Performance obligations

Identifying and allocating the transaction price to performance obligations can be complex. IFRS 15 requires performance obligations to be identified at the inception of the contract. Each distinct good or service must be accounted for as a separate performance obligation. For instance, if a commodity is sold alongside services such as storage, shipping or insurance, the total revenue must be allocated to each performance obligation based on its stand-alone selling price. Where a stand-alone selling price cannot be observed directly, the entity must estimate it using a method that maximises the use of observable inputs, applying the chosen estimation approach consistently in similar circumstances.

Source: McKinsey website; Norton Rose Fulbright website; OpenEdition Journals website; BDO Global website; BDO Australia website; SW Accountants & Advisors website; IFRS website; BDO Global — IFRS Accounting Standards at a Glance — [2024]; BDO South Africa — Application of IFRS 15 to Miners — [2018]; BDO Global — Revenue from Contracts with Customers. International Financial Reporting Bulletin — [2014]; Media overview

Implications

Revenue recognition

Under IFRS 15, revenue from royalty financing must be recognised when control of the goods or services is transferred to the customer. The transaction price must be allocated to the performance obligations.

Financial liabilities

The upfront payment received is recognised as a financial liability under IFRS 9 and amortised over the life of the agreement.

Streaming arrangements

Streaming arrangements is a form of alternative finance in the natural resources sector, in which an investor provides an upfront payment to a mining company in exchange for the right to purchase a fixed percentage of the mine's future production at a predetermined price. Price in streaming arrangements is typically set at a lower-than-market level, making them attractive to buyers by offering both long-term supply security and upside potential if commodity prices rise.

Streaming sector saw favourable returns relative to investments in metals itself: during 2010-2020, total returns to shareholders in streaming companies rose at a CAGR 7%, while in diversified metal and mining companies only by 2%.

Benefits and drawbacks of the streaming arrangements

✓ For mining companies, streaming provides funding without diluting shareholder ownership or relinquishing control over operations.

✓ The involvement of streaming partners is usually limited to offtake rights and occasional technical input, allowing producers to manage their projects independently.

✓ Streaming arrangements can be combined with other forms of financing without affecting the borrowing capacity of a mining company.

✗ Being locked into a fixed price may become unfavourable for a mining company if market prices rise, with no option for adjustment.

✗ Streaming companies or buyers may also benefit from future production expansions without providing additional funding.

✗ Mining companies' cash expenditure may be negatively impacted, as by-product credits cannot be deducted from operational expenses.

Streaming arrangements also bring several accounting complexities that require careful consideration to ensure proper financial reporting.

Streaming arrangements

Revenue recognition

When applying Step 3 of IFRS 15[1], streaming arrangements can present practical challenges. They often contain an embedded financing component that must be grossed up in a similar way to prepaid offtake agreements. Also, applying the reversal constraint to these arrangements can be complex. Revenue can only be recognised if it is highly probable that a significant reversal will not occur. As a result, mining companies must adopt a conservative approach when estimating the quantity of the commodity to be delivered under the streaming agreement. This conservative estimation will likely result in lower initial revenue recognition per ounce sold than under current practice.

Variable consideration

Estimating the variable consideration in streaming arrangements can be challenging, requiring significant judgement. In the mining and extractives industry, it is common for provisional pricing to occur upon delivery of goods to customers. The variability arises because the exact quantity and quality of the commodity sold is often uncertain at the time the performance obligation is satisfied. Accordingly, the guidance on variable consideration must be applied. Several factors contribute to the uncertainty, including future commodity prices, the quantity and quality of the commodity, the amount of valuable by-products, and the level of contaminants. Streaming arrangements can potentially contain an embedded derivative component, which requires variability associated with commodity prices, foreign exchange rates, or other market-based variables to be accounted for separately as a derivative under IFRS 9.

Source: McKinsey website; BDO Global website; Lexology website; IFRS website; BDO South Africa — Application of IFRS 15 to Miners — [2018]; BDO Global — Revenue from Contracts with Customers. International Financial Reporting Bulletin — [2014]; BDO Global — IFRS Accounting Standards in Practice. IFRS 15 Revenue from Contracts with Customers — [2024/2025]; Media overview
Notes: (1) Determining the transaction price; (2) Under IFRS 15, revenue is recognised when control of the goods transfers

Accounting treatment

Accounting for streaming arrangements involves significant judgement and depends on a thorough assessment of the specific facts and circumstances of each transaction. Judgement is required to determine whether the streaming arrangements should be accounted as a financial liability under IFRS 9, a revenue-generating contract under IFRS 15, a sale of interest in mineral property treated as a sale of part of the asset, or if a contract qualifies for the own use exemption.

Disclosure requirements

Detailed disclosures are required under IFRS 15 in terms of the nature, amount, timing and uncertainty of revenue and cash flows arising from contracts with customers. These disclosures could cover the nature of performance obligations, including terms for satisfaction, significant payment terms, refunds, returns, warranties. Additionally, entities should disclose significant judgements affecting the determination of the amount and timing of revenue, including those related to the timing of satisfaction of performance obligations, as well as judgements used in determining the timing of satisfaction of a performance obligation.

Implications

Revenue recognition

Similar to royalty financing, revenue from streaming arrangements is recognised under IFRS 15. The upfront payment is recognised as a financial liability and amortised over the life of the agreement.

Inventory measurement

The cost of inventory delivered under the streaming arrangement must be measured and recognised in accordance with IAS 2.

FOR MORE INFORMATION:

Matt Crane

Audit Partner,
Head of Natural Resources & Energy UK

+44 (0)7929 332 677
matt.crane@bdo.co.uk

www.bdo.co.uk

42030787