



Mine 2026

Ambition to action

The vital mining industry must look
beyond geology to policy, capital, and
productivity measures to unlock value.



Contents

The takeaways

- For the world’s top 40 mining companies, 2025 was a solid year as revenues grew 3.3% to US\$909 billion and net profits rose to US\$120 billion.
- While geology determines who can participate in mining, the ability to make it investable and the positioning of capital providers shape who captures the most value. Governments need to create frameworks that support stable investment and profitability.
- Key trends include productivity and technology, with AI adoption set to achieve significant gains for mining companies.

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Introduction

The pressure is on the global mining industry. The world is navigating an era of energy security challenges, geopolitical fragmentation, the impacts of a technology-fuelled fourth industrial revolution, and rising societal expectations. To meet the growing demand for metals and minerals, the industry needs to deliver more of them—and do so more efficiently. As we look to the future of mining, there's a clear need to diversify production and processing. And that means working more effectively in an ecosystem that's credible, investable, and resilient.

Meeting these challenges and capturing value from evolving global supply chains is a central imperative. To succeed, the many players and participants in the mining ecosystem—which includes mining and processing firms, policymakers, investors, end users, and companies in adjacent industries—need to collaborate as they move from ambition to action across three broad areas.

First, governments need to set policy in motion, developing the incentives and regulatory frameworks that support stable investment and mining profitability. Second, while geology determines who can participate in mining, the ability to make projects investable and the positioning of capital providers ultimately dictate who captures the most value. As a result, the ecosystem must set capital in motion to make projects operational and create greater upstream and midstream production capacity.

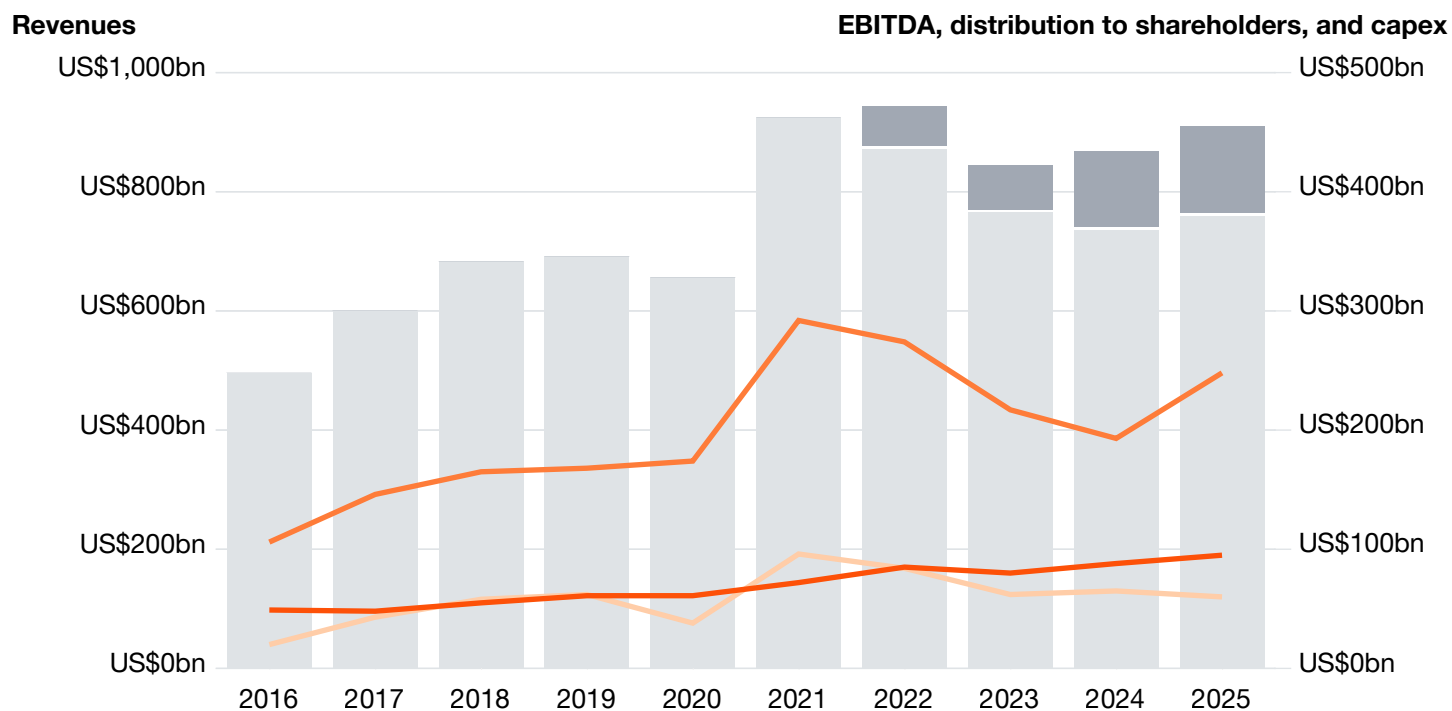
Third, operating companies must adopt technological solutions, notably AI, to enhance productivity at the mine face, while also improving efficiency and performance at a broader strategic level. The challenges throw into stark relief the need for greater collaboration across sector and industry boundaries.

These pressures come as the industry reports what was in many respects a solid year for the top 40 mining companies (by market capitalisation) that we analyse. Total revenues grew 3.3% to US\$909 billion from US\$880 billion in 2024, while earnings before interest, taxes, depreciation, and amortisation surged 23% to US\$248 billion and net profit rose to US\$120 billion. The improvement reflects two key factors: first, sharply higher prices for precious metals (including gold and silver), platinum group metals, and energy metals such as copper; and second, improved operational leverage and disciplined cost management.

A solid year for the top 40

Both revenue and profitability rose amid higher prices for precious metals and cost discipline.

■ Revenues (excluding gold) ■ Revenues (gold) ■ EBITDA
■ Distribution to shareholders ■ Capital expenditure



Note: Gold revenues are shown separately only for the past four years, during which they've comprised a significant portion of total revenues. Prior to 2022, gold revenues are displayed as part of total revenues.

Source: PwC's global *Mine* reports, 2016–25; company financial statements; PwC analysis

As we can see below, the headline improvements mask significant divergences and nuances in the results.

1. Profitability recovers

The aggregate EBITDA margin for the top 40 increased to 27% in 2025 from 23% the previous year. Net profit margins rose to 13% from 11% over the same time period.

Gold producers recorded an aggregate EBITDA margin of approximately 71%. Aggregate EBITDA for the gold subsector rose by US\$22 billion, representing the year's single largest commodity-level earnings improvement. Copper companies' aggregate EBITDA grew 80% to US\$13.3 billion from US\$7.4 billion in 2024. By contrast, coal saw a decline in revenues, down 10.7% to US\$101.9 billion, while EBITDA increased 5% to US\$32.7 billion.



2. Gold companies on the rise

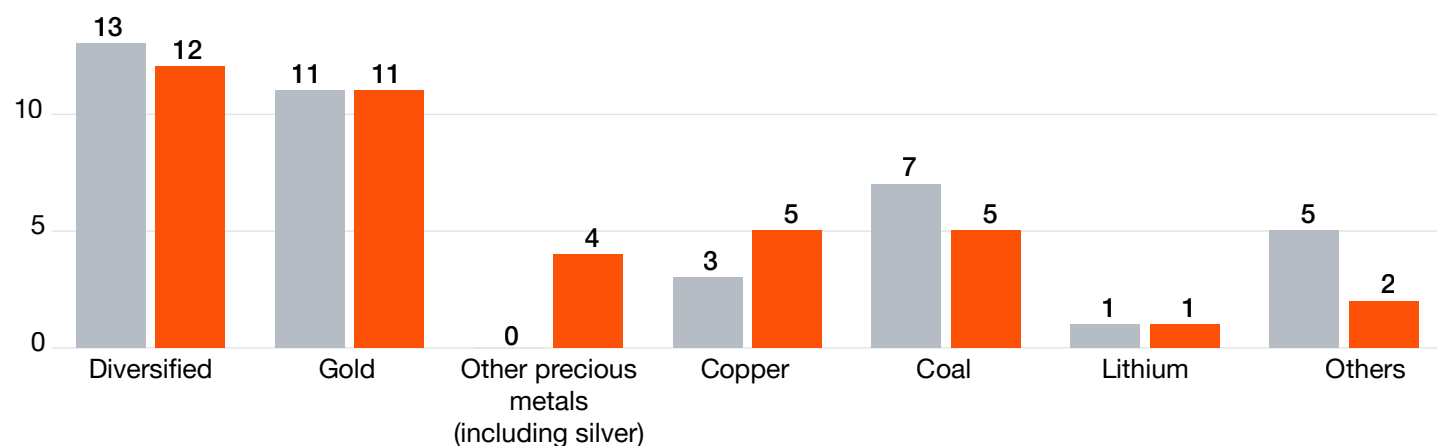
Precious metals companies mining gold, silver, and platinum group metals accounted for six of the eight new entrants to the top 40. The remaining two new entrants were copper companies. Several gold-focused companies advanced significantly in the rankings. Gold miners Newmont and Agnico Eagle Mines jumped four places, to fifth and sixth respectively, while Barrick Mining (gold and copper) climbed ten places to rank seventh.

The evolving composition of the top 40 miners

Gold-and coal-focused companies increased their presence in 2025.

■ 2024 ■ 2025

Number of companies



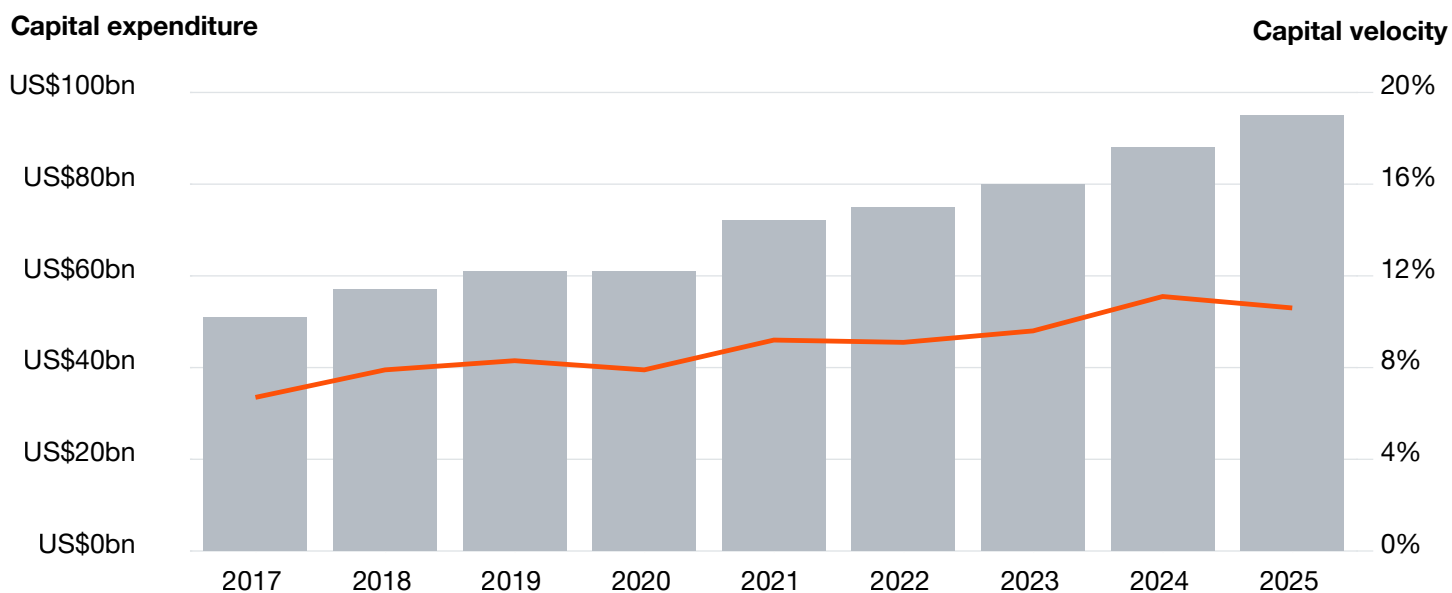
Source: PwC analysis

3. Operating cash flow surges

Higher commodity prices flowed through to cash conversion for both the pure-play and diversified miners. Aggregate net operating cash flows of the top 40 increased 12% to US\$173.6 billion. Top earners were BHP, which generated operating cash flows of US\$19.8 billion (up 49% from US\$13.3 billion in 2024), followed by Zijin Mining Group at US\$10.5 billion (up 128% from US\$4.6 billion in 2024) and Newmont at US\$10.3 billion (up 61% from US\$6.4 billion in 2024). But the rising cash flow hasn't necessarily translated into tangible increases in capital expenditure. Capital velocity—the pace at which companies use capital to invest in growth—of the top 40 was flat in 2025. The strategic question for 2026 is whether management teams can channel these cash surpluses into M&A, organic growth, debt reduction, or continued shareholder returns.

Growth in capital expenditure outpaces capital velocity

■ Capital expenditure ■ Capital velocity



Note: Capital velocity measures how quickly companies are reinvesting relative to the capital they have tied up in assets. It's calculated as capital expenditure divided by total invested capital (property, plant, and equipment plus current assets minus current liabilities).
Source: S&P Capital IQ, PwC analysis

4. Shareholder buyback resurgence

Share buybacks grew 252% in 2025, driven by gold companies, to reach US\$5.8 billion. The substitution of buybacks for dividends among gold producers may represent a strategic shift in capital return philosophy—one that's more flexible and tax-efficient or that may reflect uncertainty about future commodity prices. Other companies are likely to adopt similar approaches as free cash-flow generation improves.

5. Prudent debt management

Borrowings increased marginally by US\$2.6 billion to reach US\$251 billion, while net debt—driven by higher cash generation in 2025—decreased by US\$10 billion. The increase in equity relative to debt suggests improving gearing ratios across the top 40. This is an overall positive signal for credit ratings and the cost of capital. But we see a clear distinction, again, between gold and copper miners on the one hand and coal companies on the other.

6. Tax contributions grow

The effective tax rate for the top 40 reached 30% in 2025 from 28% the year before. Total tax expense was US\$52 billion, which was 37% higher than in 2024 due to higher mining profitability.

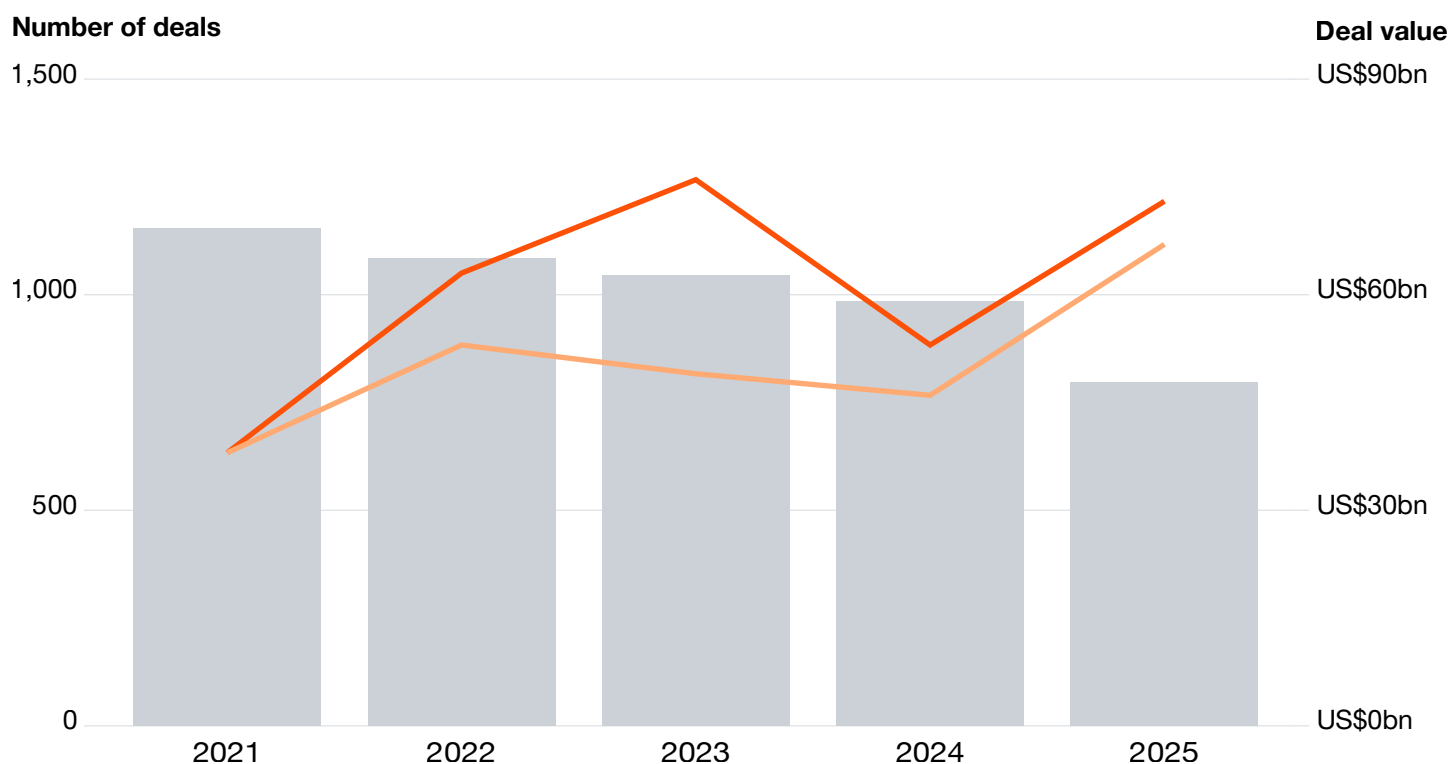
7. Gold, silver, copper, and lithium drive deals

Deal volume declined in 2025, with the number of completed deals falling 20% in 2025 from 2024. But the value of the deals rose significantly, topping US\$70 billion. Gold, silver, copper, and lithium accounted for 70% of overall deal value. The largest transaction to close in 2025 was Rio Tinto's US\$6.7-billion acquisition of Arcadium Lithium.

Mining for deals

In 2025, M&A volume fell even as the total value rose.

■ Total deal volume ■ Total deal value ■ Total deal value, excluding megadeals



Note: Transactions valued at or above US\$5 billion are considered megadeals.
Source: S&P Capital IQ, PwC analysis

Policy in motion

The critical minerals race is too often framed as a contest decided by a single factor: geology. Countries lucky enough to possess these minerals are assumed to hold a structural advantage over those without them. But in fact, success in critical minerals also depends on factors that countries can control. As we highlighted in our ***Mine 2025 report***, production advantages go to nations that complement their geological endowment with processing capability. China, for example, accounts for more than 50% of production for 18 minerals and holds significant shares of reserves across many more. Yet China also dominates the processing and refining of minerals that are extracted mainly in other parts of the world.

Geology, in other words, is no longer sufficient. Countries with exceptional resource positions can leave value stranded if projects don't get timely permits, adequate capital, or efficient processing technology. Those with more modest endowments can still secure strategic relevance if policy, capital, and technological capability make projects investable and midstream capacity viable.

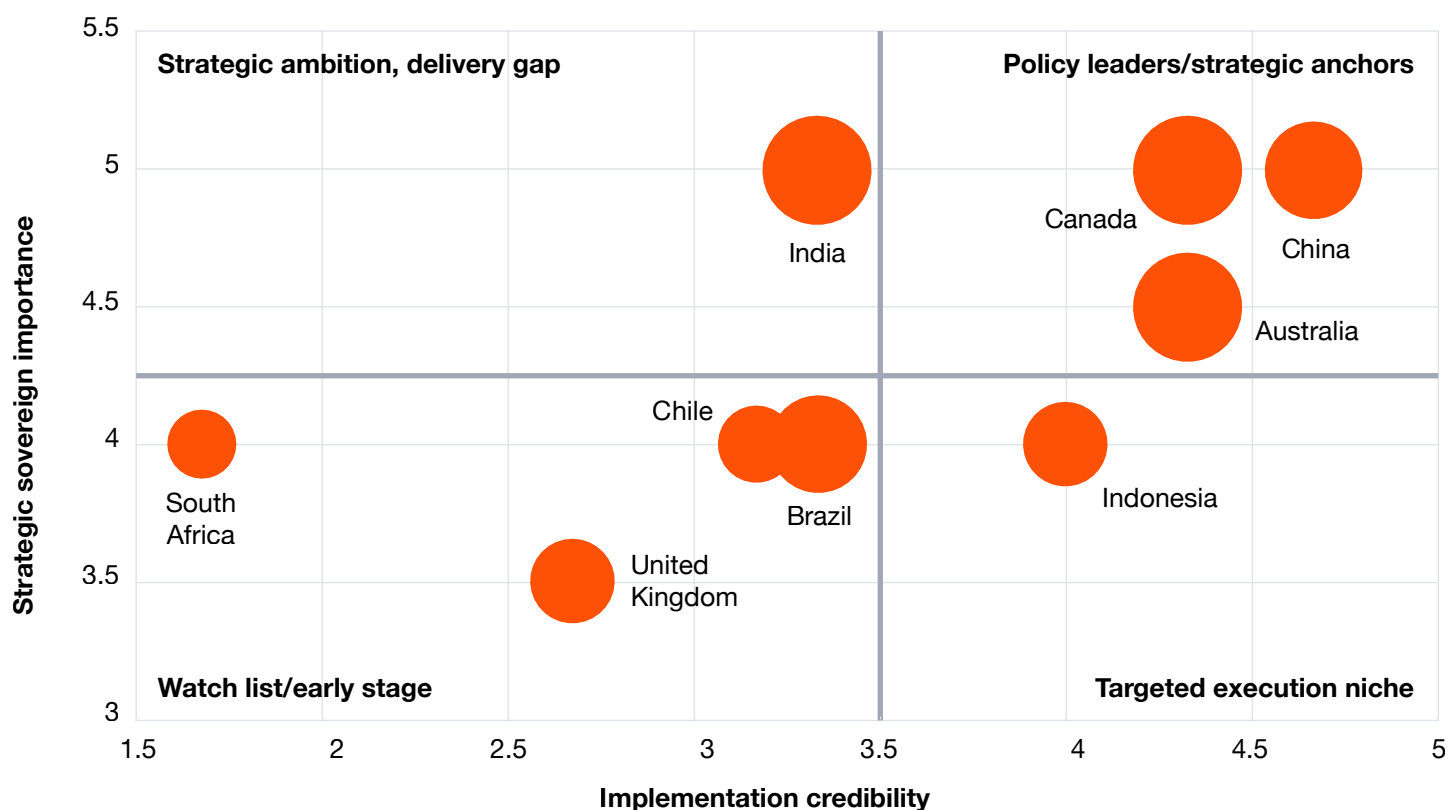
This means the next phase of competition will be decided less by who can articulate ambitions most clearly than by who can create a credible route from policy to capital and capability.

Meaningful change will take many years to shift the current concentration of activity. The development of mines and midstream processing infrastructure spans years and even decades. And the grip of incumbents remains strong. The chart below analyses the approaches of nine different countries across five key dimensions: strategic clarity, delivery architecture, funding and de-risking, evidence of execution, and sovereign capability. What links these approaches isn't a common ideology but a set of shared insights. Critical minerals success

depends on reducing risk across the project life cycle and value chain. Resource extraction may establish relevance, but midstream capability is what turns it into lasting economic benefit. This is why there's a need for policy changes to translate the potential to develop minerals into mining and processing projects that reach the operational stage.

Critical minerals policy positioning around the world

Bubble size = public funding/de-risking strength



Note: Implementation credibility is the average of assessments of countries' delivery architecture, funding and de-risking frameworks, and evidence of execution. Strategic sovereign importance is the average of assessments of countries' strategic clarity and sovereign capability goals.
Source: PwC analysis

Below, we describe the ways in which the eight key countries (excluding China) are approaching the challenges of turning policy into action.

Australia makes the clearest policy pivot towards midstream activities

Australia's **Critical Minerals Strategy 2023–30** focuses on using a small number of powerful fiscal, financing, and strategic measures to build sovereign capabilities and improve the economics of critical minerals processing, refining, and supply-chain resilience. Recent policy moves have sharpened that ambition by introducing financial tools such as tax incentives, loans, and guarantees.

Introduced under the Future Made in Australia initiative, the 10% production tax incentive applies to eligible expenditures for the processing and refining of critical minerals processed and refined between July 2027 and June 2040, for up to ten years per project. It works alongside public finance architecture, including the **Critical Minerals Facility**, an AU\$5-billion loan and guarantee facility designed to finance projects and associated infrastructure that are **strategically valuable but difficult to fund on standard commercial terms alone**. The Critical Minerals Strategic Reserve, announced in 2026, will draw AU\$1 billion from the Critical Minerals Facility alongside AU\$150 million for selective stockpiling. The first minerals identified for the reserve are antimony, gallium, and rare-earth elements. The key outstanding challenge is to build processing assets at scale that can compete with established lower-cost incumbents.

Brazil plays industrial catch-up to move beyond raw exports

Brazil enjoys one of the world's strongest geological endowments. Legislators are now working on a policy to move beyond raw-material exports into processing, refining, and technology-linked value chains. As of this writing, the bill establishing the National Policy for Critical and Strategic Minerals has been approved by the Chamber of Deputies and is currently awaiting consideration by the Senate.

Key components include a mineral activity guarantee fund, seeded with about R\$2 billion from the federal government and supported by incentives such as up to R\$5 billion in tax credits over five years to promote domestic processing and

conversion of minerals. The policy also calls for forming a dedicated governance body that will define and regularly update the national list of critical and strategic minerals and set priority projects eligible for policy support.

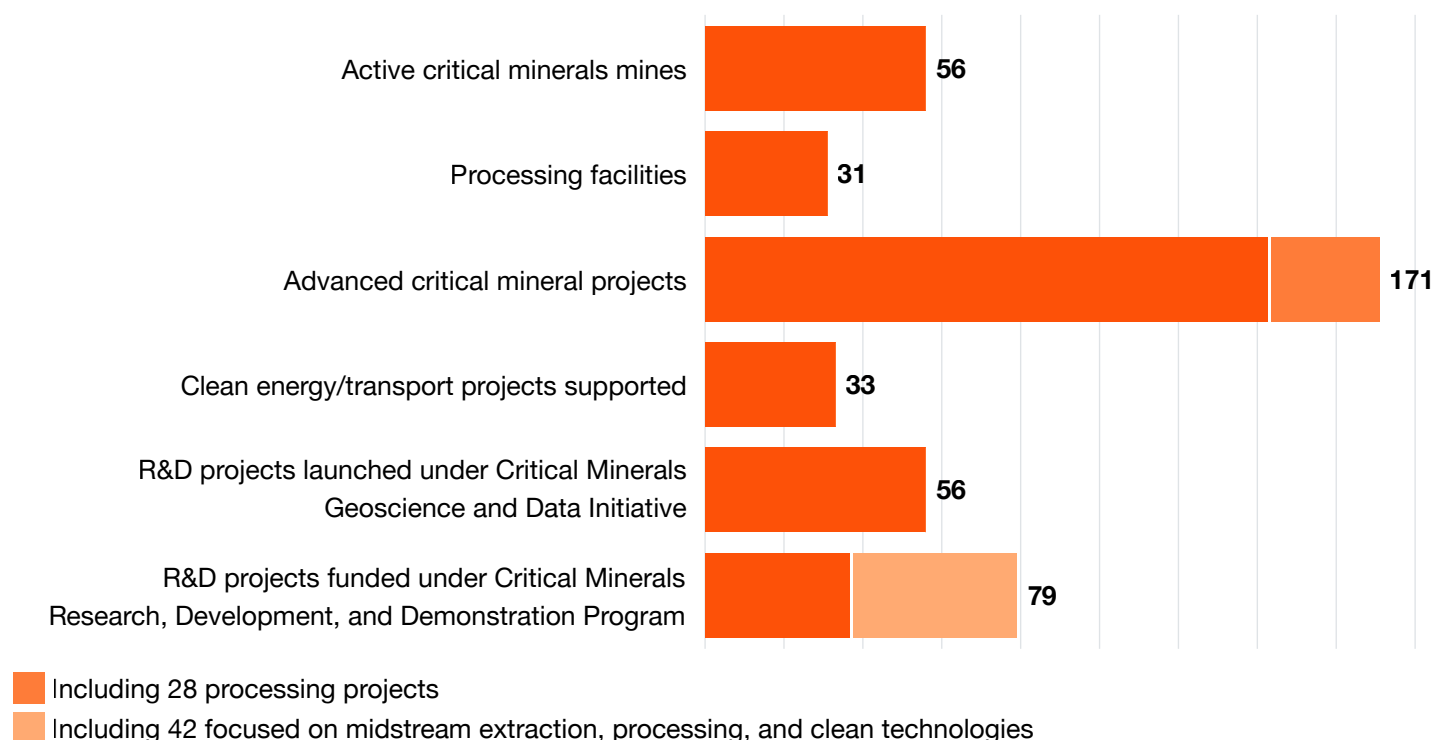
Success depends on coordinating permits; clarifying mineral lists; managing fiscal incentives; improving the National Mining Agency's capacity; and establishing trustworthy environmental, social, and governance and traceability systems amid political sensitivity around mining.

Canada places minerals at the centre of economic policy

Canada, a resource-rich country, doesn't assume geology will convert itself into outcomes. Instead, it's systematically improving the conditions that allow capital to move across the value chain with measures that include exploration incentives, infrastructure investment, research support, processing initiatives, fiscal levers, and sovereign-finance tools. Canada introduced its critical minerals strategy in 2022, with a focus on capturing more value from mine to market. Between 2022 and 2024, **according to the Canadian government**, domestic production of nine critical minerals rose 10%.

In 2025, Canada renewed its focus on natural resources as a core economic and strategic pillar amid challenging trade and geopolitical conditions. At a time when Canada's allies are looking to secure supplies of strategic commodities, the country's ambition is to lead as a trusted trading partner. This has involved investing in projects for the first time (through programmes such as the Critical Minerals Sovereign Fund, Canada Growth Fund, and Canada Strong Fund). It has also involved speeding up project development through several initiatives. Five mining projects have been deemed to be of national importance and significance by the Major Projects Office, with combined estimated capital investments of approximately CA\$11 billion. Canada is also looking to deepen international collaboration through expanded trade agreements and initiatives such as the Group of Seven Critical Minerals Action Plan.

Key highlights for Canada



Source: Canada's Critical Minerals Strategy

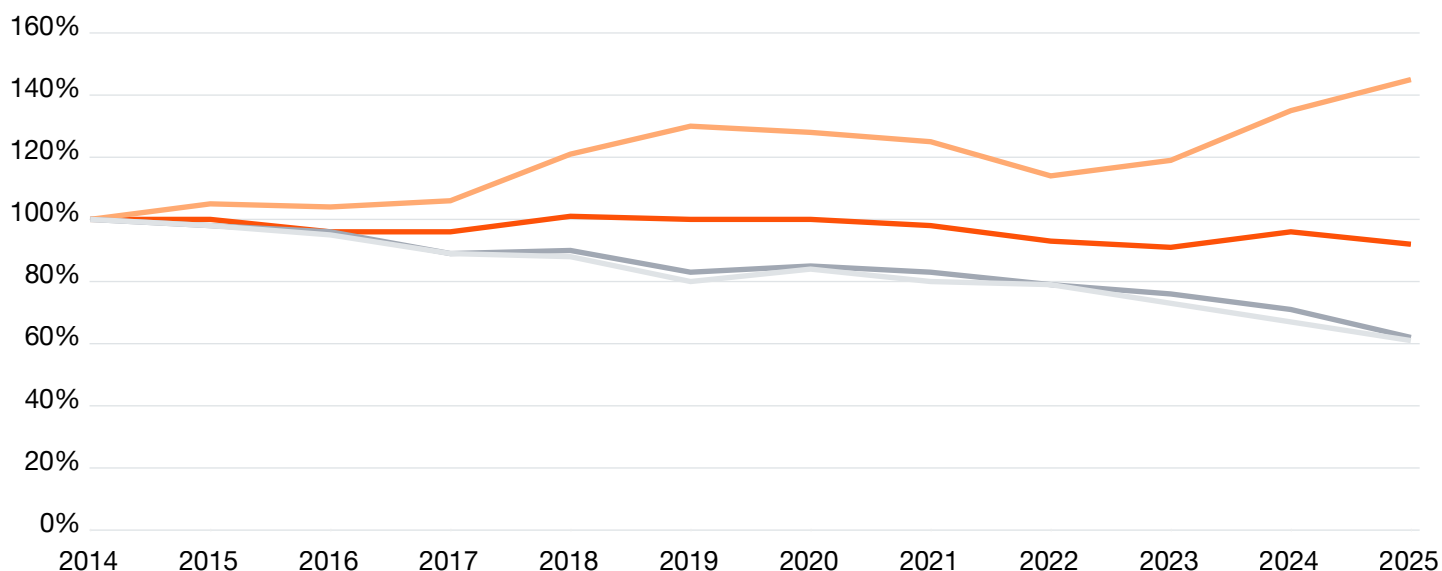
Chile pursues sovereign control as a route to investment

Chile has struggled in recent years to maintain its historic copper production levels, due to a combination of factors. It's pursuing a different approach for lithium. Through a narrower model, the state structures access, sequencing, and control to convert its lithium geological advantage into long-term national leverage. Under the **National Lithium Strategy** (2023), the government is deploying a combination of state-owned enterprises, contractual frameworks, and institutional reforms to increase investment. For now, Chile's greatest strength lies in resource governance and project mobilisation rather than depending on achievement of fully developed midstream scale.

Chilean copper mining activity over time

■ Mined quantity ■ Net exports of mined product
■ Refined quantity ■ Net exports of refined product

Percentage of 2014 amount



Source: PwC analysis, UN Comtrade, British Geological Survey

Private players can participate through special lithium operating contracts (CEOLs), which are time-bound instruments that allow for exploration and production, while the state retains ownership, revenue share, and oversight. These arrangements operate under tight environmental and social standards that include provisions for indigenous consultation and a push for direct lithium extraction (DLE) technology. Key examples of CEOLs include **Rio Tinto and ENAMI** signing an agreement for the Salares Altoandinos development (July 2025), Codelco and SQM **receiving approval** for lithium exploration in the Salar de Atacama (December 2025), and **CleanTech Lithium agreeing to terms for the Laguna Verde project**.

India looks to boost capabilities through fiscal, financing, and institutional measures

India's critical minerals strategy focuses on building end-to-end domestic capabilities through a coordinated set of fiscal, financing, and institutional measures. The **National Critical Mineral Mission**, launched in 2024 with an outlay of ₹34,300 crore (about US\$4 billion), sets the strategic direction for securing 30 identified critical minerals. Recognising the impact of limited domestic reserves, India is actively securing foreign mineral assets through Khanij Bidesh India Ltd. and other public sector undertakings.

India is also moving beyond mining to build midstream and downstream capabilities by introducing production-linked incentives that support activities related to battery cells, rare-earth production magnets, advanced materials, and processing parks. The government has introduced incentives schemes for metal recycling, as well as initiatives such as reduced customs duties, support for research and development activities and centres of excellence, and strategic offtake arrangements.

The central challenge now is to translate these policy commitments and financial incentives into processing and refining capacity on the ground.

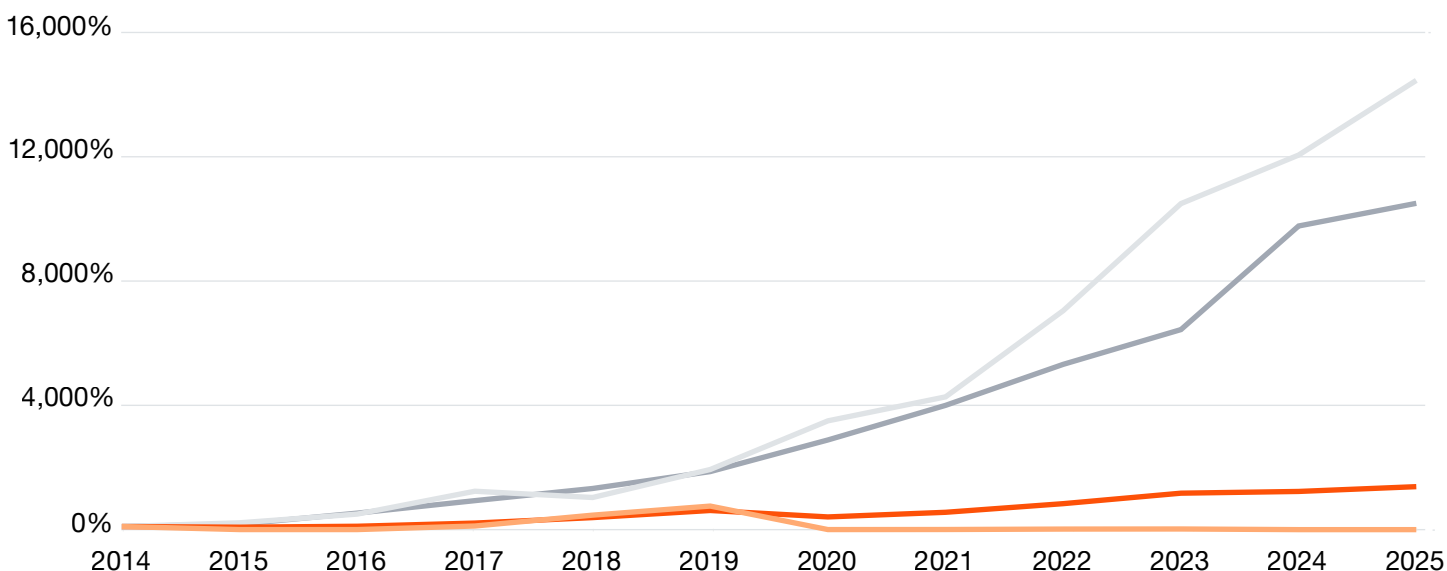
Indonesia aims to apply nickel success to bauxite

Since 2020, Indonesia has banned exports of raw nickel ore, of which it produces two-thirds of global supply. This is part of its long-running effort to move up the nickel supply chain by increasing investment in smelting and refining. Indonesia is now seeking to recreate this largely successful effort with bauxite, of which the country holds reserves of **2.9 billion dry metric tonnes** (representing 10% of global reserves) and whose raw ore exports it banned in 2023. The question now is whether this policy can work in a free and efficient market when buyers have other options to secure supply from more cost-effective sources of bauxite. In May 2026, Indonesia **announced** plans to centralise commodity exports through a state-run agency, a policy that could have further impacts on metals markets.

Indonesian nickel mining activity over time

■ Refined quantity ■ Net exports of refined product
■ Mined quantity ■ Net exports of mined product

Percentage of 2014 amount



Source: PwC analysis, UN Comtrade, British Geological Survey

South Africa prioritises strong geology, explicit diagnosis, and early execution

South Africa's government is seeking to capitalise on its mineral potential by creating the conditions that favour investment, beneficiation, and industrial scaling. So far, South Africa's strategy is more diagnostic than demonstrative. The **2025 Critical Minerals and Metals Strategy** describes a mineral endowment with relevance across batteries, electric vehicles, renewable energy, hydrogen, aerospace, and defence. The strategy is built on six pillars—geoscience and exploration, value addition and localisation, research and skills, infrastructure and energy security, financial instruments, and regulatory harmonisation—that together amount to a practical diagnosis of the real bottlenecks.

The policy also covers many reforms geared towards creation of value locally. These include a one-stop licensing system to accelerate prospecting rights,

expansion of the Junior Mining Exploration Fund, exploration of a flow-through shares scheme, tax and royalty adjustments, beneficiation hubs backed by infrastructure, and a broader financing framework.

South Africa also has the potential to act as a regional minerals hub. The **World Economic Forum's December 2025 Southern Africa analysis** argues that critical mineral potential will be unlocked most effectively through integrated regional value chains in which extraction, processing, and beneficiation are distributed across Southern African Development Community countries. The question now is whether South Africa can harness its regional role, industrial base, and partnership potential to create a model that builds critical mineral value chains.

United Kingdom emphasises attractiveness to investment over geology

The United Kingdom's critical minerals strategy hinges on the premise that a country can build relevance through selective domestic production, stronger recycling, innovative midstream processing, market coordination, and financial support. The **Vision 2035: Critical Minerals Strategy** targets competitive advantages in midstream processing and recycling. It also sets measurable goals for 10% of aggregate annual UK demand for critical minerals to be met through domestic production by 2035, including by producing at least 50,000 tonnes of lithium, and for a further 20% supplied through recycling. The strategy focuses on demand visibility, market coordination, project finance, and processing capability. On the financing side, for example, the United Kingdom's National Wealth Fund provided a commitment of up to £31 million in September 2025 for the Trelavour hard rock and Cross Lanes lithium projects.

The broader delivery architecture is designed to reduce risk and mobilise investment across the value chain through two components: financing and systems. The Department for Business and Trade (DBT) has allocated up to £50 million in direct support for critical mineral projects, alongside other tools such as the Driving Research and Investment in Vehicle Electrification (DRIVE35) programme, a DBT-led initiative to bring together private investment and public

financing support through UK Export Finance and other institutions. The systems component includes a demand aggregation platform, annual progress reviews, and ongoing backing from the Critical Minerals Intelligence Centre and the Critical Minerals Expert Committee. Together, these mechanisms aim to improve coordination, enhance demand visibility, and strengthen overall investment appeal.

A road map for change

Taken together, these proposals offer a road map to a more effective global system. As these examples show, policymakers recognise that expansion of mining and processing activity takes not only strategic clarity about a country's potential role in the value chain but also ample investment. The considerable funds that governments themselves have promised to invest are just a start. Far more capital will be needed to realise the most promising opportunities.



Capital in motion

Mining captures only a small part of the annual **US\$3.3 trillion** of global investment in energy and related industries. Mining development capital—the investment that creates new supply—stood at approximately US\$55 billion in 2024. That's less than one-eighth of the amount invested in solar photovoltaics and less than one-tenth of what was spent on data centre construction—two industries heavily dependent on mining. **Forecasts by PwC and Oxford Economics** indicate that these investment gaps will persist. They show that while annual investment in metals and mining infrastructure will rise by 39% from 2024 to 2050 to reach US\$128 billion, outlays on renewables will climb 52%.

The gap, we'd argue, is structural, not cyclical. Mining projects, as a class, present common failure points. When considering new projects, investors test for these potential weaknesses by evaluating three investability conditions:

1. A credible risk-adjusted return relative to private sector hurdle rates.

Mining development commands a materially higher return premium than many comparable capital-intensive sectors, reflecting the combination of long development timelines, permitting risk, processing exposure, and the fundamental geological uncertainty. A project that would attract capital at a 7% return as a solar farm or at 10% as a nuclear plant won't be attractive as a mine.

2. A structured path to secure cash flow. Copper and magnet rare-earth elements are the most critical minerals to energy transition and defence applications. But no mechanism currently exists that converts future production to secure cash flow with the consistency and scale required to unlock institutional debt and equity markets. Price floors, strategic offtake guarantees, and demand commitments can fill this role.

3. A jurisdiction with a supportive permitting and processing access profile.

A mineral deposit can't be relocated to a more favourable jurisdiction, which means the environment must be supportive. The Resolution Copper project, a proposed mine in Arizona, illustrates the challenge. A tier 1 asset in a tier 1 jurisdiction, it had US\$2 billion of committed development capital but didn't reach a final investment decision because permitting wasn't structurally resolved before seeking capital.

Investors must also assess the challenges and opportunities associated with the value chains and end markets for individual minerals. Converting abundant copper reserves into producing mines at returns acceptable to institutional capital has become structurally more difficult with every project generation. Gold, meanwhile, trades on deep, liquid markets; central bank demand provides a structural floor; debt markets function well; and institutional equity is abundant. Yet big miners deploying record cash flows consistently choose M&A over greenfield exploration. The industry reported no major gold discoveries in both 2023 and 2024, down from more than 20 per year through the 1990s.

Then there are magnet rare-earth elements—such as neodymium, praseodymium, dysprosium, and terbium—that serve as critical inputs for electric vehicle motors, defence systems, and wind turbines. Since deposits of these minerals are concentrated in China, governments and companies elsewhere must either manage difficult relationships with Chinese counterparties or invest substantially in exploration in untested geographies.

There's an additional challenge: the absence of a single mining capital market. As the chart below shows, each mineral operates under a distinct capital logic, investability constraint, and value chain dynamic.

Capital in motion

Complex dynamics are shaping financeability and capital markets for ten key minerals.

Precious metals Scale and system Defence and strategic Energy security

Mineral	Capital story	Primary financeability constraint	Role of public capital	Where value is captured	Market maturity	Primary mechanism
Gold	Discovery and reserve replacement	Reserve depletion and high capex	Permitting reform	Mine gate (gold price)	Deep and mature	M&A and streaming
Silver	By-product dependency	Primary supply inflexibility	Strategic offtake	Industrial demand growth	Mature	Industrial offtake deals
Copper	Project pipeline scarcity	Permitting and jurisdiction	Permitting reform and assumption of first loss	Mine gate (high margins)	Deep and mature	Joint venture, earn-in, and development finance institution
Nickel	Processing bifurcation	High-pressure acid leaching (HPAL) financeability	State-backed integration	HPAL/midstream	Bifurcated (class 1/2)	Integrated HPAL joint venture
Magnet rare-earth elements	Processing monopoly	Processing access	Price floor and offtake guarantee	Separation and magnets	Nascent (non-China)	Government defence agency-style partnership
Tungsten	Supply concentration	Jurisdiction and end-use clarity	Defence Production Act-style co-investment	Refining and cutting tools	Very thin	Defence offtake
Antimony	Export control response	Permitting and scale	Government defence agency cost reimbursement	Refining	Early stage	State-backed mine-to-refinery development
Gallium	By-product dependency	Processing access	Export control response	Refining	Very thin	Refinery co-investment
Uranium	Cycle recovery	Utility offtake requirement	Sovereign security	Mine to conversion	Established (utility)	Long-term offtake (similar to power purchase agreement)

Source: PwC analysis

Mapping the risk curve

Mining capital operates through two distinct ecosystems. In the first, large miners fund development from their own balance sheets. In the second, independent developers must attract external capital from investors with explicit mandate constraints. The structural funding gap is a feature of the second ecosystem only. This makes it often necessary for independent developers to piece together funding from various sources from stage to stage. Understanding how access to capital can shift over the course of a development is vital to getting new projects through to production.

The chart below shows where each financing instrument operates across the development life cycle, illustrating where those conditions are met and where they fall short.

Capital availability across the development life cycle

Which type of capital funds which stage, and where do gaps persist?

- Well-matched to stage
- Possible but limited in scale or access
- Available but structurally constrained
- Instrument needed but not available at scale
- Not applicable at this stage

Financing instrument	Exploration/ early stage	Discovery/ feasibility	Development/ construction	Production/ operating	Midstream/ processing
Private equity	Possible but limited in scale or access	Possible but limited in scale or access	Instrument needed but not available at scale	Not applicable at this stage	Instrument needed but not available at scale
Venture capital	Available but structurally constrained	Instrument needed but not available at scale	Instrument needed but not available at scale	Not applicable at this stage	Instrument needed but not available at scale
Streaming and royalty	Not applicable at this stage	Possible but limited in scale or access	Well-matched to stage	Possible but limited in scale or access	Instrument needed but not available at scale
Joint venture and earn-in	Instrument needed but not available at scale	Available but structurally constrained	Available but structurally constrained	Possible but limited in scale or access	Not applicable at this stage
Development finance institutions/ blended finance	Instrument needed but not available at scale	Well-matched to stage	Well-matched to stage	Not applicable at this stage	Instrument needed but not available at scale
Project finance (debt)	Not applicable at this stage	Possible but limited in scale or access	Well-matched to stage	Well-matched to stage	Available but structurally constrained
Offtake-backed finance	Not applicable at this stage	Not applicable at this stage	Possible but limited in scale or access	Well-matched to stage	Well-matched to stage
Defence agency direct financing	Instrument needed but not available at scale	Possible but limited in scale or access	Possible but limited in scale or access	Not applicable at this stage	Not applicable at this stage
Sovereign wealth funds and institutions	Not applicable at this stage	Not applicable at this stage	Available but structurally constrained	Well-matched to stage	Available but structurally constrained

Source: PwC analysis

The chart shows a pronounced funding gap during the exploration and discovery/feasibility stages. This is precisely where the investment decisions that determine future supply are made and where only Development Finance Institutions (DFIs) and blended finance structures offer coverage. The valley of death lies between initial discovery and the final investment decision, when a project requires

the most capital to prove its geology, complete feasibility studies, and secure permits, but where the absence of contractable cash flows means institutional capital won't yet commit.

Financial coverage is broadest at the production and operating stage, where assets generate cash, debt can be serviced, and institutional mandates best align with miners' deployment needs. In the midstream/processing stage, gaps persist regardless of the financing instrument, reflecting a market infrastructure problem due to the absence of price benchmarks, financing templates, and transaction history that institutional mandates require. In the development and construction stage, project finance debt and joint venture capital operate selectively, while venture capital and private equity have largely withdrawn.

Structures that move capital

The challenge of securing conventional equity and debt is particularly acute until miners can convince investors that a project will generate positive cash flows. Now, however, developers are using novel structures to create the contractual certainty that private markets can't generate alone. These include:

Joint ventures and earn-in provisions substitute a large miner's credit quality for the developer's investment profile. The Filo del Sol/Vicuña arrangement is a 50-50 joint venture formed between BHP and Lundin Mining to hold assets located on the Chile-Argentina border. BHP is providing the depth of financial resources to make the project—whose capital cost for the first of three contemplated phases is about US\$7 billion—possible on the current timeline.

Streaming and royalty financing arrangements offer an alternative approach to financing for developers who can't access sufficient conventional equity or project debt. Under a streaming arrangement, the investor provides upfront capital in exchange for the right to purchase a share of future production at a pre-agreed price. Under a royalty arrangement, the investor receives a percentage of revenues or net profit without a fixed purchase price.

In both cases, the royalty or streaming company primarily assumes commodity price exposure, rather than construction cost risk. The developer receives non-dilutive capital without the mandate constraints of institutional equity. Streaming

and royalty companies, many of which are based in Canada, have led the development of these instruments. They typically deploy capital at the exploration stage, at a point where conventional project finance may not commit funding. The instrument works because the royalty company's diversified portfolio can absorb project-level risk that a single-asset lender can't take on.

Offtake-backed and state-backed financing are the only mechanisms that directly address the path to contracted cash flow. Export Finance Australia's AU\$1.65-billion non-recourse facility for Iluka Resources' Eneabba rare-earth refinery follows the same logic. The Australian government provided debt that the private market wouldn't supply. Without a processing facility already in operation, there was no revenue history to lend against. Similarly, the US International Development Finance Corporation structured a US\$1.8-billion first-loss commitment through the Orion Critical Mineral Consortium for critical minerals projects. A first-loss position means the public institution absorbs the initial portion of any losses before private investors are affected, directly reducing the effective risk that private capital must price.

In another example, the US Department of Defense's commitment to MP Materials—combining price floors, cost-reimbursement contracts, and strategic procurement guarantees—converted an uncertain revenue stream for rare-earth elements into a secure one, unlocking US\$1.5 billion in private capital at a leverage ratio of 1.6.

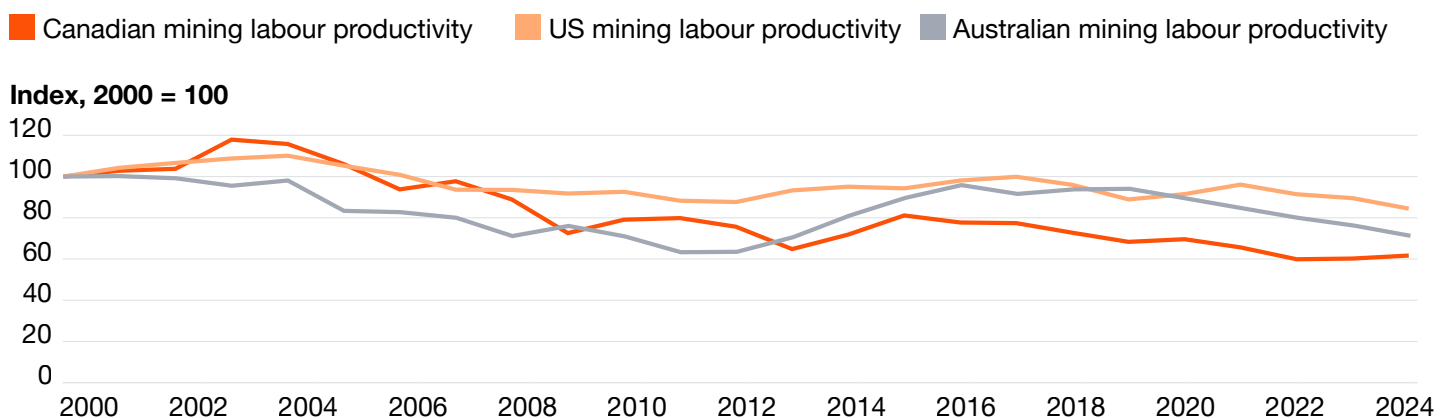
The challenge now is to bring scale to such efforts, and the work falls on both sides. For miners, the critical shift is sequencing: they must resolve investment conditions before seeking capital, not after. Miners that cross the investment threshold build contract certainty into their proposition before they enter an investor meeting. For governments, the most powerful lever is in creating investment certainty, rather than providing direct capital, through price floors, strategic offtake guarantees, and permitted project pipelines that convert uncertain commodity cash flows into contracted streams. Governments that de-risk rather than replace private capital can multiply the impact of private investment and get more resources deployed faster and at a lower cost to the public.

Productivity as a strategy to accelerate innovation under constraint

Output per worker in the mining industry has fallen since 2020, and the constraints are tightening. Scarce capital, declining ore grades, high energy costs, and talent shortfalls all make it difficult for miners to improve returns on investment. The workforce is ageing, and 39% of mining employers **expect an inability to attract talent will hinder their transformations**. Finally, mining companies are often behind the curve on technology adoption.

Australian, Canadian, and US mining productivity

Strategies need to shift as output per worker falls.



An example of productivity innovation born from constraint

Rio Tinto's autonomous haulage programme in Australia's Pilbara region was rolled out in the wake of the global financial crisis and progressed during the 2012 commodity downturn. The programme has accumulated almost two decades of incremental investment, operational learning, and organisational adaptation. Today, it represents a sustained structural cost and safety advantage achieved under the constraint of a tight labour market.

In response, companies are placing a higher premium on productivity as a strategy. Historically, mining companies have pursued productivity gains in the traditional realm of front-line, on-the-ground improvements to exploration, extraction, processing, logistics, and other operational processes. Now, however, leaders are looking at productivity from a wider perspective. For these companies, productivity is also the lens for making decisions about assets, investments, people, and organisation. Companies are focusing on productivity levers within their organisations: structuring the operating model for performance, streamlining ways of working, and investing in the workforce to get the most out of people. At the highest strategic level, they're striving to gain more productivity out of their assets and investments through effective portfolio optimisation, capital allocation, and asset management. Key areas of focus for mining companies include:

- 1. Portfolio optimisation becomes a primary productivity lever.** Portfolio optimisation is no longer solely about balance-sheet strength but about concentrating effort where productivity gains are most achievable. Companies are divesting structurally complex, capital-intensive, or operationally inconsistent assets while reallocating capital towards positions with clearer cost curves, scalability, and growth potential.
- 2. Capital deployment is being revised or delayed.** This is best demonstrated by the major reduction in decarbonisation investment by mining's biggest players. Where decarbonisation doesn't support operating economics, companies are redirecting funding towards nearer-term productivity initiatives.
- 3. Leadership appointments and organisational redesigns signal a renewed emphasis on execution discipline.** Boards are favouring leaders with deep operational experience and a track record of extracting value from existing assets.

Bridging mining's technology gap

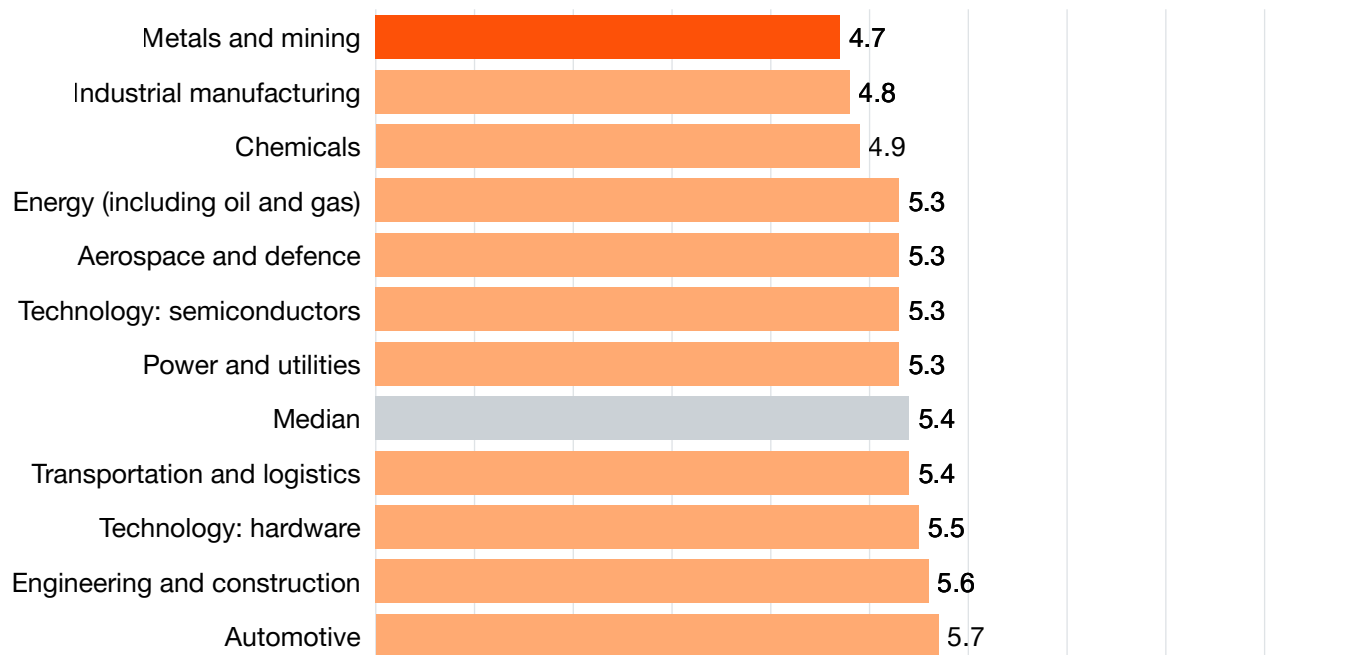
The mining sector has long pursued innovation initiatives aimed at boosting productivity. Yet it has also struggled to turn experimentation into industrial-scale solutions that deliver meaningful productivity gains. Current advances in technology, data, and AI present both a challenge and an opportunity.

PwC's recent AI performance study, which looked at the AI practices and AI-driven financial performance of more than 1,200 companies worldwide, found that mining had the lowest score of any sector on our AI fitness index. This is explained by factors such as a lack of investment in innovation and the inadequacy of data and governance frameworks. These gaps come with real costs: the most AI-fit companies, the study showed, enjoy an AI-driven performance boost that's 7.2 times higher—through a combination of increased revenues and cost reductions—than their peers. Indeed, in **PwC's 29th Global CEO Survey**, 40% of mining CEOs said their company's technology performance was below expectations.



Average AI fitness index score by sector

Industry comparison highlights the need for mining to increase digital maturity.



Source: PwC's AI performance study

What will it take to turn things around? The AI performance study points to three critical practices for mining companies to consider:

- **Aim AI at reinvention and growth.** Companies with the strongest AI-driven financial performance—the AI leaders—use AI for efficiency. But they also use it to reinvent their business model and drive growth. That means using AI to scan for new value pools, collaborate with companies in other sectors, and work in ecosystems of businesses.
- **Build focused AI foundations.** The study tracked six foundational capabilities that make AI reliable and scalable, including governance, data and technology, and workforce. AI leaders focus on strengthening the foundations that support their specific use cases, rather than undertaking broad transformation programmes. Sturdy, purpose-built foundations change the economics of AI in a meaningful way. After an underperforming company establishes the right AI foundations, it should see double the payoff from new uses of the technology.

Coal India's Project DigiCoal

Coal India's Project **DigiCoal** is one example of successful digital transformation in the mining industry.

Launched across seven mines and now extended through subsidiary South Eastern Coalfields Limited's flagship rollout at its Gevra, Dipka, and Kusunda projects, the programme bundles drone-based survey and planning, AI- and machine learning-driven drill and blast design, sensor-based fleet monitoring, digitised land records, and predictive asset maintenance into a single portfolio coordinated from a central 'digital war room' in Kolkata.

Rather than running parallel pilots, Coal India sequenced its investments around a shared data architecture and tied them to enterprise KPIs, with executive sponsorship anchoring the programme to the company's billion-tonne production target. The project has resulted in a significant increase in productivity.

- **Embed AI across the enterprise.** Embedding AI across the enterprise involves working across three dimensions: implementing the technology broadly across the business; integrating it into core workflows and systems so it can enhance execution; and applying it in sophisticated ways by moving from assistance to automation. Productivity surges when companies engineer AI to make routine, high-frequency decisions without human intervention.

By following these practices, AI can help mining executives better construct a strategic approach to productivity growth and prioritise innovation investment. This will give leaders visibility into performance, risk, and capital effectiveness across organisational layers and assets. What's more, AI deployment can improve a mining company's asset liquidity. Assets with transparent, high-quality data; standardised processes; and demonstrable productivity performance are easier to integrate, value, and transact. In a consolidating sector, this matters.

Mining can also turn to its peers in the oil and gas sector for learnings and frameworks for technology-driven productivity growth. ConocoPhillips recently embarked on a multiyear SAP S/4HANA transformation, and rather than positioning the programme as a technology upgrade, leadership framed it explicitly around productivity, reliability, and decision speed. The results were material: improved asset-performance management, a shift to predictive from reactive maintenance, and faster integration of acquisitions. The programme delivered approximately US\$1 billion in efficiencies while strengthening resilience during periods of market disruption.

The convergence of capital scarcity, declining asset quality, cost inflation, and technological change sets the bounds in which mining operates. Changing government policies and emerging financial structures are shaping the environment in which companies invest, plan, and work. The big challenge for the future of mining is for companies to convert their ambitions into action despite the challenges they face from these converging forces of change. That means thinking more broadly about productivity growth and access to capital and focusing on digital technologies and AI as critical enablers. As the mining industry looks to 2027 and beyond, success will be defined not just by companies' access to capital or technology but by their discipline and effectiveness in deploying it.

This year's writing team

The writing of *Mine 2026* was led by Sacha Winzenried (PwC Indonesia), Andrew Jenkins (PwC Indonesia), and Matthew Williams (PwC United Kingdom). Core members of the writing team were Carlos Rivas (PwC Chile), Isakh Salomon (PwC Indonesia), Lochlan Farrell (PwC Australia), Swapnil Gupta (PwC India), and Zubair Desai (PwC South Africa).

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Appendix I : The top 40 global mining companies

2025 Rank	2024 Rank	Change in ranking	Company Name	Country/territory of incorporation	Commodity focus
1	1	0	BHP Group Limited (ASX:BHP)	Australia	Diversified
2	3	1	Rio Tinto Group (LSE:RIO)	United Kingdom	Diversified
3	5	2	Zijin Mining Group Company Limited (SHSE:601899)	China	Diversified
4	2	-2	China Shenhua Energy Company Limited (SEHK:1088)	China	Coal
5	9	4	Newmont Corporation (NYSE:NEM)	United States	Gold
6	10	4	Agnico Eagle Mines Limited (NYSE:AEM)	Canada	Gold
7	17	10	Barrick Mining Corporation (TSX:ABX)	Canada	Gold
8		New	Grupo México, S.A.B. de C.V. (BMV:GMEXICO B)	Mexico	Diversified
9	4	-5	Freeport-McMoRan Inc. (NYSE:FCX)	United States	Diversified
10	6	-4	Glencore plc (LSE:GLEN)	Switzerland	Diversified
11	7	-4	Saudi Arabian Mining Company (Maaden) (SASE:1211)	Saudi Arabia	Diversified
12	24	12	CMOC Group Limited (SHSE:603993)	China	Diversified
13	12	-1	Vale S.A. (BOVESPA:VALE3)	Brazil	Diversified
14	14	0	Fortescue Ltd (ASX:FMG)	Australia	Iron ore
15	13	-2	Anglo American plc (LSE:AAL)	United Kingdom	Diversified
16	23	7	Antofagasta plc (LSE:ANTO)	United Kingdom	Copper
17	29	12	AngloGold Ashanti plc (NYSE:AU)	United Kingdom	Gold
18	19	1	Cameco Corporation (TSX:CCO)	Canada	Uranium
19	28	9	Gold Fields Limited (JSE:GFI)	South Africa	Gold
20	30	10	Kinross Gold Corporation (TSX:K)	Canada	Gold

2025 Rank	2024 Rank	Change in ranking	Company Name	Country/territory of incorporation	Commodity focus
21		New	Fresnillo plc (LSE:FRES)	United Kingdom	Precious metals and gemstones
22	8	-14	PT Bayan Resources Tbk. (IDX:BYAN)	Indonesia	Coal
23	15	-8	Shaanxi Coal Industry Company Limited (SHSE:601225)	China	Coal
24	16	-8	Coal India Limited (NSEI:COALINDIA)	India	Coal
25	20	-5	Hindustan Zinc Limited (BSE:500188)	India	Diversified
26	11	-15	PT Amman Mineral Internasional Tbk (IDX:AMMN)	Indonesia	Gold/copper
27	31	4	Northern Star Resources Limited (ASX:NST)	Australia	Gold
28	27	-1	Shandong Gold Mining Co., Ltd. (SHSE:600547)	China	Gold
29	36	7	Jiangxi Copper Company Limited (SEHK:358)	China	Copper
30	21	-9	Teck Resources Limited (TSX:TECK.B)	Canada	Diversified
31		New	Valterra Platinum Limited (JSE:VAL)	South Africa	Precious metals
32	32	0	First Quantum Minerals Ltd. (TSX:FM)	Canada	Copper
33		New	Pan American Silver Corp. (TSX:PAAS)	Canada	Silver
34	22	-12	China Coal Energy Company Limited (SEHK:1898)	China	Coal
35		New	Industrias Peñoles, S.A.B. de C.V. (BMV:PE&OLES *)	Mexico	Precious metals and gemstones
36		New	Lundin Gold Inc. (TSX:LUG)	Canada	Gold
37	33	-4	Sociedad Química y Minera de Chile S.A. (NYSE:SQM)	Chile	Lithium
38		New	Lundin Mining Corporation (TSX:LUN)	Canada	Copper
39		New	Evolution Mining Limited (ASX:EVN)	Australia	Gold
40		New	Sociedad Minera Cerro Verde S.A.A. (BVL:CVERDEC1)	Peru	Copper

Appendix II : Aggregated financial statements

Top 40 mining companies: Ten-year financial trends (US\$bn)

Financial metric	2025	2024	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
Aggregate market capitalisation	1,956	1,203	1,309	1,225	1,203	1,120	898	757	926	714	494	791
Aggregated income statement												
Revenue	909	867	845	943	925	656	692	683	600	496	539	690
Operating expenses	(661)	(674)	(628)	(670)	(633)	(482)	(524)	(518)	(454)	(390)	(448)	(531)
EBITDA	248	193	217	274	292	174	168	165	146	106	91	159
Impairment charges	(7)	(10)	(18)	(9)	(6)	(11)	(14)	(12)	(4)	(19)	(53)	(27)
Depreciation charge	(59)	(46)	(60)	(49)	(52)	(50)	(50)	(47)	(41)	(44)	(42)	(48)
Net finance cost	(10)	(9)	(10)	(5)	(7)	(10)	(14)	(13)	(11)	(9)	(19)	(15)
Profit before tax	172	127	130	211	226	102	89	93	90	34	(23)	69
Tax expense	(52)	(35)	(40)	(57)	(67)	(32)	(29)	(27)	(29)	(15)	(4)	(24)
Net profit/(loss)	120	92	90	153	159	70	61	66	61	19	(27)	45
EBITDA margin	27%	22%	26%	29%	32%	26%	24%	24%	24%	21%	17%	23%
Aggregated cash flow statement												
Operating activities	174	142	132	180	225	142	130	134	119	89	92	127
Investing activities	(99)	(91)	(84)	(85)	(71)	(56)	(69)	(63)	(46)	(40)	(69)	(93)
Financing activities	(66)	(54)	(57)	(114)	(117)	(51)	(66)	(70)	(63)	(44)	(31)	(31)
Dividends paid	(60)	(62)	(55)	(74)	(85)	(37)	(55)	(43)	(36)	(16)	(28)	(40)
Share buybacks	(6)	(3)	(7)	(10)	(11)	(1)	(7)	(15)	(7)	(4)	(7)	(6)
Free cash flow	79	87	52	105	153	81	69	77	71	40	23	24
Aggregated balance sheet												
Cash	157	131	142	141	156	123	88	101	102	86	82	83
Property plant and equipment	764	693	702	676	647	653	649	610	663	616	579	745
Total assets	1,400	1,251	1,288	1,286	1,235	1,163	1,139	1,080	1,129	1,063	1,047	1,231
Total liabilities	667	629	626	616	620	588	576	540	573	563	569	630
Total equity	733	623	662	670	614	575	563	540	556	500	478	601
Capex	95	88	80	85	72	61	61	55	48	49	83	103
RoE	6.1%	7.7%	6.9%	12.5%	13.2%	6.3%	6.8%	8.7%	6.6%	2.7%	(5.5)%	5.7%

Note: The information above includes the aggregated results of the top 40 mining companies as reported in each edition of PwC's Mine reports.
Source: Company annual reports, PwC analysis

Top 40 mining companies: Income statements (US\$bn)

PwC's 2026 forecast paints a picture of a mining sector entering a phase of earnings-led expansion, with revenue growth of 14%, EBITDA margins expanding to over 32%, and free cash flow surging 45%. While commodity price strength in gold and copper is the primary growth engine, disciplined capital allocation and declining debt reliance signal a sector that's increasingly resilient and shareholder-friendly—although inflationary pressures on fuel, shipping, and chemicals remain key risks to monitor.

Top 40 mining companies: Income statements (US\$bn)	2026 Forecast	2025	2024	2025 - 2024 change (%)
Revenue	1,040	909	880	3%
Operating expenses	(701)	(661)	(678)	2%
EBITDA	339	248	203	23%
Impairment charges/(reversal)	-	(7)	(9)	25%
Depreciation charge	(67)	(59)	(49)	21%
Net finance costs	(8)	(10)	(9)	13%
Profit before tax	264	172	136	27%
Tax expense	(80)	(52)	(38)	37%
Net profit	184	120	98	23%
Profitability measures				
EBITDA margin	32.59%	27.29%	23.00%	
Net profit margin	17.72%	13.22%	11.09%	
Effective tax rate	30.22%	30.22%	28.05%	

Source: Company annual reports, S&P Capital IQ, PwC Analysis

Forecast analysis

PwC forecasts total revenues to significantly grow in 2026. This growth is primarily attributable to sustained strength in gold and copper prices, coupled with anticipated production volume increases in gold and coal, positioning the industry to capitalise on favourable macroeconomic tailwinds.

Operating expenses are also forecast to materially rise in 2026, driven by significantly higher costs in fuel, shipping, and chemical inputs.

Net profit is projected to surge to \$184 million, while EBITDA is forecast to grow to \$339 million—materially outpacing the increase in operating expenses. This divergence between revenue growth and cost growth demonstrates strong operating leverage reflecting meaningful structural improvements in earnings quality.

Top 40 mining companies: Cash flow statement (US\$bn)

Top 40 mining companies: Cash flow statement (US\$bn)	Forecast 2026	2025	2024	Variance (%)
Net operating cash flows	223	174	154	12%
Purchase of property, plant and equipment	(109)	(95)	(87)	9%
Free cash flow	114	79	67	18%
Other investing cash flows	(11)	(5)	(3)	36%
Total shareholder returns	(68)	(60)	(64)	7%
Other financing cash flows	(6)	(6)	4	245%
Net drawdowns/(repayment) of debt	(8)	12	(1)	1846%
Net cash flow	21	20	3	509%

Source: Company annual reports, S&P Capital IQ, PwC analysis

Forecast analysis

PwC forecasts net operating cash flows to grow to \$223 billion in 2026 mainly driven by the projected increase in EBITDA, with a rise in capex to \$109 billion, resulting in free cash flow expanding to \$114 billion. PwC expects a strong cash conversion from the projected EBITDA uplift that positions the industry with meaningful financial flexibility to fund growth, reward shareholders, and absorb external shocks.

Despite an increase in capital expenditure (reflecting continued investment in production capacity for gold and coal), PwC forecasts shareholder returns to increase through dividends and share buybacks.

Top 40 mining companies: Balance sheet extract (US\$bn)

Top 40 mining companies: Balance sheet extract (US\$bn)	2025	2024	% Change
Current assets			
Cash and cash equivalents	157	144	9%
Inventories	112	103	9%
Receivables and other current assets	80	64	24%
Other current assets	37	40	-8%
Total current assets	385	351	10%
Non-current assets			
Mining and production assets	764	724	6%
Goodwill & intangible assets	74	69	8%
Investments and loans granted	90	76	19%
Other non-current assets	86	73	18%
Total non-current assets	1,015	941	8%
Total assets	1,400	1,292	8%

Source: Company annual reports, S&P Capital IQ, PwC analysis

Top 40 mining companies: Balance sheet extract (US\$bn)

Top 40 mining companies: Balance sheet extract (US\$bn)	2025	2024	% Change
Current liabilities			
Accounts payable and other liabilities	116	107	9%
Borrowings current	43	48	-10%
Short term lease liabilities	2	5	-57%
Unearned revenue current	3	5	-42%
Other current liabilities	88	67	31%
Total current liabilities	252	231	9%
Non-current liabilities			
Borrowings non-current	208	201	4%
Long term lease liabilities	10	4	118%
Environmental provisions	86	83	4%
Unearned revenue non-current	5	6	-12%
Other non-current liabilities	106	96	10%
Total non-current liabilities	415	390	6%
Total liabilities	667	621	7%
Total shareholders' equity	733	670	9%

Source: Company annual reports, S&P Capital IQ, PwC analysis

2026 outlook methodology

Income statement: We have forecast revenue from the sale of commodities based on critical inputs of commodity prices and production volumes. For commodity prices, we have used the latest consensus economic data available for each of the of the major commodities mined by the top 40, coupled with the latest available production estimates for the 2026 financial year.

Cash flow statement: Cash flow from operations was forecast with reference to movement in EBITDA. The drivers of working capital balances are expected to move in line with their historical tendencies, and no material movement in working capital adjustment is expected. Investing cash flows include capex and have been forecast based on guidance issued by our top 40 at the date of the report, together with our independent analysis.

Shareholder returns are forecast with reference to dividend amounts declared at the date of the report and share buyback announcements, together with our independent analysis.



Mine 2026

Ambition to action

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