

Strategic Report 2022



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Navigating through our Strategic Report

1	As required by UK company law, we include a strategic report in our
2	full 2022 Annual Report. In addition, we produce this Strategic Report
4	as a separate document to provide investors with the option of
6	receiving it as a standalone document.
8	The first 87 pages of Rio Tinto's 2022 Annual Report constitute its
10	2022 Strategic Report. References in this report to page numbers
12	beyond 87 are references to pages in the full 2022 Annual Report –
13	as indicated by this icon  .
16	Copies of Rio Tinto's shareholder documents – the 2022 Annual
17	Report and Strategic Report – are available to view on the Group's
18	website at riotinto.com . Shareholders may obtain a hard copy of these
20	documents free of charge by contacting Rio Tinto's registrars, whose
25	details are set out at the back of this document.
26	Please visit Rio Tinto's website to learn more about the Group's
32	performance in 2022.

Directors' approval statement

	This Strategic Report is delivered in accordance with a resolution of
34	the Board, and has been signed on behalf of the Board by:

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Dominic Barton

Chair

22 February 2023

	The Group's 2022 Strategic Report complies with Australian and UK
76	reporting requirements.
79	The auditors' report on the Group's 2022 annual accounts was
87	unqualified. Within that report, the auditors' statements under section
	496 Companies Act 2006, confirming that the Strategic Report and
	Directors' Report are consistent with the accounts, was also unqualified.
i	A copy of the auditors' report on the Group's 2022 Annual report is
	contained on pages 251 to 268 of that document.

iv	Reporting currency: We report in US dollars unless otherwise stated.
vi	Where specified, A\$ refers to Australian dollars and C\$ refers to
vii	Canadian dollars.

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Our operations are located on land and waters that have belonged to Indigenous peoples for thousands of years. We respect their ongoing deep connection to Country and recognise their vast knowledge of the land, water and environment. We pay respects to Elders, both past and present, and acknowledge the important role Indigenous peoples play within our business and our communities.



For more information
visit riotinto.com

2022 year in review

All-injury
frequency rate
0.40
(2021: 0.40)

Fatalities
Zero
(2021: zero)

Consolidated
sales revenues
\$55.6bn
(2021: \$63.5bn)

Net cash generated
from operating
activities
\$16.1bn
(2021: \$25.3bn)

Scope 1 and 2
greenhouse
gas emissions
30.3Mt
(equity CO₂e)
(2021: 31.0Mt)

Women in our
workforce
22.9%
(2021: 21.6%)

Profit after tax
attributable to
owners of Rio Tinto
\$12.4bn
(net earnings)
(2021: \$21.1bn)


Underlying
EBITDA²
\$26.3bn
(2021: \$37.7bn)

Independent cultural
heritage audits
completed¹
37
(2021: 20)

Total dividend
per share
492 cents
(2021: 1,040 cents)

 **For more information**
about sustainability, see page 46.

 **For more information**
about our financial review, see page 26.

1. The independent cultural heritage audits undertaken by Environment Resources Management (ERM) were a Board action in response to the 2020 Board review of cultural heritage management. All 37 audits were finalised in 2022.
2. A reconciliation of underlying EBITDA to its closest IFRS measure is presented on page 163 .

Our purpose

Finding better ways™ to provide the materials the world needs

For 150 years, we have been
looking for new and better
ways of doing things.

Our drive for innovation and continuous
improvement is at the core of our purpose.

Today, you will find our teams around the
world seeking opportunities to reduce our
carbon footprint, partnering to develop new
technologies to decarbonise steel and
aluminium production, and creating new
products from waste. Our ambition is to be a
business with a commodity mix that is aligned
with evolving customer demand in a
decarbonising world.

But we cannot do it on our own. So we strive
to create partnerships that solve problems
and create win-win solutions with lower
societal and environmental impact. The
approach applies as much to large-scale,
transformational innovation as to incremental
everyday progress, such as our safety and
operational performance.

And we are finding better ways to
partner with Indigenous peoples and host
communities. From continuing to rebuild
our relationships to putting in place our
new co-management agreements and
improved ways of working, we are focusing
on open and transparent engagement.

Our aspiration is to be the partner of choice
for communities, governments, customers,
suppliers and joint venture partners.

We want to be a home to curious people
who care about their work and colleagues,
are courageous about the challenges they
face and find better ways to do things.

At a glance

Our business

We operate in 35¹ countries where our 54,000 employees are working to find better ways to provide the materials the world needs. Our portfolio includes iron ore, copper, aluminium, lithium and other materials needed for people, communities and nations to grow and prosper, and for the world to cut carbon emissions to net zero.

We have been mining for 150 years, and we continue to build on a history and knowledge that span generations and continents. Today, our business relies on technology such as automation and artificial intelligence to help us run safer, more efficient operations and leave a lighter footprint.

Iron Ore

Segmental revenue	Underlying EBITDA	Production (100% basis)
\$30.9bn	\$18.6bn	324.1Mt
(2021: \$39.6bn)	(2021: \$27.6bn)	iron ore (2021: 319.7Mt)

Employees
15,000
(2021: 13,000)

Aluminium

Segmental revenue	Underlying EBITDA	Production (our share)
\$14.1bn	\$3.7bn	54.6Mt
(2021: \$12.7bn)	(2021: \$4.4bn)	bauxite (2021: 54.3Mt)

Employees
15,000
(2021: 14,000)

3,009kt
aluminium
(2021: 3,151kt)

Our products

Our portfolio includes iron ore, aluminium, bauxite, alumina, copper, diamonds, titanium dioxide, lithium, salt and borates.

 **For more information**
see pages 36–43.

Operations and projects²

- Iron Ore
- Aluminium
- Copper
- Minerals

- Operations
- ★ Projects

1. Includes our mines and production facilities, main exploration activities and countries where we have a significant presence through activities including research and development, commercial, sales, and corporate functions.

2. This map does not include our offices, processing and shipping facilities, or research and development centres. Operations and projects are indicated according to their product group. For example, Simandou is an iron ore project but is reported under Copper. The Iron Ore Company of Canada is an iron ore operation but is reported under Minerals due to the management structure. The dots on the map are indicative and in some locations we have more assets than visually represented due to the size of the map.

Outlook

We have a strong portfolio of assets across six continents. Our focus is on growing our business while decarbonising, providing products to our customers that support the transition to a low-carbon economy and delivering attractive returns to our shareholders.

Many of our products are essential for the energy transition: we expect this new source of demand, combined with traditional sources, to drive significant volume growth in our products over the coming decades. In developed markets, customer demand for low-carbon and recycled materials is growing with supply security top of mind. In developing economies, reliable access to raw materials for domestic processing is critical. We have the people, orebodies, technology, processing capabilities, access to capital and relationships to meet these diversifying needs.

Copper

Segmental revenue

\$6.7bn

(2021: \$7.8bn)

Underlying EBITDA

\$2.4bn

(2021: \$4.0bn)

Production (our share)

521kt

mined copper
(2021: 494kt)

Employees

8,000

(2021: 7,000)

Minerals

Segmental revenue

\$6.8bn

(2021: \$6.5bn)

Underlying EBITDA

\$2.4bn

(2021: \$2.6bn)

Production (our share)

1,200kt

titanium dioxide slag
(2021: 1,014kt)

Employees

9,000

(2021: 9,000)

10.3Mt

iron ore pellets and concentrate
(2021: 9.7Mt)



For 150 years, we have been striving to find better ways – in how we face challenges, find solutions, celebrate our successes, and learn from our failures. Our strength and scale reflect the courage shown by past generations, and the curiosity of our current employees, who continue to shape important partnerships with companies, communities, and countries – constantly evolving our business and our products to support the world around us.

We have marked a wide range of milestones through our 150 years of operation; these are a few of the moments that shaped the Rio Tinto of today.

150 years of Rio Tinto

1873

Rio Tinto commences copper mining in Spain

The Rio Tinto Company was registered in London after a British-European investor group bought the Rio Tinto mines in Spain, first mined in Phoenician and Roman times. We introduced new processing facilities and techniques that transformed the operation, and by the turn of the century, we were producing 10% of the world's copper.

1955-1963

The red cliffs of Australia

In 1955, a geologist discovered bauxite in Queensland and commercial bauxite mining began at Weipa in 1963, where we still mine today.

1929-1953

Exploring new lands

We looked beyond Spain's borders for growth opportunities, setting up a series of joint ventures to explore and develop mines, starting in 1929 with the great copper belt of what is now known as Zambia. Come 1952, our exploration team expanded into South Africa and Canada, and the following year Australia, resulting in new uranium mines in Canada and Australia.

2007

Becoming a global leader in aluminium

We acquired Alcan, becoming a global leader in aluminium, and further diversifying our portfolio. Through this deal, we also obtained access to water rights and renewable power through a vast network of hydropower facilities in Canada, a major competitive advantage to our smelting business. While Alcan was clearly a leader in green aluminium, the acquisition resulted in an unsustainable level of debt when the global financial crisis happened and left the company in a vulnerable financial situation.

2000-2022

Shaping our portfolio

At the turn of the new century, we embarked on an acquisition and divestment programme, which simplified the business, focused the Group on large, low-cost mines and culminated in our divestment of our coal assets in 2018. We became the first major miner to cease coal production. We acquired North Ltd in 2000, significantly expanding our iron ore assets, including mines, rail and port capacity. And in 2006, we partnered with Ivanhoe Mines to construct and operate Oyu Tolgoi in Mongolia. In 2022, we acquired full ownership of Turquoise Hill Resources Ltd, increasing our direct ownership in Oyu Tolgoi to 66%.

2008-2019

Technology redefines the business

In an attempt to transform the efficiency and safety of the way we mine, we partnered with Komatsu to be among the first in the world to trial the world's first driverless haul trucks. This initiative set us on a path to become a global leader in fully integrated, automated mining. In 2019, together with our partner Hitachi, we launched the world's first fully autonomous, long-distance, heavy-haul rail network – AutoHaul™.

1961-1973

The founding of our iron ore business in the Pilbara

In 1961, geologists set out across Western Australia to assess the iron ore prospects. By 1965, the signing of a long-term contract to supply the Japanese steel mills enabled us to develop our first iron ore mine in the Pilbara, and in 1966 we shipped our first iron ore to Japan. By 1973, we had started shipping to South Korea and China. Our partnerships with these countries endure today.

1989

Securing copper and mineral assets

We were ready to focus solely on mining, so sold all oil and gas assets and set our sights on BP Minerals. We acquired Kennecott's Bingham Canyon copper and gold mine in Utah, US. The purchase also secured the RTIT Quebec Operations¹ in Quebec, Canada and interests in QIT Madagascar Minerals and Richards Bay Minerals in South Africa.

1998

Tragedy sharpens safety focus

A horrific disaster at our talc mine in Lassing, Austria, claimed the lives of ten members of our rescue team following a series of collapses. The profound impact of the Lassing disaster was a catalyst for major change in the way we manage safety. We had our first fatality-free year in 2019, with no fatalities since.

2002

China supporting the iron ore boom

The rapid industrialisation of the Chinese economy and the emergence of China as a global economic power was a major catalyst for our iron ore business in the early 2000s. In 2002, we set up a joint venture with Baosteel Group to supply 10 million tonnes of iron ore per year over 20 years, supporting the expansion of our business in the Pilbara and marking our continuing and vital partnership with China.

1995

Becoming Rio Tinto

In one of the most significant events in our history, the RTZ Corporation PLC merged with ConZinc RioTinto of Australia (CRA) to form RTZ-CRA. In 1997, we changed our name to Rio Tinto plc/Ltd (dual listed), becoming one of the largest mining companies in the world.

2018-2019

A step closer to carbon-free aluminium smelting

In 2018, we formed ELYSIS, in partnership with Alcoa and supported by Apple and the Governments of Canada and Quebec, which later delivered a disruptive technology that eliminates all direct greenhouse gas emissions from the aluminium smelting process.

2020

Juukan Gorge rock shelters

Our destruction of the Juukan Gorge rock shelters in Western Australia fell far short of our values and breached the trust placed in us by the Traditional Owners of the lands on which we operate. It is our collective responsibility to earn back the trust that has been lost, improve our internal practices and culture to minimise our impacts, and manage cultural heritage responsibly.

2021-2022

Creating a safe, respectful and inclusive workplace

In 2021, we commissioned an independent review of our workplace culture to better understand, prevent and respond to harmful behaviours across our operations. The review found disturbing cases of discrimination and sexual harassment in the business. We are now working to implement the 26 recommendations of the report, and to evolve our culture to create a safe, respectful and inclusive workplace.

1. Previously known as QIT Fer et Titane.

As we enter 2023, the global operating environment has certainly become more volatile and complex and yet there is a sense that Rio Tinto has reached an inflection point, with strong momentum in the business.

2022 saw Rio Tinto deliver another set of strong financial results, while keeping our operations fatality-free. In recognition of this, the Board is recommending a final dividend of 225 US cents (2021: 417 US cents), taking total dividends declared to shareholders this year to \$8 billion.

More broadly, Jakob Stausholm and his Executive team have led the Group out of a challenging period, with the foundations now being laid for us to become the global mining company of choice.

A lot remains to be done. We must continue to focus on the pursuit of our four key objectives: becoming the best operator, having impeccable environmental, social and governance (ESG) credentials, excelling in development and strengthening the Group's social licence. In particular, we must continue to strive for greater consistency in our operating performance. This year, we have secured a healthy pipeline of future growth projects – Oyu Tolgoi (with the successful buyout of Turquoise Hill minority shareholders), Rhodes Ridge and Rincon, and the Western Range replacement project. These now need to be successfully developed, while we continue our efforts to realise other critical growth projects, such as Simandou, Resolution and Jadar.

Finally, we must focus on embedding the important culture and leadership changes that are such critical enablers for achieving our strategic objectives and to creating the future organisation that we all wish to see.

Seizing opportunities

Since joining as Chair, I have visited sites around the world and all of our hub offices, interacting with employees across all levels of the organisation. I have been amazed by the calibre of talent – from our engineers to our economists, from our ecologists to our explorers. There has been one common trait among everyone I have met – a focus on finding better ways of working and a determination to innovate.

The shift to electric vehicles and renewable power will require more copper, aluminium, lithium and high-quality iron ore to decarbonise society, but developing new mines is becoming more challenging. To excel in this future development, we must seek to partner with a strengthened social licence and to operate with impeccable ESG credentials. Strategically, we must think long term if we are to harness the right opportunities, while also keeping shorter-term opportunities and risks sharply in view.

Alongside supplying the materials for the world's energy transition, we are aiming to reduce our own emissions by 50% by 2030 and to reach net zero by 2050. This is a challenging set of targets but ones that we are determined to achieve. We are delivering this through a range of initiatives and partnerships that are helping us decarbonise our existing operations and secure green energy, as we support the development of low-carbon solutions to help our customers meet their own goals.

With access to more than four million hectares of land globally, we are looking to implement natural climate solutions on a significant scale. We also have the opportunity to be a leader in environment by finding better ways to manage water, care for species and rehabilitate land. These are areas where our drive to improve can bring significant social and local benefits.



Building a thriving culture

I believe everything we aspire to achieve should be underpinned by our people feeling emotionally safe, empowered, included and respected. One of my priorities as Chair is to ensure that we create a work environment where everyone can be at their best.

I commend Jakob and the Executive Committee for the care and courage shown in commissioning and openly sharing the external review of the company's workplace culture at the beginning of 2022. Since then, a great deal has been done to make positive change. The Board and I fully support the implementation of the 26 recommendations made in the *Everyday Respect Report*, which we are monitoring closely. We are working closely with Elizabeth Broderick, the former Australian Sex Discrimination Commissioner who conducted the report, on how we, as a Board, can help ensure progress and lead by example in embedding the culture changes that we all wish to see. We have also reinforced the Board and the Executive Committee's commitment in this area, by expanding our new Remuneration & People Committee's scope to include an ongoing focus on people and culture.

Incentivising the things that matter

One of the key learnings from the past few years is that **how** we achieve our strategy is just as important as **what** we achieve. As our strategy has evolved, so has the need for an appropriate incentive framework to better support it. In 2022, we undertook a review of our incentives and, from 2023, our Group short-term incentive plan (STIP), which applies to around 24,000 employees, will have a greater focus on how outcomes are achieved. By driving delivery of our four objectives in a manner consistent with our values and behaviours and which advance our culture change agenda, we are confident that we will see great progress towards our strategic ambitions.

 **For more information**
about changes to STIP, see the Remuneration report on pages 112–113 .

"...as I look to the future, I am confident that we have all of the right ingredients in place – great people, world-class assets, emerging technologies and new partnerships."



Engaging with stakeholders and the workforce



The Board is passionate about further strengthening our relationships with our shareholders, customers, local communities and other partners to incorporate a broad range of views in our decision making. As travel restrictions began to ease in 2022, we stepped up meeting people in person, including regular dialogue with the Indigenous peoples of the land on which we operate, local communities, governments and, of course, our customers, suppliers and shareholders.

We also hosted three civil society roundtables, in Australia, Europe and North America. Engaging with civil society organisations is an important way for us to challenge ourselves to keep improving. One of the key topics of interest at this year's roundtables was the role that Rio Tinto can play in protecting biodiversity, as well as in the world's transition to a low-carbon future.

I am encouraged by the progress our Communities and Social Performance teams have made this year, with new co-management agreements in place and improved ways of working to deliver better outcomes for Indigenous peoples. A highlight of 2022 was the creation of the Juukan Gorge Legacy Foundation as part of a remedy agreement reached with the Puutu Kunti Kurrama and Pinikura Aboriginal Corporation relating to the destruction of the rock shelters at Juukan Gorge in 2020. Earlier in the year, I was grateful to meet with the Puutu Kunti Kurrama and Pinikura people for the first time and at a second meeting later in the year I heard how they feel our engagement and remediation have been progressing. As the leadership team continues to embed the values and new purpose across the business, I am convinced we will see even greater progress.

The Board also met with employees, through site visits, town halls and listening sessions. Feedback suggests that, although we need to continue to improve, people are optimistic

about the changes taking place, with good support for the new purpose and the Everyday Respect initiative. We are successful in attracting talented people, including more women, into Rio Tinto, but must now focus on retention.


 **For more information**
about the Board's engagement with our stakeholders, see pages 95-98 

Board changes

We have had some changes to the Board over the past year. Simon Thompson stepped down as Chairman in May 2022, and Hinda Gharbi retired from the Board at the conclusion of our annual general meeting in April. Our thanks go to Simon and Hinda for their outstanding service and contribution.

In 2022, we evaluated the mix of skills and experience on the Board, and concluded that we need to refresh our composition, with a particular focus on deepening our mining, operations and projects experience, as well as our renewable energy and sustainability capabilities. In December 2022, we announced the appointment of Kaisa Hietala as a Non-Executive Director with effect from 1 March 2023. Kaisa brings a deep understanding of renewables and sustainability from her experience in the resources industry, as well as broad commercial capabilities, and these are all qualities that will be invaluable as we work to ensure Rio Tinto thrives in a decarbonising world.

Separately, we have taken a fresh look at our governance arrangements to ensure that the Board and our committees are focusing our time on supporting the delivery of the Group's strategic objectives. This includes putting a greater emphasis on people and culture, on risk management and resilience capabilities, and on strengthening our social licence through stakeholder engagement.

 **For more information**
see my introduction to the Corporate Governance report on page 89 

Looking ahead

As we enter 2023, we will need to maintain a keen eye on near-term opportunities and risks, while always creating sufficient time and space to capture key strategic opportunities as they emerge for the long term.

Without doubt, there is considerable work ahead – to create a safe and empowering culture, to improve the consistency of our operational performance, to anticipate and respond to a shifting competitive landscape and to continue to strengthen our partnerships.

But as I look to the future, I am confident that we have all of the right ingredients in place – great people, world-class assets, emerging technologies and new partnerships.

As we reach our 150th anniversary this year, we have an opportunity to place the energy transition at the heart of our new strategy as we seek to diversify and extend our portfolio. This opportunity is now embodied in our new purpose: **Finding better ways to provide the materials the world needs.** And it is this new purpose that will drive the right decisions for our business, our shareholders, our other stakeholders and the environment.

Let me end by thanking the leadership team and the many thousands of Rio Tinto employees, contractors and partners who delivered for the company and its shareholders during the year.

Dominic Barton
Chair

22 February 2023

Q&A with Jakob Stausholm

2022 highlights

Zero fatalities

(2021: zero)

\$16.1bn

net cash generated from operating activities

(2021: \$25.3bn)

\$12.4bn

profit after tax attributable to owners of Rio Tinto

(2021: \$21.1bn)

\$8bn

total dividend declared

(2021: \$16.8bn)

How did we perform in 2022?

This year has been all about progressing our strategy and delivering against our four objectives to build a stronger Rio Tinto for the long term. The strong foundations of our business – world-class assets, great people and strength of balance sheet – allowed us to achieve solid financial performance despite the challenging environment we faced. We definitely made progress in 2022, but there is lots more to do.

Most importantly, 2022 was our fourth consecutive fatality-free year. But we continue to see serious incidents in our business and therefore we must continue to focus, every day, on strengthening our safety culture. This is about bringing together best practices from across the business and beyond to inform and improve our risk management and work planning. In terms of financials, we generated underlying earnings of \$13.3 billion (2021: \$21.4 billion) and net cash generated from operating activities of \$16.1 billion (2021: \$25.3 billion). Profit after tax attributable to owners of Rio Tinto was \$12.4 billion (2021: \$21.1 billion) and our balance sheet remains strong with net debt of \$4.2 billion (2021: net cash of \$1.6 billion). As a result, the Board has recommended a final ordinary dividend of 225 US cents per share, resulting in total shareholder returns declared this year of \$8 billion. This represents a pay-out ratio of 60%, in line with our policy.

What was the thinking behind the new purpose, “finding better ways to provide the materials the world needs”?

Defining our purpose was an exciting process. We looked at what society needs and then considered our own strengths and found ten words that really capture our contribution to the world. It's partly in our DNA, and partly about setting the direction for the company to evolve. It speaks to our drive for both innovation and continuous improvement, while also emphasising how materials are produced. Consumers are looking for lower-carbon materials, which must be produced responsibly, and we are continuously seeking ways to do things better.

How can evolving our culture unlock improvements needed to make us the best operator?

Changing our culture is key to achieving each of our four objectives. When people feel respected and valued, they feel empowered to be their best selves and bring their best ideas. For example, our Safe Production System (SPS) relies on this – unlocking the potential of our employees, their skills and expertise, and creating stable, predictable operations. I've been impressed by our progress in 2022, achieving a number of operational records, including a record second half performance across the Pilbara iron ore mine and rail system. We now have 30 deployments at 16 sites and 86 Kaizens (rapid problem-solving activities) completed or in progress. We are seeing excellent results. Where we have been deploying the SPS, we have sites that are safer, more engaged employees, and assets that are more productive. We will continue to deploy the SPS to more sites in 2023.

More broadly, we are embedding a change in mindset and behaviours throughout the organisation, with the implementation of the *Everyday Respect Report* recommendations being absolutely crucial to driving this change. Achieving culture change will take time, but we are heading in the right direction.

How are we progressing our objective to achieve impeccable ESG credentials?

Starting with our social licence, for the past two years we have been changing the way we partner, especially with Indigenous peoples and the communities where we work. Moving to a model of co-management of land and waters, and improving our agreements, will deliver more enduring socioeconomic, heritage and environmental outcomes and, in turn, greater certainty for mine development. And we have continued to develop cultural competency across the Group to help us become a better partner.

“The early evidence of progress against each of the four objectives is heartening, not just in terms of our 2022 performance, but also in giving us confidence that we have a truly exciting improvement journey in the years to come.”



In terms of climate change, quite frankly we have not advanced our abatement projects as fast as we would like. But despite that our Scope 1 and 2 emissions were 7% below our 2018 baseline. Our capital spend on decarbonisation was also lower than we anticipated in 2021. It is important to note that this is a multi-decade journey and today we have a more robust roadmap to our 2030 and 2050 targets.

We are ramping up our technical skills, building competencies and capabilities, and forming partnerships across our value chain to find solutions to some of the bigger challenges we are facing. We have set up six large abatement programmes focused on the decarbonisation challenges that cut across our product groups: repowering our Pacific Aluminium Operations, renewables, ELYSIS™, alumina process heat, minerals processing and diesel transition. We have also established one additional programme to increase our investments in nature-based solutions projects and expect these to make a more significant contribution to our targets. Some of the technology we need to reach net zero by 2050 does not exist today, so we established the Office of the Chief Scientist and increased our yearly research and development target spend to \$400 million. We know we can't solve these challenges alone, so we're also partnering with other organisations to find solutions. The ELYSIS partnership to develop emissions-free aluminium smelting technology is a good example of this.

Our objective to excel in development is all about growing in materials enabling the low-carbon transition. How did we perform in 2022?

We expect the energy transition will add as much as 25% in additional demand above traditional sources across our key products by 2035. That is why our strategy is about growing in the materials required to achieve the energy transition, such as copper, lithium and high-quality iron ore.

A highlight this year was resetting our relationship with the Mongolian Government and successfully executing our first significant M&A in a decade through our acquisition of Turquoise Hill Resources Ltd. This doubled our interest in Oyu Tolgoi to 66%, a mine that is on track to be the fourth-largest copper mine in the world.

We progressed our Western Range and Rhodes Ridge iron ore projects in Western Australia, positioning us strongly to meet future customer needs. They are both exciting developments – Western Range represents our first co-designed mine with Traditional Owners, and the Rhodes Ridge deposits are among the largest and highest quality undeveloped resources globally.

At the Simandou iron ore project in Guinea, we are working through all necessary permits and approvals in relation to the infrastructure. We have also hired critical roles with a significant focus on local Guinean businesses.

In lithium, we acquired the Rincon project in Argentina for \$825 million. We have also approved \$194 million to develop a small starter battery-grade lithium carbonate plant with a capacity of 3,000 tonnes per year and first saleable production in 2024. As part of this, we are progressing early works, including constructing a camp and airstrip. We also continue to believe that the Jadar lithium-borate project in Serbia can contribute to enhancing the electric vehicle supply chain ecosystem in Serbia. We are exploring options with all stakeholders on how to progress this world-class opportunity to the highest environmental standards.

Our fourth objective, strengthening our social licence, is ultimately judged by others. What have been some of your highlights this year?

We've been working hard to implement meaningful change in the way we partner with communities. Over the past 12 months we have signed new agreements with the Yindjibarndi and Yinhawangka people in Australia, and the Pekuakamiulnuatsh First Nation in Canada.

Most notably, in November we signed an agreement with the Puutu Kunt Kurrama and Pinikura people to create the Juukan Gorge Legacy Foundation as part of the remedy for the destruction of the rock shelters in May 2020. This is a significant step forward, but we know it will be a long journey to rebuild trust.

What is the focus of 2023?

I am really excited about the momentum we're building. We have a clear purpose, an ambitious strategy, and I am convinced we have the best people in the industry. The early evidence of progress against each of the four objectives is heartening, not just in terms of our 2022 performance, but also in giving us confidence that we have a truly exciting improvement journey in the years to come.

For me, 2023 is all about making further progress against our strategy and delivering on our key projects. We will continue to empower and unleash the quality of our people through the SPS and develop both leadership and technical excellence. We will advance projects like Rincon and Simandou, and at Oyu Tolgoi we expect to reach sustainable production in the first quarter of the year. As we mark 150 years of Rio Tinto, we will reflect on our past and the role it has played in our evolution and in helping us live our purpose in the future. Our people are at the very centre of this – over the next year we will continue our work to transform our culture and how we partner with our stakeholders. I want to thank our thousands of employees and contractors, host governments and communities, customers, shareholders and partners. Together, we're committed to finding better ways to deliver well into the next 150 years.

Jakob Stausholm
Chief Executive

22 February 2023

Living our purpose

Finding better ways to provide the materials the world needs

Our purpose defines our role in the world and guides strategic decisions that balance the needs of our business, our stakeholders and the environment.

Delivered through our strategy and four objectives

We have put climate change and the low-carbon transition at the heart of our strategy. We are decarbonising our assets; helping our customers decarbonise by developing new products and technologies; and growing in materials essential for the energy transition.

We will deliver our strategy through four clear objectives (indicated below), which guide how we operate. Progressing our strategy and four objectives will ensure that we provide the materials the world needs while maximising shareholder returns and strengthening our position as a partner of choice for our customers and other key stakeholders.

Best operator

Expand capability and leadership

Impeccable ESG credentials

Strengthen track record and transparency

Excel in development

Deliver organic and inorganic growth, on time, on budget

Social licence

Earn trust by building meaningful relationships and partnerships


 **For more information**
about our strategy, see page 13.

Underpinned by our approach to sustainability

We want all our stakeholders to benefit from our success. Our purpose guides our efforts to provide people and communities with economic opportunities; to safeguard and promote the health, wellbeing and human rights of people and communities; to combat climate change; and to be excellent stewards of the natural resources entrusted to us. This is how we strengthen our social licence and achieve impeccable ESG credentials.

We align our work with the United Nations Sustainable Development Goals, the global blueprint for a sustainable future.

 **For more information**
about our stakeholders, see pages 18-19 and 95-98 

 **For more information**
about our approach to sustainability, see page 46.

Enabled by our people and culture, and guided by our values

Our purpose is a unifying force that is underpinned by our values of care, courage and curiosity. Together with our Code of Conduct, our values guide how we work and treat each other, the communities in which we operate and our environment.

Care

For people, for the communities in which we operate and for our environment

Courage

To try new things, speak up and do what is right

Curiosity

To collaborate, learn and innovate



For more information
about our values, see page 16.



For more information
about our Code of Conduct, see page 74.

Tracked and measured

We measure our strategic progress through a mix of financial and non-financial KPIs that align with our purpose and strategy. In addition to key financial, operational and safety performance metrics, we track progress across ESG themes including gender diversity and carbon emissions.

KPIs

All-injury frequency rate (AIFR)	Total shareholder return (TSR)	Underlying earnings and underlying EBITDA	Underlying return on capital employed (ROCE)	Net cash generated from operating activities
Free cash flow	Net cash/(debt)	Scope 1 and 2 greenhouse gas emissions	Gender diversity	




For more information
about our KPIs, see pages 20-24.

Overseen by our Board

Our success depends on effective and responsive corporate governance. Our Board oversees how we deliver on our purpose and strategy and continually monitors our culture to make sure it aligns with our values. The Board also oversees how we manage social and environmental risks, and monitors our performance to ensure we generate value for shareholders while our business contributes to wider society.




For more information
about our Board, see pages 90-91, 94 and 99-101 .

Reflected in remuneration

Our Remuneration Policy is designed to support the delivery of our strategy in a responsible and sustainable way that reflects our purpose and values. It considers our financial and safety performance, our culture and our ESG measures, such as accelerating decarbonisation and strengthening our social licence. The main elements include base salary, short-term incentive plan (STIP) and long-term incentive plan (LTIP).



For more information
about remuneration, see pages 110-135 .

STIP metrics¹

Financial scorecard: unflexed financials and best operator objective through flexed financials

Strategic scorecard with performance measures (including safety, climate change, diversity, reputation, people and culture) linked to our four objectives

Individual multiplier to reflect values

LTIP metrics

TSR relative to the EMIX Global Mining Index

TSR relative to the MSCI World Index

1. From 2023, we have updated our STIP to ensure our performance management and incentives for around 24,000 people are aligned to our strategy and culture journey.

Strategic context

Our strategy is informed by a deep analysis of the interplay of global megatrends, explored through the lens of plausible scenarios. These set the context for our industry and underpin our portfolio choices and how we operate. Our success relies on our ability to strengthen our resilience to the physical, societal and economic effects of climate change and the energy transition, while building partnerships and capabilities that enable us to secure new opportunities.

Our scenario approach

We use global scenarios in our strategy and capital allocation processes to stress test our portfolio and investment decisions under alternative macroeconomic settings. Our scenario framework focuses on two prevailing macro-level business concerns: the speed of global economic growth and the trajectory of climate action, each heavily influenced by global geopolitics and governance.

Consistent with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations, our central reference case commodity forecasts and valuations are informed by a blend of our two core scenarios (Competitive Leadership and Fragmented Leadership). These are used to derive critical accounting estimates and are included as inputs for impairment testing; estimating remaining economic life for units of production, depreciation and discounting; and closure and rehabilitation provisions. Further detail is provided in "Impact of climate change on the Group" section to the financial statements on pages 152–155 ^{AR}.

We use additional scenarios (including our Aspirational Leadership scenario, which is aligned with the stretch goal of the Paris Agreement) to further stress test decisions and assess potential risks to our portfolio.

Our two core scenarios

Competitive Leadership reflects a world of high growth and strong climate action post-2030, with change driven by policy and competitive innovation. A proactive reform environment encourages business innovation and helps boost investment and productivity. This allows global GDP to continue growing at near recent historical levels with an increasing contribution from India and other developing countries.

Fragmented Leadership represents a world where economic growth and climate action are constrained by ineffective policy and rising social and geopolitical tensions. In this world, investment in new technologies slows and their global adoption is highly inconsistent. This, combined with more significant climate damage, results in weaker long-term productivity growth.



For more information

about our scenarios, methodology and portfolio implications, see our *2022 Climate Change Report* at riotinto.com/climatereport.

Energy transition and climate action

While global efforts to tackle climate change have continued, the long-term pledges made by governments and companies still fall short of what is required to limit the global temperature rise to below 1.5°C above pre-industrial levels. In recognition of this, and faced with increasing societal demands, governments are creating new policies to support the development of low-carbon economies. These include the US's Inflation Reduction Act (IRA) and the EU's Carbon Border Adjustment Mechanism (CBAM).

Increasing electrification and renewable energy incentives will bolster demand for several commodities, including lithium, copper, aluminium and high-grade iron ore. Interventions by governments are becoming as important as traditional market forces for commodity trajectories and will have important implications for project economics and regional price premiums. New policies could help incentivise new mining projects and accelerate the deployment of large-scale renewable energy and firming solutions essential for steel and aluminium production.

Geopolitical tensions and global supply disruption

The compound effects of COVID-19 and ongoing geopolitical issues have resulted in major disruption to the global supply of goods and services. The onset of the Russia-Ukraine war resulted in extreme price volatility for fossil fuels and several metals, contributing to record inflation in some jurisdictions. The ongoing global energy crisis and growing concerns about an economic downturn have continued to erode trust in global institutions, fuelling a backlash against globalisation in some quarters. In addition, we have seen increasing regional tensions surrounding new climate policies as governments look to tackle climate change while addressing energy supply issues.

Supply chain disruptions have helped support prices for several key products including iron ore, aluminium, copper and nickel, where Russia is a major global supplier. However, the mining sector has faced headwinds, including increased energy costs and ongoing mobility and procurement challenges, which have put pressure on margins across most commodities. Geopolitical tensions have also exacerbated concerns for critical mineral supply, with governments showing increasing support for new projects to help diversify and nearshore supply.

Evolving customer demands

Customers are becoming more ESG-conscious in their purchasing behaviours, taking into consideration a range of sustainability themes beyond carbon footprint, including biodiversity, water consumption, waste generation and social impact. This is helping to drive a holistic shift towards increasingly transparent, sustainable and circular value chains.

Mining companies will need to work closely with a range of stakeholders to improve their ESG metrics and attract new customers and partners. A key opportunity is in recycling, which could allow metal suppliers to supplement their low-carbon primary products with highly sustainable recycled materials to create unique commercial offerings for customers. Nature-based solutions could also provide new revenue streams, while creating opportunities for communities and helping drive emissions towards net zero.

Our strategy and four objectives

Climate change and the low-carbon transition are at the heart of our strategy. We aim to strengthen our resilience to changing market fundamentals and pursue new opportunities and partnerships that help deliver strong returns and growth options for our business, reduce our environmental footprint and aid our customers in their efforts to decarbonise.

Our strategy has three pillars

Accelerate the decarbonisation of our assets

Due to the scale of our mining operations and processing activities we have significant Scope 1 and 2 emissions (30.3Mt CO₂e). We are working with a range of stakeholders to find commercial and technology solutions to repower our assets, deploy large-scale renewables, scale up ELYSIS™, decarbonise process heat and replace diesel across our portfolio.

Develop products and technologies that help our customers decarbonise

Our Scope 3 emissions were 584Mt CO₂e in 2022 – over 1% of the global total. We are working closely with our customers and others to develop more secure and sustainable value chains and accelerate the development of cleaner production pathways for our products. Processing of iron ore accounts for two-thirds of our Scope 3 emissions.

Grow in materials essential for the energy transition

The energy transition will create significant additional demand for our commodities, including copper, lithium and aluminium. We aim to grow in these commodities as well as in the production of high-quality iron ore. This iron ore will support the production of low-carbon steel required for infrastructure for the energy transition and ongoing urbanisation.

We will deliver our strategy through four objectives, which guide how we want to run our business: to be the best operator, to achieve impeccable ESG credentials, to excel in development and to strengthen our social licence. These essential components will help improve our productivity, reduce capital intensity and assist us in becoming a partner of choice for a range of stakeholders globally.



Our culture is a key enabler of our strategic ambitions. It will guide us on the journey to best operator, make us a better partner and help us solve problems as we work towards net zero.

By building a safe, respectful and inclusive workplace, we can attract and retain curious people who care about their work and colleagues and are courageous about finding better ways to do things – this is how we will deliver on our purpose.

Best operator

We aim to improve our operational performance by identifying and replicating best practices across our portfolio and empowering our people to make positive changes.

Impeccable ESG credentials

We will strive to align our business priorities with society's expectations and ensure sustainability considerations are at the core of every decision we make.

Excel in development

We will expand and progress our pipeline of growth opportunities and build capabilities and partnerships to execute projects and establish a strong track record of capital-efficient delivery.

Social licence

We need to be humbler and more responsive, building meaningful relationships and partnerships with our stakeholders by listening, learning and respecting diverse perspectives.

Progress against our strategy in 2022

	Accelerate the decarbonisation of our assets	Develop products and technologies that help our customers decarbonise	Grow in materials enabling the energy transition
Commitments	<p>To strengthen our alignment with the Paris Agreement and our long-term¹ ambition of achieving net zero emissions by 2050:</p> <ul style="list-style-type: none"> – We aim to reduce our Scope 1 and 2 emissions by 15% by 2025 and by 50% by 2030 (against our 2018 equity baseline). – We expect to invest an estimated \$7.5 billion in decarbonisation projects by 2030, predominantly in the second half of the decade. Long-term contracts and operational expenditure will also be an important additional part of our decarbonisation spend. 	<p>To work with our customers to tackle full value chain emissions and reduce our significant indirect Scope 3 emissions:</p> <ul style="list-style-type: none"> – We will increase research and development to accelerate the development of cleaner products for our customers. – We will step up our customer engagements and partnerships to help them meet their Scope 1 and 2 emissions goals. – We plan to deploy net zero vessels by 2030 and reach net zero emissions from shipping our products by 2050. 	<p>To capture new growth opportunities with a focus on materials that will see strong demand growth from the low-carbon transition:</p> <ul style="list-style-type: none"> – Our ambition is to increase our growth capital to \$2 billion in 2023 and up to \$3 billion annually in 2024 and 2025. – We will seek to grow further in copper and battery materials and bring additional tonnes of high-grade iron ore and low-carbon aluminium to market. – We will maintain our strong commitment to disciplined capital allocation.
Highlights	<p>High-grade iron ore/green steel</p> <ul style="list-style-type: none"> – Pilbara: Planned investment of \$600 million in 230MW of solar power facilities and 200MWh of storage. This is in addition to the 34MW solar facility installed at Gudai-Darri. – Pilbara: Developed partnerships with Scania, Caterpillar, Volvo and Komatsu to deploy more efficient autonomous haulage solutions and battery-powered trucks. – Marine biofuels: Joined a trial with BP. 	<ul style="list-style-type: none"> – Blast furnace optimisation: Extended our collaboration with over 20 customers, such as Baowu, POSCO, Nippon Steel Corporation and Shougang, with potential carbon emissions reductions of up to 30%. – Biolron™: Successfully piloted an innovative, low-carbon iron-making process on Pilbara iron ore. – Hydrogen-based DRI²: Collaborated with BlueScope and Salzgitter Flachstahl to test direct reduction of our products using green hydrogen and develop cleaner processing options. 	<ul style="list-style-type: none"> – Simandou: Signed a non-binding term sheet with our partners to progress the co-development of infrastructure. The project will deliver high-grade iron ore, suitable for the DRI-EAF³ steelmaking process.
	<p>Aluminium</p> <ul style="list-style-type: none"> – Queensland smelter repowering: Commenced evaluation of proposals to repower our aluminium assets with up to 4GW of wind and solar, backed up by energy firming and storage solutions. – Queensland Alumina: Progressed to a pre-feasibility study for a double digestion project to reduce emissions and operational expenditure. 	<ul style="list-style-type: none"> – ELYSIS™: Conducted commercial testing of direct emissions-free smelting technology with 450kA cells under construction. – Low-carbon material: Partnered with organisations including Volvo, Ford and AB InBev (Corona Canada). 	<ul style="list-style-type: none"> – Arvida: Invested in a new aluminium recycling facility and plans to replace our closing smelter with an expansion of the AP60 smelter to produce low-carbon aluminium. – Alma: Committed \$188 million to expand production of higher-value low-carbon billets. – Laterrière Plant: Commissioned a new aluminium remelt furnace.
	<p>Copper, Minerals</p> <ul style="list-style-type: none"> – Rio Tinto Iron and Titanium (RTIT) Quebec Operations: Committed \$537 million (C\$737 million) in partnership with the Government of Canada to decarbonise RTIT Quebec Operations and boost critical minerals processing. – Richards Bay Minerals: Partnered with Voltaia for solar power (20-year power purchase agreement). – Renewable diesel: Launched a pilot at Boron, with trials also planned for Kennecott. 	<ul style="list-style-type: none"> – Nuton™: Joined strategic partnerships to test leaching technology on legacy copper waste and sulphide orebodies. – Critical minerals from waste: Began extracting tellurium concentrate at Kennecott. Achieved first production of scandium oxide and demonstration of an innovative spodumene (lithium) concentration process at our Critical Minerals and Technology Centre (RTIT Quebec Operations). 	<ul style="list-style-type: none"> – Oyu Tolgoi: Acquired full ownership of Turquoise Hill Resources Ltd (TRQ) for \$3.1 billion, increasing our direct project ownership to 66%. – Rincon: Acquired Rincon for \$825 million and approved funding of \$194 million for early works to develop an accelerated starter plant with planned expansion.

1. Our net zero commitment applies to our Scope 1 and 2 emissions only and ultimately aims to balance any remaining emissions with removals from the atmosphere. For planning purposes, we define short term as up to two years, medium term as two to ten years and long term as beyond ten years. For our analysis of physical climate risks, we define short term as 2030, medium term is 2050 and long term is 2100.

2. Direct Reduced Iron.

3. Direct Reduced Iron – Electric Arc Furnace.

Progress against our four objectives in 2022

	Best operator	Impeccable ESG	Excel in development	Social licence
Approach	<ul style="list-style-type: none"> – A strong safety performance remains our top priority – we will never be complacent. – We are implementing the Safe Production System (SPS) as a new, people-centric approach to engage our workforce and develop and share best practice solutions across our assets. – We are simplifying our systems and processes to enable more agile decision making and empower our people. 	<ul style="list-style-type: none"> – We have embedded ESG considerations in every decision we make, from our community work to addressing climate change. – We are striving to be a responsible and trusted steward of resources by driving end-to-end best practices, standards and assurance across our business. – We are committed to creating a safer, equal and equitable workplace for our people. 	<ul style="list-style-type: none"> – We are developing a pipeline of growth options leveraged towards the energy transition while maintaining our absolute commitment to capital discipline. – We are assessing new technologies, partnerships and operational synergies to unlock value and bring projects online faster. – We are further building our capabilities in business development and project execution including in downstream processing and renewable energy. 	<ul style="list-style-type: none"> – We are stepping up our external engagements to develop deeper connections with all stakeholders and build mutually beneficial partnerships. – We are building cultural capability and competency across the Group to ensure we fully understand, value and partner with our host communities. – We are committed to sharing best practices globally.
Highlights	<ul style="list-style-type: none"> – We completed our fourth consecutive fatality-free year with our all-injury frequency rate (AIFR) remaining stable at 0.40 compared to 2021. – We completed 30 SPS deployments across 16 sites with several rapid improvement projects underway to improve performance and safety. – We established an Innovation and Technology Centre to improve our health and safety, boost productivity and support growth opportunities. – We launched the Building Safe and Respectful Workplaces pilot programme, with BHP, Fortescue and the Australian Minerals and Energy Skills Alliance. – We continued the roll-out of the Voyager development programme across our senior leaders. 	<ul style="list-style-type: none"> – We released the Everyday Respect external review of our workplace culture, with actions and training being rolled out across the business. – We introduced a new communities and social performance strategy with updated standards, targets and vision for the business. – We have changed the way we engage with Traditional Owner and First Nation groups (see the social licence column). – We set up six large carbon abatement programmes focused on repowering our Pacific Aluminium Operations, renewables, ELYSIS™, alumina process heat, minerals processing and diesel transition. – The Steel Decarbonisation team has advanced 49 projects with more than 30 partners. – We established a dedicated team to secure nature-based solutions projects that help offset emissions, improve biodiversity and create opportunities for communities. 	<ul style="list-style-type: none"> – We advanced several key projects, firing 19 drawbells at the Oyu Tolgoi underground project in 2022 and commissioning Pilbara mines equivalent to 120Mt. – We progressed studies for Rincon, Resolution, Kennecott underground and several replacement projects with ongoing stakeholder engagement at Jadar and Simandou. – We are undertaking 32 research and development projects focused on reducing capital intensity and unlocking revenue streams. – We completed several key energy infrastructure projects including the Kemano Tunnel 2 project (Kitimat) and the installation of 34MW of renewables at Gudai-Darri. 	<ul style="list-style-type: none"> – In Australia we signed new agreements with the Yinhawangka and Yindjibarndi Aboriginal Corporations and the Puutu Kunti Kurrama and Pinikura people. – We committed A\$250 million to support the Western Australian State Government's new Resources Community Investment Initiative. – In Canada we signed an initial agreement with the Pekuakamiulnuatsh First Nation to co-create terms of a long-term partnership. – We have reset our relationship with the Government of Mongolia for Oyu Tolgoi. – We enhanced our internal human rights expertise and updated our Human Rights Policy to reflect emerging trends and expectations.

Our people and culture

Our values guide how we work together and how we treat each other, the communities we operate in, and our environment. We act with care, courage and curiosity, empowering our people to build meaningful relationships and find better ways to provide the materials the world needs. To help embed our values throughout the business, we updated our Code of Conduct in early 2023.

Care

We act with **care** by prioritising the physical and emotional safety and wellbeing of those around us.

We respect others, build trusting relationships and consider the impact of our actions.

We look for ways to contribute to a better future for our people, communities and the planet.

Courage

We act with **courage** by showing integrity, speaking up when something is not right and taking decisive action when needed.

We are not afraid to try new things.

We respond positively in difficult situations and demonstrate commitment to achieving shared goals.

Curiosity

We act with **curiosity** by inviting diverse ideas and collaborating to achieve more together than can be done alone.

We are continuously learning and creatively looking for better and safer ways of doing things.

We draw inspiration from others and the world around us.



Oyu Tolgoi copper-gold mine, Mongolia.

We are finding better ways to support and empower our people, which means creating an environment where everyone feels comfortable being themselves, has the courage to speak up if something is not right and listens to each other with care and curiosity.

Guided by our values, we are committed to building a safe, respectful and inclusive workplace.

There are elements of our culture today that we are proud of and want to amplify, such as our commitment to safety, teamwork and agility in times of change. But we know there is more to do in some areas, and we recognise that how we achieve is just as important as what we achieve.

In February 2022, we reported the findings and recommendations from the *Everyday Respect Report*, an independent review of our workplace culture that we commissioned to better understand, prevent and respond to harmful behaviours across our global operations. We know from the findings that we can do better as a company. We aspire to be a home for curious people who care about their work and colleagues and are courageous about finding better ways to do things. This starts with ensuring everyone feels safe, respected and included. Implementing the 26 recommendations from the report is one way we are evolving our culture, this was a primary focus for 2022 and it will continue in 2023.

We have accelerated some immediate actions:

- **Building capable leaders.** We have trained 91% of our leaders in the foundations of building psychological safety and moving from bystander to upstander, exceeding our target of 80% by the end of 2022.
- **Creating safe and inclusive facilities.** All sites have completed a self-assessment of their facilities, and unsafe areas such as locks, lighting and access to amenities have been updated. This work is ongoing and done in collaboration with our employees to make our facilities safe and more inclusive.


– Providing a more people-centric response.

We expanded the scope of work for the Business Conduct Office (BCO) and developed a discrete unit that will be responsible for delivering safe, confidential and caring support. For more information about the BCO and our confidential reporting programme myVoice, see page 74.

We want to play our part in eliminating harmful behaviours, and we are also working closely with industry bodies across the globe to implement changes and collectively evolve our industry.

To further support our culture journey, in 2022 we also:

- Updated our global minimum standard for paid parental leave to suit different family needs.
- Continued to increase the number of women in our workforce, from 21.6% to 22.9%.
- Developed, empowered and invested in our people through the Safe Production System and the Voyager development programme for senior leaders.
- Reviewed our incentives and performance management framework. From 2023, our performance management and incentives for around 24,000 people will be aligned to our strategy and culture journey, focusing on both how and what we deliver.

 **For more information** about the Everyday Respect initiative, visit riotinto.com/everydayrespect.

 **For more information** about our people, see pages 59–60.

Our business model

Our ability to create value is underpinned by the quality of our assets, the capabilities of our people, our operational and sustainability performance, innovative partnership and disciplined capital allocation.



Underpinned by disciplined capital allocation

Our business is underpinned by a disciplined approach to capital allocation; we strive to use every dollar prudently. Today, our balance sheet is a key strength, providing a resilient platform for strong and consistent shareholder returns, as well as enabling us to invest throughout the commodity cycle.

Our stakeholders

Partnerships and collaboration are essential to the long-term success of our business. They give us a competitive edge and allow us to work more thoughtfully and responsibly, benefiting from the expertise and insight of others. By engaging with our stakeholders and listening to their views, we can make a more meaningful contribution to society while becoming a more valuable company for our shareholders.

Section 172(1) statement
This stakeholder section, together with our stakeholder pages in the Governance section (pages 95–98 ^{AR}), explains how the Board takes account of stakeholder interests. These comprise our “Section 172(1) statement”.

Workforce

Our people are key to our success. We are focusing on creating a safe, respectful and inclusive workplace where our people feel empowered and engaged. Guided by our values, we are evolving our culture: we are implementing the recommendations from the *Everyday Respect Report*, rolling out the Safe Production System, enhancing our safety maturity model, empowering our people, training our leaders and listening to employee feedback through our employee survey. In our most recent survey conducted in October 2022, our employee satisfaction score (eSAT) increased by two points (71 to 73). We are making good progress, but we know there is more to do.

 **For more information**
see page 95 ^{AR}.

52,000¹

Employees across six continents
(2021: 47,000)

73

Employee satisfaction score (eSAT)
(2021: 71)

Civil society organisations

We can only help to address the world’s many complex environmental, social and governance challenges, such as climate change, human rights violations, bribery and corruption, through collaboration with civil society organisations (CSOs) and other stakeholders. Our senior leaders regularly engage with CSOs, and although our opinions may differ from time to time, we respect their views and value the challenges they set for us to improve performance across our business. We hold yearly roundtable discussions with CSOs in Australia, Europe and North America. In 2022, one of the key topics of discussion was our role in the world’s transition to a low-carbon future.

 **For more information**
see page 96 ^{AR}.

28

Organisations participated in our 2022 CSO roundtable discussions in person

3

Roundtables held in London, Sydney and Montreal in 2022. Topics discussed included climate change, biodiversity, recycling, water management, human rights, cultural heritage, communities and transparency

Communities

Communities are the places and the people who make up where we live, work and call home – from the Gobi Desert in Mongolia, to KwaZulu-Natal, South Africa, and Saguenay–Lac-Saint-Jean, Quebec, Canada. We continue to strive to engage consistently and honestly with communities on a range of issues, such as jobs and local procurement, as well as the impact of our operations on the local environment. Over the past few years, we have focused on our own standards of open and transparent engagement. For example, we are moving to a model of co-management of Country in our Pilbara iron ore business, and we are updating our agreements with Indigenous peoples.

 **For more information**
see page 96 ^{AR}.

\$62.6m

Voluntary social investment in 2022
(2021: \$72.1m)

Governments

Governments – national, state and provincial, and local – are important stakeholders for our business. They regulate our operations, are among our commercial partners, and receive revenue from our taxes and royalties. Our economic contribution can be significant for national budgets and local development priorities, such as job creation and skills training. It is important that we engage with officials on issues such as how we explore, mine and process ore; conditions of land tenure; health, safety and environment; taxation; intellectual property; competition and foreign investment; data privacy; conditions of trade and export; and infrastructure access.

 **For more information**
see page 97 ^{AR}.

\$75bn

Paid in taxes and royalties globally over the past ten years

\$6.9bn

Corporate tax paid in 2022
(2021: \$8.5bn)²

\$6.1bn

Corporate tax paid in Australia in 2022
(2021: \$7.7bn)

1. Includes our total workforce based on managed operations (excludes the Group’s share of non-managed operations and joint ventures) as of 31 December 2022.
2. When combined with royalties and other taxes, and with our share of taxes and royalties paid by equity accounted units, this resulted in payments to governments of around \$10.5 billion (2021: over \$13 billion), including over \$8 billion paid in Australia (2021: over \$11 billion).

Investors

Our investors include pension funds, global fund managers, bondholders, and tens of thousands of individuals around the world, including approximately 30,000 Rio Tinto employees. It is important that we understand our investors' needs and their vision for the company. We therefore communicate and engage extensively with them throughout the year, both in person and through virtual forums across multiple jurisdictions. In addition to our annual general meetings in the UK and Australia, we also held two investor seminars in 2022, one in London and one in Sydney, where our Executive Committee launched our new purpose externally and provided an update on our progress against our strategy.

 **For more information**
see page 97 

\$8.0bn

Total dividends declared to shareholders
(2021: \$16.8bn)

30,000

Rio Tinto employees own shares in the company¹
(2021: 25,000)

Customers

Our customers' needs are central to our operational decision making. Using the insights generated from everything we buy, sell and move around the world, our Commercial team works closely with customers to ensure that we deliver products that meet their specific requirements. Every year, we ask our customers for their feedback via a survey and the insights help us deliver new and better products and services. Where possible, we partner to co-develop solutions that support our environmental, social and governance commitments. For example, in 2022, we signed a separate memorandum of understanding with both Volvo Group and Ford Motor Company to supply low-carbon materials for a range of their products.

 **For more information**
see page 98 

2,000

Customers across multiple industries and countries

\$55.6bn

Consolidated sales revenue in 2022
(2021: \$63.5bn)

549Mt CO₂e

Scope 3 emissions from the processing of our products
(2021: 523Mt CO₂e)

Suppliers

Engaging with suppliers is an important way in which we can have a positive impact on communities. We partner with, and help develop, local businesses where we operate, so they can share in our success. Having good relationships with our suppliers also helps us take part in technological and market developments, and we continually strive to improve our supplier experiences. As with our customers, we ask our suppliers to share their feedback in a yearly survey to better understand how we can develop our collaboration. We work closely with our suppliers to create innovative partnerships, such as our partnership with Scania where we are trialling agile autonomous haul trucks.

 **For more information**
see page 98 

\$22.5bn

Spent with suppliers globally in 2022
(2021: \$19.8bn)

40%

Increase in spend with Indigenous suppliers in Australia from 2021 to 2022 to A\$565 million
(2021: by 40% from 2020 to 2021 to A\$400 million)

26Mt CO₂e


Scope 3 emissions from all procurement
(2021: 26Mt CO₂e)

1. Shareholders, primarily through myShare, our global employee share plan.



A change of approach

We have worked with the Yinhawangka people to co-develop a social cultural heritage management plan as part of our proposed development of the Western Range iron ore mine in the Pilbara, Western Australia. The plan includes clearly defined roles and responsibilities regarding life of mine planning, heritage site protection, water management, land access, cultural awareness training and ongoing monitoring of the area. See an interview with Clint, Traditional Owner Engagement Lead in our Iron Ore business, where he shares how the Western Range engagement process differed to our past approach.

 **Learn more**
about how we work with communities on our website.

Key performance indicators

We use a range of financial and non-financial metrics to measure Group performance against our four objectives: to be best operator; to achieve impeccable environmental, social and governance (ESG) credentials; to excel in development; and to strengthen our social licence.

Alignment to our four objectives



All-injury frequency rate (AIFR)

per 200,000 hours worked

2018	0.44
2019	0.42
2020	0.37
2021	0.40
2022	0.40

Alignment to our four objectives and associated risks

- Best operator
- Impeccable ESG credentials

For more information
see page 79.

Definition

We define AIFR as the number of injuries per 200,000 hours worked by employees and contractors at the operations that we manage. It includes medical treatment cases, restricted workday and lost-day injuries.

Relevance to strategy

The safety and wellbeing of our employees and contractors is our number one priority and essential to everything we do.

We are committed to having a safe work environment and our focus is on maintaining zero fatalities, preventing catastrophic events and reducing injuries. We continue to implement our safety maturity model (SMM) which, as our blueprint for safety, describes the systems and behaviours we apply to create a strong safety culture. In 2023, we will begin planning for the integration of our SMM with our Safe Production System. This is our new, people-centric approach to engage our workforce and develop and share best practice solutions across our assets.

We continue to share learnings and strengthen our partnerships with industry and associated committees (eg the International Council on Mining and Metals), contracting partners and local communities to improve health, safety and wellbeing outcomes.

Link to executive remuneration

AIFR and SMM are included as performance metrics in the safety component of the short-term incentive plan (see pages 121-122).

Our performance in 2022

We had a fourth year in a row of zero fatalities. Our AIFR has remained stable at 0.40 compared to 2021.

Forward plan

We will renew focus on our critical risk management programme. We will also work on embedding enhancements to the SMM.

We will increase our focus on managing psychosocial hazards, and continue to innovate to reduce exposure to safety and health risks.

We will continue to implement our major hazard standards, including process safety, underground safety and tailings, and apply strong assurance processes.

Total shareholder return (TSR)¹

measured over the preceding five years
(using annual average share price)

2018	33.4%
2019	49.6%
2020	110.1%
2021	263.3%
2022	134.3%

Alignment to our four objectives and associated risks

- Best operator
- Impeccable ESG credentials
- Excel in development
- Social licence

 **For more information**
see page 79.

Definition

TSR is a combination of share price appreciation (using annual average share price) and dividends paid and reinvested to show the total return to the shareholder over the preceding five years.

Relevance to strategy

Our strategy aims to maximise shareholder returns through the commodity cycle, and TSR is a direct measure of that.

Link to executive remuneration

TSR is reflected in the long-term incentive plan, measured equally against the EMIX Global Mining Index and the MSCI World Index (see pages 124–125 ^{AB}).

Our performance in 2022

TSR performance over the five-year period was driven principally by movements in commodity prices and changes in the global macro environment. Rio Tinto significantly outperformed both the EMIX Global Mining Index and the MSCI World Index over the five-year period.

Forward plan

We will continue to focus on generating free cash flow from our operations. This allows us to return cash to shareholders (short-term returns) while investing in the business (long-term returns).

Underlying earnings and underlying EBITDA

\$ millions

2018	
Underlying earnings	8,808
Underlying EBITDA	18,136
2019	
Underlying earnings	10,373
Underlying EBITDA	21,197
2020	
Underlying earnings	12,448
Underlying EBITDA	23,902
2021	
Underlying earnings	21,380
Underlying EBITDA	37,720
2022	
Underlying earnings	13,275
Underlying EBITDA	26,272

Alignment to our four objectives and associated risks

- Best operator

 **For more information**
see page 79.

Definition

Underlying earnings and underlying EBITDA are non-IFRS measures.

Underlying earnings represents net earnings attributable to the owners of Rio Tinto, adjusted to exclude items that do not reflect the underlying performance of the Group's operations. For more information on these exclusions and a reconciliation to the nearest IFRS measures refer to Alternative Performance Measures (pages 273–278 ^{AB}).

Underlying EBITDA is a segmental performance measure and represents profit before tax, net finance items, depreciation and amortisation. Exclusions from underlying EBITDA and a reconciliation to the nearest IFRS measures can be found in note 1 ^{AB}.

Relevance to strategy

These financial KPIs measure how well we are managing costs, increasing productivity and generating the most revenue from each of our assets.

Link to executive remuneration

Underlying earnings are reflected in the short-term incentive plan. In the longer term, both measures influence TSR, which is the primary measure for the long-term incentive plan (see pages 124–125 ^{AB}).

Our performance in 2022

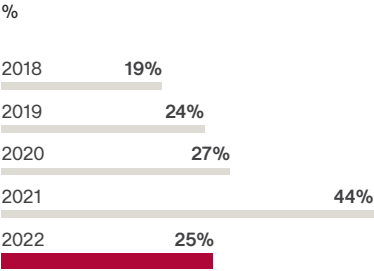
Underlying earnings of \$13.3 billion were \$8.1 billion lower than in 2021. Underlying EBITDA of \$26.3 billion was \$11.4 billion lower than in 2021. The 30% decrease in underlying EBITDA resulted from lower iron ore prices, higher energy and raw material costs, partially offset by movements in sales volumes.

Forward plan

We will continue to drive attractive margins and returns throughout the cycle through a focus on best operating performance and a disciplined focus on cash costs.

1. The TSR calculation for each period is based on the change in the calendar-year average share prices for Rio Tinto plc and Rio Tinto Limited over the preceding five years. This is consistent with the methodology used for calculating the vesting outcomes for Performance Share Awards (PSA). The data presented in this chart accounts for the dual corporate structure of Rio Tinto.

Underlying return on capital employed (ROCE)



Alignment to our four objectives and associated risks

- Best operator
- Excel in development

For more information
see page 79.

Definition

Underlying ROCE is a non-IFRS measure defined as underlying earnings excluding net interest divided by average capital employed (operating assets). For more information and a reconciliation of underlying ROCE to the nearest comparable IFRS measure, see Alternative Performance Measures (pages 273-278).

Relevance to strategy

Our portfolio of low-cost, long-life assets delivers attractive returns throughout the cycle and has been reshaped significantly in recent years. Underlying ROCE measures how efficiently we generate profits from investment in our portfolio of assets.

Link to executive remuneration

Underlying earnings, as a component of underlying ROCE, is included in the short-term incentive plan. In the longer term, underlying ROCE also influences TSR, which is included in the long-term incentive plan (see pages 124-125).

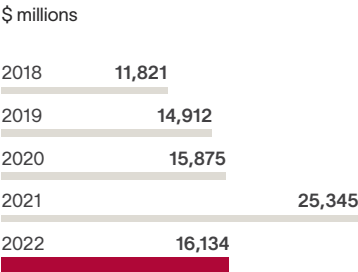
Our performance in 2022

Underlying ROCE decreased 19 percentage points to 25% in 2022, reflecting the decrease in underlying earnings driven by lower iron ore prices, and an increase in capital employed due to capital expenditure and acquisitions.

Forward plan

We will continue to focus on maximising returns from our assets over the short, medium and long term. We will invest in value-accretive growth options for materials that will be privileged in a decarbonising world.

Net cash generated from operating activities



Alignment to our four objectives and associated risks

- Best operator

For more information
see page 79.

Definition

This KPI refers to cash generated by our operations after tax and interest, including dividends received from equity accounted units and dividends paid to non-controlling interests in subsidiaries.

Relevance to strategy

This KPI measures our ability to convert underlying earnings into cash.

Link to executive remuneration

Net cash generated from operating activities is included in the short-term incentive plan. In the longer term, the measure influences TSR, which is included in the long-term incentive plan (see pages 124-125).

Our performance in 2022

Net cash generated from operating activities of \$16.1 billion was 36% lower than 2021. This was primarily due to lower iron ore prices, higher energy and raw material costs partially offset by lower taxes paid.

Forward plan

We will focus on effectively delivering strong and resilient cash flows from our quality portfolio of assets throughout the cycle.

Free cash flow

\$ millions

2018	6,977	
2019	9,158	
2020	9,407	
2021		17,664
2022	9,010	

Alignment to our four objectives and associated risks

- Best operator
- Excel in development

 **For more information**
see page 79.

Definition

Free cash flow is a non-IFRS measure defined as net cash generated from operating activities minus purchases of property, plant and equipment, intangibles, and payments of lease principal, plus proceeds from the sale of property, plant and equipment, and intangible assets. For more information and a reconciliation of free cash flow to the nearest comparable IFRS measure, see Alternative Performance Measures (pages 273–278 ^{AR}).

Relevance to strategy

This KPI measures the net cash returned by the business after the expenditure of sustaining and growth capital. This cash can be used for shareholder returns, reducing debt and other investment.

Link to executive remuneration

Free cash flow is included in the short-term incentive plan. In the longer term, the measure influences TSR, which is included in the long-term incentive plan (see pages 124–125 ^{AR}).

Our performance in 2022

Free cash flow decreased by \$8.7 billion to \$9 billion in 2022, primarily due to the decrease in net cash generated from operating activities. This was partially offset by a decrease in replacement and development capital expenditure as projects reached completion.

Forward plan

We will focus on effectively delivering strong and resilient cash flows from our quality portfolio of assets throughout the cycle.

Net (debt)/cash

\$ millions

2018		255
2019	(3,651)	
2020		(664)
2021		1,576
2022	(4,188)	

Alignment to our four objectives and associated risks

- Best operator
- Excel in development

 **For more information**
see page 79.

Definition

Net (debt)/cash is a non-IFRS measure defined as total borrowings plus lease liabilities less cash and cash equivalents and other liquid investments, adjusted for derivatives related to net (debt)/cash (see note 19 ^{AR} of the financial statements). For more information and a reconciliation of net (debt)/cash to the nearest comparable IFRS measure, see Alternative Performance Measures (pages 273–278 ^{AR}).

Relevance to strategy

This KPI measures how we are managing our balance sheet and capital structure. A strong balance sheet is essential for giving us the flexibility to take advantage of opportunities as they arise, and for returning cash to shareholders.

Link to executive remuneration

Net cash/(debt) is, in part, an outcome of free cash flow, which itself is reflected in the short-term incentive plan. In the longer term, net cash/(debt) influences TSR, which is reflected in the long-term incentive plan (see pages 124–125 ^{AR}).

Our performance in 2022

Net cash reduced by \$5.8 billion in 2022, resulting in a net debt position of \$4.2 billion. This reflected \$11.7 billion returned to shareholders in the year, \$3.0 billion¹ acquisition of the remaining non-controlling interest of TRQ and \$0.8 billion acquisition of the Rincon Lithium Project, partially offset by \$9.0 billion of free cash flow and the \$0.5 billion received from the sale of the Cortez royalty.

Forward plan

We will focus on effectively delivering strong and resilient cash flows from our quality portfolio of assets throughout the cycle.

1. Total consideration of \$3,139 million for the minority interest in TRQ excludes transaction costs of \$74 million. In 2022, we paid \$2,928 million to shareholders and \$33 million of transaction costs. In 2023, we expect to pay the remaining \$41 million of transaction costs and approximately \$211 million to dissenting shareholders, depending on the outcome and timing of dissent proceedings.

Scope 1 and 2 greenhouse gas emissions

(equity Mt CO₂e)

2018 ¹	32.5
2019	31.4
2020	31.7
2021	31.0
2022	30.3

Alignment to our four objectives and associated risks

- Best operator
- Impeccable ESG credentials
- Excel in development
- Social licence

 **For more information**
see page 79.


Definition

We measure our Scope 1 and 2 greenhouse gas emissions on an equity basis. It includes the equity share of Scope 1 and 2 emissions from managed and non-managed operations expressed in million metric tonnes of carbon dioxide equivalent.

Relevance to strategy

Climate risks and opportunities have formed part of our strategic thinking and investment decisions for over two decades. The low-carbon transition is at the heart of our business strategy. We focus on growth in the materials that enable the transition, decarbonising our operations and partnering with our customers to decarbonise our value chains.

Link to executive remuneration

Climate change is included in our ESG metrics for executive remuneration with a weighting of 5% of the short-term incentive plan (see pages 121–122 ). In 2022, we approved or delivered abatement projects towards our 2025 target that would contribute 0.29Mt CO₂ of abatement compared to an abatement target of 0.8Mt that year.

Our performance in 2022

In 2022, our Scope 1 and 2 emissions were 30.3Mt CO₂e, 7% below our 2018 baseline. This reduction is primarily the result of

switching to renewable power at Kennecott and Escondida in prior years, as well as lower than planned production from our Kitimat and Boyne aluminium smelters in 2022. We did not advance the actual implementation of our abatement projects as fast as we would have liked last year. Challenges have included late delivery of equipment, resourcing constraints impacting study progress, construction and commissioning delays, and project readiness.

Forward plan

We announced ambitious climate targets in 2021 and aim to reduce emissions from our operations by 15% by 2025 and by 50% by 2030. We are committed to reaching net zero emissions by 2050. In 2022, we established six abatement programmes, with dedicated people, to focus on the decarbonisation challenges that cut across our product groups: repowering our Pacific Aluminium Operations, renewables, ELYSIS™, alumina process heat, minerals processing and diesel transition. We are building capability and gaining a deeper understanding of our decarbonisation challenge and are better placed to deliver the structural change needed to achieve our 2030 target.

Our progress and plans to meet these targets are summarised in the Climate Action Plan in our 2022 *Climate Change Report*, which can be found at riotinto.com/climate-report.

Gender diversity

representation of women within our workforce

2018	17.7%
2019	18.4%
2020 ²	19.0%
2020 ²	20.1%
2021	21.6%
2022	22.9%

Alignment to our four objectives and associated risks

- Best operator
- Impeccable ESG credentials
- Social licence

 **For more information**
see page 79.


Definition

Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures)³.

Relevance to strategy

Inclusion and diversity are imperative for the sustainable success of the business. Our sustained performance and growth rely on having workforce diversity that is representative of the communities in which we operate and having a workplace where people are valued for who they are and encouraged to contribute to their full potential.

Link to executive remuneration

In 2022, our target was to increase the proportion of women in our workforce by 2 percentage points. This target is included in our ESG metrics for executive remuneration, with a weighting of 5% of the short-term incentive plan. For more information, see pages 121–122 .

Our performance in 2022

In 2022, we increased our representation of women at Rio Tinto by 1.4 percentage points⁴ from 21.6% to 22.9%. This falls short of our 2 percentage points target. The increases were distributed across all levels of the organisation with senior leaders increasing from 27.4% to 28.3%, and operations and general support increasing by 1.1 percentage points to 16.2%.

Forward plan

Our aspiration to increase the proportion of women in our workforce by 2 percentage points year-on-year will continue in 2023.

The implementation of the *Everyday Respect Report* recommendations remain our priority and we are confident that this will improve both the attraction and retention of women and other diverse groups to Rio Tinto. For more information about the Everyday Respect initiative, visit riotinto.com/everydayrespect.

1. The 2018 figure is the baseline for our 2025 and 2030 targets and is adjusted to include emissions from acquisitions and exclude emissions from divestments. Actual emissions in 2018 were 33.7 MtCO₂e.

2. Baseline reset with definition for 2020 to 2021 gender diversity.

3. In 2020, we updated our definition of our total workforce to include those employees who were unavailable for work (eg on parental leave) and temporary contractors. Note: less than 1% of the workforce gender is undeclared.

4. 1.37 percentage points rounded to 1.4 percentage points.

Chief Financial Officer's statement

"We will continue to invest consistently through the cycle, balancing near-term returns to shareholders with reinvestment for growth and de-risking future cash flows."

Solid financial results

Our 2022 financial results were solid, set against a context of record prices and results in 2021. While the business remained resilient, cyclical cost inflation accelerated, leading to pressure on margins. We experienced cost increases as a result of COVID-19, the commodity cycle and broad-based market inflation. Our focus has been to remain disciplined, leading to net cash generated from operating activities of \$16.1 billion, underlying earnings of \$13.3 billion and profit after tax attributable to owners of Rio Tinto of \$12.4 billion.

We maintained our financial strength, ending the year with net debt of \$4.2 billion, compared with a net cash position of \$1.6 billion at the end of 2021, with the movement reflecting, in part, our acquisitions of the Turquoise Hill Resources (TRQ) minorities and the Rincon Lithium Project in Argentina. This balance sheet strength enables us to run our business consistently and maintain investment, regardless of where we are in the cycle. We do not have a net debt target, but have a principles-based approach to anchor the balance sheet around a single A credit rating.

Disciplined investing for growth and decarbonisation

We will continue to invest consistently through the cycle, balancing near-term returns to shareholders with reinvestment for growth and de-risking future cash flows. Essential capital remains our priority for capital allocation. It includes sustaining capital to ensure the integrity of our assets, high-returning replacement projects and decarbonisation investment. This is followed by ordinary dividends within our well-established returns policy. We then test investment in compelling growth projects against debt management and additional cash returns to shareholders.

In 2022, we made some significant investments in growth with the \$0.8 billion acquisition of Rincon and the \$3.1 billion purchase of non-controlling interests in TRQ, giving us a 66% shareholding in the Oyu Tolgoi copper-gold mine, our largest growth project. Our exploration and evaluation spend also gathered momentum at \$0.9 billion, with greenfield exploration mainly focused on copper and evaluation prioritised on those

projects where we expect near-term investment decisions. Capital expenditure decreased by 9% to \$6.8 billion, reflecting a stronger US dollar and the successful commissioning of our Pilbara iron ore replacement projects in Western Australia.

We expect a disciplined increase in capital expenditure over the coming years as our growth projects accelerate and decarbonisation projects advance. This is critical to ensure we have the right portfolio to keep creating value for decades to come, to benefit from the energy transition.

60% average payout on the ordinary dividend over the past seven years

Our shareholder returns policy dates back to 2016. We have committed to returning 40% to 60% of underlying earnings on average through the cycle, with additional returns in periods of strong earnings and cash generation. Over the past seven years, we have paid out at the top end of the range, at 60% for the ordinary dividend, in each year.

We have remained very consistent with our shareholder returns policy, with the payout ratio giving us some flexibility with regard to the macro-economic environment. It remains a core part of our equity story, which we see as paramount for maintaining discipline. Our financial strength means that we can reinvest for growth, accelerate our decarbonisation and continue to pay attractive dividends through the cycle.

For 2022, we are returning 60% of underlying earnings to shareholders, which equates to a full-year ordinary dividend of 492 US cents per share, or \$8.0 billion.

Energy transition drives additional long-term value

We foresee a significant uplift in new demand from the energy transition – adding as much as 25% over and above traditional sources of demand on a copper equivalent basis across our key products by 2035.

Decarbonisation is therefore positive for our industry. Given that the world will need more aluminium, more copper, more high-grade iron ore and more lithium, this is where we are focusing our growth investments.



Net cash generated from operating activities

\$16.1 billion

(2021: \$25.3 billion)

Profit after tax attributable to owners of Rio Tinto (net earnings)

\$12.4 billion

(2021: \$21.1 billion)

Underlying earnings

\$13.3 billion

(2021: \$21.4 billion)

However, we will only invest in quality assets which give robust returns under a range of economic, geopolitical and carbon scenarios, creating a resilient portfolio with significant upside to the energy transition. We will continue to allocate our capital with great discipline and remain committed to attractive shareholder returns, underpinned by our resilient cash flows and the strength of our balance sheet.

Peter Cunningham
Chief Financial Officer

22 February 2023

Financial review

Key financial highlights

In addition to IFRS¹ measures, management uses non-GAAP² measures internally to assess performance. Full reconciliations are provided on page 163 [AR](#) and pages 273 to 278 [AR](#). These measures are highlighted with the symbol ●

At year end	2022	2021	Change
Net cash generated from operating activities (US\$ millions)	16,134	25,345	(36)%
Purchases of property, plant and equipment and intangible assets (US\$ millions)	6,750	7,384	(9)%
Free cash flow ³ (US\$ millions) ●	9,010	17,664	(49)%
Consolidated sales revenue (US\$ millions)	55,554	63,495	(13)%
Underlying EBITDA ³ (US\$ millions) ●	26,272	37,720	(30)%
Profit after tax attributable to owners of Rio Tinto (net earnings) (US\$ millions)	12,420	21,094	(41)%
Underlying earnings per share (EPS) ³ (US cents) ●	819.6	1,321.1	(38)%
Ordinary dividend per share (US cents)	492.0	793.0	(38)%
Special dividend per share (US cents)	—	247.0	(100)%
Total dividend per share (US cents)	492.0	1,040.0	(53)%
Net (debt)/cash ³ (US\$ millions) ●	(4,188)	1,576	
Underlying return on capital employed (ROCE) ³ ●	25%	44%	

Solid financial results in 2022, set against a context of record prices in 2021

- \$16.1 billion net cash generated from operating activities, 36% lower than 2021. This included items of a non-recurring nature which were not representative of the underlying strength of the performance of the business, which, in aggregate, reduced operating cash flow by around \$2 billion. Free cash flow³ of \$9.0 billion included capital expenditure of \$6.8 billion, which decreased 9% as we commissioned our current programme of Pilbara replacement projects, notably Gudai-Darri.
- \$12.4 billion of net earnings, 41% lower than 2021, reflected the movement in commodity prices, the impact of higher energy and raw materials prices on our operations, and higher rates of inflation on our operating costs and closure liabilities. Effective tax rate on net earnings of 30.9% compared with 27.7% in 2021, with the increase being primarily due to the \$0.8 billion write down of deferred tax assets in the US.
- \$26.3 billion underlying EBITDA³ was 30% below 2021, with an underlying EBITDA margin³ of 45%.
- \$13.3 billion underlying earnings³ (underlying EPS³ of 819.6 US cents) were 38% below 2021.
- \$4.2 billion of net debt³ at year end, compared with net cash³ of \$1.6 billion at the start of the year, primarily reflected the free cash flow³ of \$9.0 billion, offset by \$11.7 billion of cash returns to shareholders and \$3.8 billion for the acquisitions of Turquoise Hill Resources (TRQ)⁴ and Rincon Lithium Project.
- \$8.0 billion full-year dividend, equivalent to 492 US cents per share. This represents 60% of underlying earnings, in line with our shareholder returns policy.

Resilient cash flow from operations

	Year ended 31 December 2022 US\$m	Year ended 31 December 2021 US\$m
Net cash generated from operating activities	16,134	25,345
Purchases of property, plant and equipment and intangible assets	(6,750)	(7,384)
Sales of property, plant and equipment	—	61
Lease principal payments	(374)	(358)
Free cash flow³	9,010	17,664
Disposals	80	4
Cash receipt from sale of Cortez royalty	525	—
Dividends paid to equity shareholders	(11,727)	(15,357)
Acquisitions relating to Rincon and McEwen Copper	(850)	—
Purchase of the minority interest in Turquoise Hill Resources Ltd ⁴	(2,961)	—
Other	159	(71)
(Decrease)/Increase in net (debt)/cash³	(5,764)	2,240

1. International Financial Reporting Standards

2. Generally Accepted Accounting Principles

3. This financial performance indicator is a non-IFRS (as defined below) alternative performance measure (APM). It is used internally by management to assess the performance of the business and is therefore considered relevant to readers of this document. It is presented here to give more clarity around the underlying business performance of the Group's operations. APMs are reconciled to directly comparable IFRS financial measures on pages 273 to 278 [AR](#). Our financial results are prepared in accordance with IFRS — see page 148 [AR](#) for further information.

4. Total consideration of \$3,139 million for the minority interest in TRQ excludes transaction costs of \$74 million. In 2022, we paid \$2,928 million to shareholders and \$33 million of transaction costs. In 2023, we expect to pay the remaining \$41 million of transaction costs and approximately \$211 million to dissenting shareholders, depending on the outcome and timing of dissent proceedings.

- \$16.1 billion in net cash generated from operating activities, 36% lower than 2021, was primarily driven by price movements for our major commodities and a \$0.5 billion rise in working capital, primarily due to elevated prices for raw materials in aluminium inventory. We also incurred some items of a non-recurring nature which were not representative of the underlying strength of the performance of the business. These comprised; higher tax payments (relative to profit) in 2022 as a result of a \$1.1 billion (A\$1.5 billion) final payment to the Australian Taxation Office (ATO) in respect of 2021 profits; \$0.4 billion (A\$0.6 billion) settlement with the ATO in respect of 12 historical years; and \$0.4 billion of cash losses from currency hedges on our external dividends. At the end of 2022, we had no material outstanding tax payable on Australian profits.
- We made some significant investments in growth with the \$0.8 billion acquisition of Rincon and the \$3.0 billion² purchase of non-controlling interests in TRQ (including transaction costs), giving us a 66% shareholding in the Oyu Tolgoi copper-gold mine, our largest growth project. Our capital expenditure of \$6.8 billion encompassed \$0.6 billion of growth capital, \$2.2 billion of replacement capital, \$3.9 billion of sustaining capital and \$0.1 billion of decarbonisation spend. We funded our capital expenditure from operating activities and expect to continue funding our capital programme from internal sources, except for the Oyu Tolgoi underground development, which is project-financed.
- \$11.7 billion of dividends paid in 2022, being the 2021 final ordinary and special dividends paid in April 2022 (\$7.6 billion) and the 2022 interim ordinary dividend paid in September (\$4.1 billion), including foreign exchange impacts.
- The above movements, together with disposals including the \$525 million of cash received from the sale of the gross production royalty at the Cortez Complex in Nevada, USA (Cortez royalty), resulted in net cash¹ decreasing by \$5.8 billion in 2022, and gave rise to net debt¹ of \$4.2 billion at 31 December 2022.

Underlying EBITDA and underlying earnings by product group

Year ended 31 December	Underlying EBITDA			Underlying earnings		
	2022 US\$m	2021 US\$m	Change %	2022 US\$m	2021 US\$m	Change %
Iron Ore	18,612	27,592	(33)%	11,182	17,323	(35)%
Aluminium	3,672	4,382	(16)%	1,472	2,468	(40)%
Copper	2,376	3,969	(40)%	521	1,579	(67)%
Minerals	2,419	2,603	(7)%	849	888	(4)%
Reportable segment total	27,079	38,546	(30)%	14,024	22,258	(37)%
Other operations	(16)	(28)	(43)%	(340)	(84)	305 %
Inter-segment transactions	24	42	(43)%	26	19	37 %
Central pension costs, share-based payments, insurance and derivatives	377	110	243 %	374	133	181 %
Restructuring, project and one-off costs	(173)	(80)	116 %	(87)	(51)	71 %
Other central costs	(766)	(613)	25 %	(651)	(585)	11 %
Central exploration and evaluation	(253)	(257)	(2)%	(209)	(215)	(3)%
Net interest				138	(95)	(245)%
Total	26,272	37,720	(30)%	13,275	21,380	(38)%

Underlying EBITDA and underlying earnings are APMs used by management to assess the performance of the business, and provide additional information which investors may find useful. APMs are reconciled to directly comparable IFRS financial measures on pages 273 to 278 [AR](#).

Continuing to invest in greenfield exploration

We have a strong portfolio of greenfield exploration projects in early exploration and studies stages, with activity in 18 countries across seven commodities. This is reflected in our pre-tax central spend of \$253 million in 2022. The bulk of this exploration expenditure was focused on copper projects in Australia, Colombia, Namibia, Peru, the United States and Zambia; diamonds in Angola; and heavy mineral sands projects in Australia and South Africa. Exploration is ongoing for nickel in Canada and Finland and in lithium across all regions, with opportunities emerging in the United States and Africa. Mine-lease exploration continued at Rio Tinto managed businesses, including Pilbara Iron in Australia, Diavik in Canada and Cape York bauxite operations in Australia.

Commentary on financial results

To provide additional insight into the performance of our business, we report underlying EBITDA and underlying earnings. The principal factors explaining the movements in underlying EBITDA are set out in this table.

	US\$m
2021 underlying EBITDA	37,720
Prices	(8,101)
Exchange rates	801
Volumes and mix	606
General inflation	(1,478)
Energy	(1,169)
Operating cash unit costs	(2,202)
Higher exploration and evaluation expenditure	(171)
Non-cash costs/other	266
2022 underlying EBITDA	26,272

1. This financial performance indicator is a non-IFRS (as defined below) alternative performance measure (APM). It is used internally by management to assess the performance of the business and is therefore considered relevant to readers of this document. It is presented here to give more clarity around the underlying business performance of the Group's operations. APMs are reconciled to directly comparable IFRS financial measures on pages 273 to 278 [AR](#). Our financial results are prepared in accordance with IFRS — see page 148 [AR](#) for further information.

2. Total consideration of \$3,139 million for the minority interest in TRQ excludes transaction costs of \$74 million. In 2022, we paid \$2,928 million to shareholders and \$33 million of transaction costs. In 2023, we expect to pay the remaining \$41 million of transaction costs and approximately \$211 million to dissenting shareholders, depending on the outcome and timing of dissent proceedings.

Solid financial results impacted by significant movements in commodity prices

We saw significant movement in pricing for our commodities, amidst growing recession fears and a decline in consumer confidence.

Movements in commodity prices resulted in a \$8,101 million decline in underlying EBITDA overall compared with 2021. This was primarily from lower iron ore prices (\$9,155 million) and lower London Metal Exchange (LME) copper prices and a negative provisional pricing impact (\$733 million).

This was partly offset by a price uplift for our Aluminium business (\$886 million), driven by a first-half rise in LME prices, improved product premiums and higher alumina pricing, which fell away sharply in the second half. We have included a table of prices and exchange rates on page 344 ^{AR}.

The monthly average Platts index for 62% iron fines converted to a Free on Board (FOB) basis was 25% lower on average compared with 2021.

The average LME price for copper was 6% lower, while the average LME aluminium price was 9% higher, compared with 2021. The gold price was flat compared with 2021.

The midwest premium duty paid for aluminium in the US averaged \$655 per tonne, 12% higher than in 2021.

Weaker local currencies during 2022

Compared with 2021, on average, the US dollar strengthened by 8% against the Australian dollar and by 4% against the Canadian dollar. Currency movements increased underlying EBITDA by \$801 million relative to 2021.

Improvement in sales volumes and mix

Higher sales volumes and changes in product mix across the portfolio increased underlying EBITDA by \$606 million compared to 2021. This was mostly attributable to increased iron ore sales from the ramp-up of Gudai-Darri along with higher portside sales in China, and favourable value-added product premiums for our Aluminium business.

Impact of rising inflation and significantly higher energy prices

Average movements in energy prices compared with 2021 reduced underlying EBITDA by \$1,169 million, mainly due to higher diesel prices for our trucks, trains and ships. In addition, rising general price inflation across our global operations resulted in a \$1,478 million reduction in underlying EBITDA, including \$0.2 billion for the impact of higher than expected inflation on closure provisions (for closed or fully impaired sites and environmental liabilities).

Disciplined focus on costs offset some of the market-linked increases

We remained focused on cost control throughout the year, in particular maintaining discipline on fixed costs. However, a rise in our operating cash unit costs reduced underlying EBITDA by \$2,202 million (on a unit cost basis) compared with 2021. This mainly reflected cyclical cost pressures from higher market-linked prices for raw materials, in particular in our Aluminium business. We also experienced fixed cost inefficiencies from lower volumes at our Pacific alumina refineries and at the Boyne aluminium smelter due to production disruptions. In addition, we increased resourcing in our iron ore business to support the ramp-up at Gudai-Darri and targeted investment in pit health and asset maintenance across the Pilbara.

Increasing our global exploration and evaluation activity

We increased our exploration and evaluation expenditure by \$171 million, or 24%, to \$897 million. This was mainly attributable to increased activity at the Simandou iron ore project in Guinea and the Rincon Lithium Project in Argentina.

Non-cash costs/other

Movements in non-cash costs, one-off and other items increased underlying EBITDA by \$266 million compared with 2021. This mainly reflected the acquisition of the remaining 40% of Diavik in November 2021 (+\$163 million), lower incremental COVID-19 costs (+\$123 million), gain on asset sale at Kennecott (+\$133 million) and lower charges to the income statement on updates to closure cost estimates relating to closed and legacy sites (+\$166 million). This was partially offset by reduced capacity at the Kitimat aluminium smelter (-\$329 million) as ramp-up activities progressed in 2022 following the strike which commenced in July 2021.

Net earnings

The principal factors explaining the movements in underlying earnings and net earnings are set out below.

	US\$m
2021 net earnings	21,094
Total changes in underlying EBITDA	(11,448)
Increase in depreciation and amortisation (pre-tax) in underlying earnings	(319)
Increase in interest and finance items (pre-tax) in underlying earnings	(1,112)
Decrease in tax on underlying earnings	3,949
Decrease in underlying earnings attributable to outside interests	825
Total changes in underlying earnings	(8,105)
Changes in exclusions from underlying earnings:	
Write-off of Federal deferred tax assets in the United States	(820)
Movement in exchange differences and gains/losses on derivatives	(683)
Gain recognised by Kitimat relating to LNG Canada's project	(230)
Loss on disposal of interest in subsidiary	(105)
Movement in impairment charges net of reversals	145
Movement in closure estimates (non-operating and fully impaired sites)	793
Gain on sale of Cortez royalty	331
2022 net earnings	12,420

Depreciation and amortisation, net interest and finance items, tax and non-controlling interests

The depreciation and amortisation charge was \$319 million higher than 2021, mainly due to an increase in capitalised closure costs in 2021 at a number of our Aluminium sites. Our capital base was also higher in Iron Ore, Copper and Minerals as a result of our investment activities. This was partially offset by a stronger US dollar against the Australian dollar.

Interest and finance items (pre-tax) were higher mainly as a result of a \$1,101 million increase in amortisation of discount on provisions, as higher inflation had an impact on the Group's closure and restoration/environmental liabilities. The amortisation charge of \$1,517 million (2021: \$415 million) incorporates an estimate of inflation at the start of each six-month reporting period. At the end of each half year we update the underlying cash flows for the latest estimate of experienced inflation for the current financial year and record this as "changes to existing provisions". For operating sites this adjustment usually results in a corresponding adjustment to Property, plant and equipment, and for closed and fully impaired sites the adjustment is charged or credited to the Income statement. These income statement amounts are included within underlying earnings except for the re-measurement of provisions for legacy sites that were never operated by Rio Tinto.

The 2022 effective corporate income tax rate on pre-tax earnings, excluding equity accounted units, was 30.9%, compared with 27.7% in 2021. The effective tax rate on pre-tax earnings in Australia was 31.7% in 2022, compared with 30.7% in 2021. We reached agreement with the Australian Taxation Office (ATO) on all tax matters in dispute. As part of this agreement, in August we paid the ATO additional tax of A\$613 million for the period from 2010 to 2021. Over this 12-year period, we paid nearly A\$80 billion in tax and royalties in Australia.

Items excluded from underlying earnings

The Inflation Reduction Act of 2022 in the United States may give rise to investment credits on some of our existing projects, with longer dated projects potentially becoming more favourable. However, it also includes a new Corporate Alternative Minimum Tax regime, which has led to the Group reviewing the carrying value of US Federal deferred tax balances. The resulting \$820 million write down of Federal deferred tax assets has been excluded from underlying earnings on the grounds of materiality.

In 2022, we recognised an exchange and derivative loss of \$137 million. This includes losses of \$373 million on revaluation of certain derivatives which do not qualify for hedge accounting. These include currency hedges relating to our external dividends, and exchange losses of \$262 million on US dollar debt in non-US dollar functional currency Group companies, partly offset by \$478 million of exchange gains on intragroup balances. These losses compared with a 2021 gain of \$546

million, giving rise to an unfavourable year-on-year movement of \$683 million. The exchange gains are largely offset by currency translation losses recognised in equity. The quantum of US dollar debt is largely unaffected and we will repay it from US dollar sales receipts.

During 2022, LNG Canada elected to terminate their option to purchase additional land at Kitimat, Canada. This resulted in a \$106 million gain which includes the release of deferred income and receipt of a cancellation fee payment. During 2021, we recognised a \$336 million gain on recognition of a new wharf at Kitimat that was built and paid for by LNG Canada. These gains have been excluded from underlying earnings consistent with prior years, as they are part of a series of material transactions unrelated to the core business.

Impairment charges, net of reversals, decreased by \$145 million compared with 2021. In 2022, we impaired the remaining full value of the Boyne Smelter in Queensland, Australia, as a result of reduced capacity and the high cost of energy from the coal-fired power station impacting economic performance. In 2022, we also completed the sale of the Roughrider uranium undeveloped project in Saskatchewan, Canada, which resulted in a reversal of previous impairments.

There is a detailed explanation of the impairment process on pages 165 to 168 ^{AR}.

In 2022, we recognised \$178 million in closure costs representing adjustments to the closure estimates relating to legacy sites where the disturbance preceded ownership by Rio Tinto, including inflationary increases to provisions for these sites in excess of the unwind of discount. This was \$793 million lower than 2021 closure charges, which related to Energy Resources of Australia (ERA), Gove refinery and Diavik closure provision increases, and further increases at a number of the Group's legacy sites where the disturbance preceded our ownership.

In 2022, we completed the \$525 million sale of a gold royalty which was retained following the disposal of the Cortez mine in 2008. The carrying value of the royalty at 31 December 2021 was \$88 million, resulting in a post-tax gain of \$331 million. This has been excluded from underlying earnings on the grounds of materiality.

Profit

Net earnings and underlying earnings refer to amounts attributable to the owners of Rio Tinto. The net profit attributable to the owners of Rio Tinto in 2022 was \$12.4 billion (2021: \$21.1 billion). We recorded a profit after tax in 2022 of \$13.1 billion (2021: \$22.6 billion) of which a profit of \$0.7 billion (2021: \$1.5 billion) was attributable to non-controlling interests.

Net earnings and underlying earnings

The differences between underlying earnings and net earnings are set out in this table (all numbers are after tax and exclude non-controlling interests).

	Year ended 31 December 2022 US\$m	Year ended 31 December 2021 US\$m
Underlying earnings	13,275	21,380
Items excluded from underlying earnings		
Impairment charges net of reversals	(52)	(197)
Gains recognised by Kitimat relating to LNG Canada's project	106	336
Loss on disposal of interest in subsidiary	(105)	—
Foreign exchange and derivative gains on net debt and intragroup balances and derivatives not qualifying for hedge accounting	(137)	546
Change in closure estimates (non-operating and fully impaired sites)	(178)	(971)
Gain on sale of Cortez royalty	331	—
Write-off of Federal deferred tax assets in the United States	(820)	—
Net earnings	12,420	21,094

On pages 274 to 275 ^{AR} there is a detailed reconciliation from underlying earnings to net earnings, including pre-tax amounts and additional explanatory notes. The differences between Profit after tax and underlying EBITDA are set out in the table on page 163 ^{AR}.

Balance sheet

Net cash¹ reduced by \$5.8 billion in 2022, resulting in a net debt¹ position of \$4.2 billion at 31 December 2022. This reflected \$11.7 billion returned to shareholders in the year, \$3.0 billion² acquisition of the remaining non-controlling interest of TRQ and \$0.8 billion acquisition of the Rincon Lithium Project, partially offset by \$9.0 billion of free cash flow and the \$0.5 billion received from the sale of the Cortez royalty.

Our net gearing ratio¹ (net debt/ (cash) to total capital) was 7% at 31 December 2022 (31 December 2021: (3)%), see page 278 [AR](#).

Our total financing liabilities excluding net debt derivatives at 31 December 2022 (see page 191 [AR](#)) were \$12.3 billion (31 December 2021: \$13.5 billion) and the weighted average maturity was around 11 years. At 31 December 2022, approximately 77% of these liabilities were at floating interest rates (85% excluding leases). The maximum amount within non-current borrowings maturing in any one calendar year is \$1.5 billion, which matures in 2024.

We had \$8.8 billion in cash and cash equivalents plus other short-term cash investments at 31 December 2022 (31 December 2021: \$15.2 billion).

Provision for closure costs

At 31 December 2022, provisions for close-down and restoration costs and environmental clean-up obligations were \$15.8 billion (31 December 2021: \$14.5 billion). The principal movements during the year were the result of a remeasurement of underlying cash flows, including the effect of inflation. This was recorded as an increase to mining properties for current operating sites (\$0.5 billion) and as a charge to profit for legacy sites (\$0.5 billion). Also contributing to the increase in the provision was amortisation of discount (\$1.5 billion) which includes the effect of higher inflation in the year. These increases were partly offset by utilisation of the provision through spend (-\$0.6 billion) and a weaker Australian dollar, Canadian dollar and South African rand against the US dollar (-\$0.7 billion).

Of the \$15.8 billion in provisions, \$11.6 billion relates to operating sites and \$4.2 billion is for legacy sites. Remaining lives of operations and infrastructure range from one to over 50 years with an average for all sites, weighted by present closure obligation, of around 15 years (2021: 16 years).

The provisions are based on risk-adjusted real cash flows using a real-rate discount rate of 1.5% to reflect obligations at the present value of cash flows on 31 December 2022 terms.

In 2023, we expect to utilise around \$0.8 billion of the provisions as we advance our closure activities at Argyle, ERA, Gove alumina refinery and legacy sites.

Our shareholder returns policy

The Board is committed to maintaining an appropriate balance between cash returns to shareholders and investment in the business, with the intention of maximising long-term shareholder value.

At the end of each financial period, the Board determines an appropriate total level of ordinary dividend per share. This takes into account the results for the financial year, the outlook for our major commodities, the Board's view of the long-term growth prospects of the business and the company's objective of maintaining a strong balance sheet. The intention is that the balance between the interim and final dividend be weighted to the final dividend.

The Board expects total cash returns to shareholders over the longer term to be in a range of 40% to 60% of underlying earnings in aggregate through the cycle. Acknowledging the cyclical nature of the industry, it is the Board's intention to supplement the ordinary dividend with additional returns to shareholders in periods of strong earnings and cash generation.

60% payout ratio on the ordinary dividend

	2022 US\$ bn	2021 US\$ bn
Ordinary dividend		
Interim	4.3	6.1
Final	3.7	6.7
Full-year ordinary dividend	8.0	12.8
Payout ratio on ordinary dividend	60 %	60 %
Additional returns		
Special dividend announced in July 2021, paid in September 2021	n/a	3.0
Special dividend announced in February 2022, paid in April 2022	n/a	1.0
Total cash returns to shareholders declared*	8.0	16.8
Combined total as % of underlying earnings	60 %	79 %

* Based on weighted average number of shares and declared dividends per share for the respective periods and excluding foreign exchange impacts on payment.

We determine dividends in US dollars. We declare and pay Rio Tinto plc dividends in pounds sterling and Rio Tinto Limited dividends in Australian dollars. The 2022 final dividend has been converted at exchange rates applicable on 21 February 2023 (the latest practicable date before the dividend was declared). American Depositary Receipt (ADR) holders receive dividends at the declared rate in US dollars.

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2. Total consideration of \$3,139 million for the minority interest in TRQ excludes transaction costs of \$74 million. In 2022, we paid \$2,928 million to shareholders and \$33 million of transaction costs. In 2023, we expect to pay the remaining \$41 million of transaction costs and approximately \$211 million to dissenting shareholders, depending on the outcome and timing of dissent proceedings.

Ordinary dividend per share declared	2022	2021
Rio Tinto Group		
Interim (US cents)	267.00	376.00
Final (US cents)	225.00	417.00
Full-year (US cents)	492.00	793.00
Rio Tinto plc		
Interim (UK pence)	221.63	270.84
Final (UK pence)	185.35	306.72
Full-year (UK pence)	406.98	577.56
Rio Tinto Limited		
Interim (Australian cents)	383.70	509.42
Final (Australian cents)	326.49	577.04
Full-year (Australian cents)	710.19	1,086.46
Special dividend per share declared	2022	2021
Rio Tinto Group		
Interim (US cents)	n/a	185.00
Final (US cents)	n/a	62.00
Full-year (US cents)	n/a	247.00
Rio Tinto plc		
Interim (UK pence)	n/a	133.26
Final (UK pence)	n/a	45.60
Full-year (UK pence)	n/a	178.86
Rio Tinto Limited		
Interim (Australian cents)	n/a	250.64
Final (Australian cents)	n/a	85.80
Full-year (Australian cents)	n/a	336.44

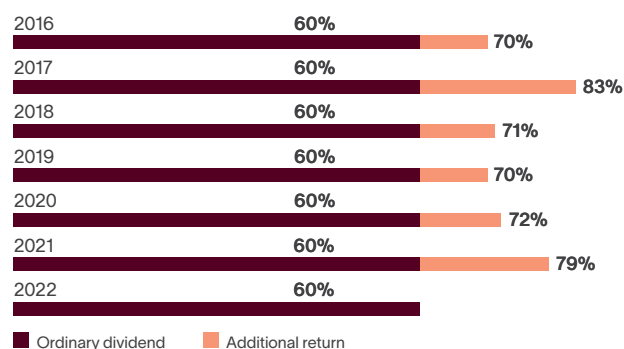
The 2022 final ordinary dividend to be paid to our Rio Tinto Limited shareholders will be fully franked. The Board expects Rio Tinto Limited to be in a position to pay fully franked dividends for the foreseeable future.

On 20 April 2023, we will pay the 2022 final ordinary dividend to holders of ordinary shares and holders of ADRs on the register at the close of business on 10 March 2023 (record date). The ex-dividend date is 9 March 2023.

Rio Tinto plc shareholders may choose to receive their dividend in Australian dollars or New Zealand dollars, and Rio Tinto Limited shareholders may choose to receive theirs in pounds sterling or New Zealand dollars. Currency conversions will be based on the pound sterling, Australian dollar and New Zealand dollar exchange rates five business days before the dividend payment date. Rio Tinto plc and Rio Tinto Limited shareholders must register their currency elections by 28 March 2023.

We will operate our Dividend Reinvestment Plans for the 2022 final dividend (visit riotinto.com for details). Rio Tinto plc and Rio Tinto Limited shareholders' election notice for the Dividend Reinvestment Plans must be received by 28 March 2023. Purchases under the Dividend Reinvestment Plan are made on or as soon as practicable after the dividend payment date and at prevailing market prices. There is no discount available.

Our payout ratio has averaged 72% over the past seven years



Portfolio management

Capital projects

Approved projects (Rio Tinto 100% owned unless otherwise stated)	Total approved capital cost (100% unless otherwise stated)	Status/Milestones
Completed in 2022		
Investment in Gudai-Darri, a new production hub in the Pilbara region of Western Australia. The investment incorporates a processing plant and infrastructure including a 166-kilometre rail line connecting the mine to our existing network.	\$3.1bn	We delivered first ore in June 2022. Production from the mine ramped up in the second half of the year and we expect Gudai-Darri to reach its nameplate capacity of 43 million tonne per year on a sustained basis during 2023. The mine has an expected life of more than 40 years.
Investment in the Robe River Joint Venture (West Angelas C and D and Mesa B, C and H at Robe Valley) in the Pilbara to sustain production capacity.	\$1.0bn (Rio Tinto share)	In the third quarter of 2022, Mesa A rectification works were successfully completed, with the plant operating at design rates. Final train load out tie-in works at Mesa J were also completed, with first ore achieved.
Investment in a second tunnel at the 1000MW Kemano hydropower facility at Kitimat, British Columbia, Canada, which will ensure the long-term reliability of the power supply to the Kitimat smelter.	\$0.8bn	The new 16-kilometre tunnel produced its first megawatt of electricity in July 2022 after construction was completed in May 2022.

Ongoing

Iron Ore

Investment in the Western Range iron ore project, a joint venture between Rio Tinto (54%) and China Baowu Steel Group Co. Ltd (46%) in the Pilbara to sustain production of the Pilbara Blend from Rio Tinto's existing Paraburdoo hub.	\$1.3bn (Rio Tinto share) ¹	Announced in September 2022, the mine will have a production capacity of 25 million tonnes per year. The project includes construction of a primary crusher and an 18-kilometre conveyor connection to the Paraburdoo processing plant. Early works construction commenced in 2022 and major contracts have been awarded by Rio Tinto. First production is anticipated in 2025.
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Copper

Phase two of the south wall pushback to extend mine life at Kennecott by a further six years. A \$108 million investment in underground characterisation studies is ongoing, with \$55 million in development capital approved to commence underground mining.	\$1.5bn	Approved in December 2019, the investment will further extend strip waste rock mining and support additional infrastructure development. This will allow mining to continue into a new area of the orebody between 2026 and 2032.
Development of the Oyu Tolgoi underground copper/gold mine in Mongolia (Rio Tinto 66%), which is expected to produce (from the open pit and underground) an average of ~500,000 tonnes ² of copper per year from 2028 to 2036 and an average of ~350,000 tonnes ² of copper per year for a further five years, compared with 130,000 tonnes in 2022 (open pit).	\$7.06bn ³	The project was originally approved in May 2016 for \$5.3 billion, with an additional \$1.45 billion approved by the Rio Tinto Board in December 2020, following completion of the Definitive Estimate. By the end of 2022, a total of 19 drawbells had been fired. Progression accelerated as a result of improvement initiatives implemented by the Oyu Tolgoi teams, bringing projected first sustainable production from Panel 0 forward to the first quarter of 2023. This followed the comprehensive agreement between the Oyu Tolgoi partners announced in January 2022.

Minerals

Development of the Zulti South project at Richards Bay Minerals (RBM) in South Africa (Rio Tinto 74%).	\$0.5bn	Approved in April 2019 to underpin RBM's supply of zircon and ilmenite over the life of the mine. The project remains on full suspension.
Development of the greenfield Jadar lithium-borates project in Serbia. The development will include an underground mine with associated infrastructure and equipment, including electric haul trucks, as well as a beneficiation chemical processing plant.	\$2.4bn	The Board committed the funding in July 2021, subject to receiving all relevant approvals, permits and licences. We are focused on consultation with all stakeholders to explore all options following the Government of Serbia's cancellation of the Spatial Plan in January 2022.

1. Rio Tinto share includes 100% of funding costs for Paraburdoo plant upgrades.

2. The 500ktpa target (stated as recovered metal) for the Oyu Tolgoi underground and open pit mines is underpinned 21% by Proved Ore Reserves and 79% by Probable Ore Reserves for the years 2028 to 2036. The 350ktpa production target for the following five years is underpinned 22% by Proved Ore Reserves and 78% by Probable Ore Reserves. These production targets have been scheduled from current mine designs by Competent Persons in accordance with the requirements of the *Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves, 2012 Edition (the JORC code)*.

3. A cost and schedule reforecast was performed in June 2022 and estimates that \$7.06 billion is required to complete the Hugo North 1 project (an increase of \$0.3 billion beyond the 2020 Definitive Estimate). The 2022 Reforecast excludes impacts of COVID-19 restrictions arising after June 2022. The 2022 reforecast remains subject to Oyu Tolgoi Board approval.

Future options

Iron Ore: Pilbara brownfields

Over the medium term, our Pilbara system capacity remains between 345 and 360 million tonnes per year. Meeting this range, and the planned product mix, will require the approval and delivery of the next tranche of replacement mines.

In addition to Western Range (Greater Paraburdoo), which has commenced early works construction, other key projects to be delivered over the next five years include Hope Downs 1 Sustaining (Hope Downs 2 and Bedded Hilltop), West Angelas Sustaining, Greater Nammuldi Sustaining and Brockman 4 Sustaining (Brockman Syncline 1). We continue to work closely with local communities, Traditional Owners and government to progress approvals for the new mining projects.

Iron Ore: Rhodes Ridge

In October, Rio Tinto (50%) and Wright Prospecting Pty Ltd (50%) agreed to modernise the joint venture covering the Rhodes Ridge project in the Eastern Pilbara, providing a pathway for development utilising Rio Tinto's rail, port and power infrastructure. Rhodes Ridge contains 5.8 billion tonnes of high grade Mineral Resources at an average grade of 62.3% Fe. The project's total resource, 6.7 billion tonnes at an average grade of 61.6% Fe, represents approximately one third of our existing Resource base in the Pilbara.¹ A resource-drilling programme is currently underway to support future project studies.

The participants have commenced an Order of Magnitude study, conducted by Rio Tinto, which will consider the development of an operation before the end of the decade with initial plant capacity of up to 40 million tonnes annually, subject to the receipt of relevant approvals. We expect to complete the Rhodes Ridge Order of Magnitude study in 2023.

Iron Ore: Simandou

The Simandou iron ore project in Guinea² contains one of the world's largest known undeveloped high-grade low-impurity iron ore deposits, demand for which is increasing as steelmakers look to reduce carbon emissions. Simandou is set to diversify our strong iron ore portfolio, complementing our high-grade Iron Ore Company of Canada products and supporting the long-term attractiveness of our Pilbara Blend[™] offering.

Negotiations towards the co-development of project infrastructure progressed further with the December signing of a non-binding term sheet between our Simfer joint venture, Baowu, Winning Consortium Simandou (WCS) and the Government of Guinea³. The term sheet further establishes the co-development principles following the incorporation of La Compagnie du TransGuinée on 27 July 2022, and is a pivotal next step towards securing the shareholder agreement, cost estimates and regulatory authority approvals necessary to progress the co-development of rail and port facilities.

Lithium: Rincon

We completed the acquisition of the Rincon Lithium Project in Salta province, Argentina in March 2022. Development of a small starter, battery-grade lithium carbonate plant with a capacity of 3,000 tonnes per year is underway.

In July 2022, we approved \$140 million of investment and \$54 million for early works to support a full-scale operation to be expensed through exploration and evaluation expenditure. Construction activities progressed on phase one camp facilities with rooms for 250 persons completed. Airstrip permits were received and contractors mobilised. First saleable production from the small starter plant is expected in the first half of 2024.

Copper: Resolution

The Resolution Copper project is a proposed underground copper mine in the Copper Triangle, in Arizona, United States. It has the potential to supply up to 25% of US copper demand.

The US Forest Service continued work to progress the Final Environmental Impact Statement and complete actions necessary for the land exchange. We continued to advance partnership discussions with several federally recognised Native American Tribes who are part of the formal consultation process.

Copper: Winu

In late 2017, we discovered copper-gold mineralisation at the Winu project in the Paterson Province in Western Australia. In 2021, we reported our first Indicated Mineral Resource. The pathway is expected to take longer than originally anticipated and remains subject to regulatory and other required approvals.

We continued to strengthen our relationships and advanced agreement making with our host Traditional Owners, the Martu and Nyangumarta groups. Planned drilling, fieldwork and study activities continued, strengthening the development pathway ahead of applications for regulatory and other required approvals.

Aluminium: ELYSIS

ELYSIS, our joint venture with Alcoa, supported by Apple, the Government of Canada and the Government of Quebec, is developing a breakthrough inert anode technology that eliminates all direct greenhouse gases from the aluminium smelting process.

Construction of the first commercial-scale prototype cells is underway at our Alma smelter and is expected to become operational in 2023. ELYSIS aims to have its technology available for installation from 2024 and production of larger volumes of carbon-free aluminium approximately two years later.

1. The Mineral Resource estimates for the Rhodes Ridge Joint Venture (JV) were reported in our 2020 Annual Report released to the Australian Securities Exchange (ASX) on 22 February 2021 (and form part of the Pilbara Mineral Resource estimates reported in our 2021 Annual Report released to the ASX on 24 February 2022). The Competent Persons responsible for reporting these Mineral Resource estimates were Mr P Savory, who is a Fellow of The Australasian Institute of Mining and Metallurgy, and Ms N Brajkovich and Mr C Kyngdon, who are Members of The Australasian Institute of Mining and Metallurgy. We are not aware of any new information or data that materially affects these Mineral Resource estimates and confirm that all material assumptions and technical parameters underpinning the estimate continue to apply and have not materially changed. The form and context in which the Competent Persons' findings are presented have not been materially modified from when they were reported. Mineral Resources are quoted in this release on a 100% basis, as dry in-situ tonnes.
2. The Simandou iron ore project operates under the Simfer joint venture where the Government of Guinea holds 15% and Simfer Jersey holds 85%. Simfer Jersey is owned by Rio Tinto (53%) and Chalco Iron Ore Holdings (CIOH) (47%). CIOH is owned by Chinalco (75%), Baowu (20%), China Civil Engineering Construction Corporation (CCECC) (2.5%) and China Harbour Engineering Company (CHEC) (2.5%). This structure has been in place since 2017.
3. This followed notification to Rio Tinto and the Government of Guinea of Baowu's earlier entry into a term sheet agreement with WCS in respect of an investment into WCS mine (blocks 1 and 2) and infrastructure vehicle – an agreement welcomed by Rio Tinto.

Innovation through collaboration

For 150 years, we have been looking for new and better ways of doing things. This drive for continuous improvement is at the core of our purpose, but we cannot do it on our own. Together with our partners, we work on inventing new processes and technologies that can make mining safer, more sustainable and more efficient.

Many of the challenges that lie ahead – from decarbonising our operations to improving productivity – will need new technologies and approaches, some of which have not yet been developed. Nurturing an innovative culture will be essential to helping us meet these challenges.



Look inside a mine of the future™

Autonomous drills, water carts and fuelling units are just a few examples of how innovation is shaping our iron ore operations at Gudai-Darri in Western Australia, our most technologically advanced mine yet. Learn more on our website about how we are partnering with global leaders in technology to ensure Gudai-Darri remains at the pioneering edge of mining well into the future.

 [For more information visit \[www.riotinto.com/news/stories/look-inside-future-mine\]\(https://www.riotinto.com/news/stories/look-inside-future-mine\).](https://www.riotinto.com/news/stories/look-inside-future-mine)

Working safer and smarter


While empowering our people to find more efficient ways of working, we always treat their health and safety as our most important priority. In 2022, we introduced several new technologies to help us work safer and smarter. For example, we are trialling agile autonomous haul trucks together with Scania at our Channar operation in Western Australia's Pilbara region. We use these driverless vehicles in a simulated load and haul cycle environment, and they offer a range of potential safety, productivity and decarbonisation benefits. Channar is the first active site for these vehicles, with plans for a future transition to electric-powered vehicles.

We are also trialling battery-powered electric vehicles underground at our Kennecott operations. As well as offering significant productivity and decarbonisation opportunities, these vehicles also protect the health and safety of our people by minimising exposure to potentially dangerous diesel emissions and particulates underground. We will use the lessons we learn at Kennecott as we continue these trials on other sites in 2023.

We are also partnering with other suppliers, including Komatsu, Caterpillar and Volvo, to progress options for electrified vehicles, with further trials to take place in the coming years. In parallel, we are also working to reduce emissions from our fleet today using biofuels. In 2022, we began trials of renewable diesel at our Boron and Kennecott operations.

We are also focusing on learning and implementing lessons from our own pockets of excellence. In 2021, we launched the Safe Production System (SPS) to improve how we operate our assets, manage performance and help our people innovate. Through SPS, we are drawing on data more efficiently to understand

asset health, maintenance scheduling and bottleneck solutions. We have started to see improved production efficiency, safety and engagement at the sites where we have deployed SPS.

 [For more information about SPS, see our website.](#)

Our Pioneer Portal, used to source innovative solutions to current business challenges, continued to deliver new ideas. In 2022, we launched six new challenges through the portal, focused on developing our people, reducing our environmental footprint, recovering value from our water, and progressing our work towards net zero. We received more than 200 submissions from across the world, resulting in 20 new partnerships underpinned by more than \$40 million in research and development (R&D) funds, significantly reducing our discovery and development cycles.

Product innovation

We have continued our focus on applied innovation and R&D to address technical barriers that may help unlock new orebodies or significantly reduce environmental, social and governance (ESG) impacts. These include:


- **Copper:** advancing commercialisation opportunities for our proprietary Copper Heap Leach technology via the Nuton™ Venture and a range of existing product group and exploration deployment options.
- **Rincon:** developing process technical support for progression of our operations, including a focus on water recovery and recycling and process optimisation.
- **Aluminium:** progressing ELYSIS, our joint venture with Alcoa, supported by Apple and the Governments of Canada and Quebec. ELYSIS is developing a breakthrough technology that eliminates all direct

greenhouse gases from the aluminium smelting process. Construction of the first commercial-scale prototype cells of ELYSIS™ inert anode technology is underway at our Alma smelter, and they are expected to become operational in 2023.

- **Green steelmaking:** development of the innovative Biolron™ process and hydrogen-based steelmaking, and creating a deeper understanding of Pilbara ore characteristics for performance in a green steelmaking world.
- **Technology leveraging:** fast-tracking ideas from our R&D network. Driving R&D ideas and delivery for growth, closure and ESG priorities with a specific focus on resolving technical barriers within critical metals extraction, future net zero flowsheets, mineralised carbon sequestration, dry stack tailings, zero carbon ilmenite smelting, dry processing and hydrogen-based processing.
- **Capability investments:** planning to add battery materials and mineralised carbon sequestration testing facilities.

Accelerating the net zero transition

We cannot realise a decarbonised world without significant progress in technology solutions. Partnering with suppliers, industry and other organisations to reduce emissions, as well as growing and developing new markets, remain key components in our decarbonisation journey. Through these partnerships, we are switching to renewable power, electrifying processing and, where possible, running electric mobile fleets.

 [For more information about how we are working to decarbonise the steel and aluminium value chain, see our 2022 Climate Change Report at \[riotinto.com/climate-report\]\(https://www.riotinto.com/climate-report\).](#)



“This is a crucial time to partner with universities, companies and our competitors to create a lower carbon future and bring in new ideas and technologies as well as development partners to build and install infrastructure in our operations.”

Nigel Steward
Chief Scientist

Partnerships

An interview with Nigel Steward, Chief Scientist, Rio Tinto

Nigel, you were appointed Chief Scientist in 2021. Where do you think we need to focus our future efforts?

Our job is to find solutions for the big challenges across our business. These include health and safety, ESG, carbon abatement, productivity, and growth in critical metals and minerals. We play an important role in introducing new science, technology and expertise to solve problems and identify opportunities; accelerating delivery and facilitating technology and R&D solutions; and collaborating with our product groups to build our internal skills and create an environment where R&D can flourish. We will continue to focus on these areas in 2023.

Through an R&D lens, what critical metals and minerals are we focusing on for the future?

Our products are critical to the energy transition. We will need more aluminium and copper as we electrify the world and replace fossil fuels, and this will also drive steel growth. Other minerals and metals will be required to supply the emerging technologies of the energy transition. Battery systems require lithium and nickel; fuel cells require scandium, cerium, zirconium and yttrium; green hydrogen electrolyzers need iridium, ruthenium, and titanium; flow batteries need vanadium; our 5G phones need gallium and indium; electric vehicles need neodymium and praseodymium; and next generation solar panels will need tellurium. We are focusing on resetting the carbon footprint of today's products; valorising waste or extracting critical minerals in our waste streams; and growing copper, lithium and other battery minerals. We have already had some success: at Kennecott we have extracted tellurium, at Sorel-Tracy, we have extracted scandium and we are finding more opportunities to extract other critical minerals and find uses for our wastes.

What is our biggest challenge with the energy transition?

Speed. The energy transition will require a herculean effort from governments, society and industry to pull this off. An average mine takes eight years of permitting before it can be brought onstream. We also need to transform our flowsheets so that the supply we bring onstream does not have a disproportionate social and environmental cost – the technologies required for this still need much work. We need to create whole supply chains to support these efforts.

We know we cannot do this alone, and we need to bring the outside world in. This is a crucial time to partner with universities, companies and our competitors to create a lower carbon future and bring in new ideas and technologies as well as development partners to build and install infrastructure in our operations.

Who are some of these partners and what do they specialise in?

There are many examples, so I will just touch on what we are doing with start up companies and universities. We created a small venture capital fund to invest in start ups, and we are impressed with the science and technologies being explored. Some of these concepts sound a bit like magic, but to give you a snapshot they involve pulling CO₂ out of the air, low-carbon cementitious products, using biomass as a reductant, aluminium ion batteries and using renewable power to convert water into hydrogen. We have formed several partnerships with universities.

Where do you see our biggest opportunity?

We are researching, developing and implementing so many new technologies to supply the minerals we need for the energy transition as well as reducing the carbon, waste and water footprint of our operations. This may result in new business streams in CO₂ capture and hydrogen, and the sale of what we once thought of as waste, as products.

Some of our new initiatives and partnerships in 2022

- We have set up a new China Technology and Innovation Centre (CTIC) to harness China's leading expertise in research, technology and innovation to help solve some of our operational and business challenges.
 - We are exploring carbon storage potential with a team of climate innovation and research leaders. This three-year project, backed by the US Department of Energy's ARPA-E innovation challenge, will explore new approaches to safely and permanently store carbon as rock.
 - We have become a member of the Australian Remote Operations for Space and Earth organisation, to support our development of new flowsheets for critical minerals.
 - We have become a member of the MIT Future Energy Systems Initiative, the MIT Industrial Liaison Programme, and the MIT Regional Entrepreneurship Acceleration Programme in Western Australia in partnership with Woodside.
 - We are partnering with BHP on new tailings technology that could significantly increase water recovery from mine tailings.
- Through our venture capital fund, we have invested in technology and start ups to help solve critical business challenges. These include:
- **Lumo Analytics:** rapid characterisation of exploration drill core using laser induced breakdown spectroscopy.
 - **TerraCO₂:** supplementary cementitious materials from copper tailings to lower the carbon dioxide emissions of cement and concrete production.
 - **CarbonCapture Inc.:** direct air capture technology to remove carbon dioxide from the atmosphere.
 - **Aymium:** production of high quality, low impurity BioChar to support the net zero CO₂ reduction projects for ilmenite smelting.
 - **Electric Hydrogen:** low-cost green hydrogen production to decarbonise iron and titanium smelting, alumina calcination and steel making.
 - **ElectraLith:** electrically-driven filtration process to extract lithium from brine.
 - **NanoOne:** innovative cathode materials manufacturing for batteries in electric vehicles and energy storage.

Iron Ore

We are one of the world's leading producers of iron ore, the primary raw material in steelmaking. In the Pilbara region of Western Australia, we operate a network of 17 iron ore mines, four port terminals and a rail network spanning nearly 2,000 kilometres. Steel remains essential for ongoing urbanisation and will support the global shift to decarbonise.


Snapshot of the year

0.68 AIFR (2021: 0.67)	68% Pilbara underlying FOB EBITDA margin (2021: 76%)	\$18.6bn Underlying EBITDA (2021: \$27.6bn)	\$30.9bn Segmental revenue (2021: 39.6bn)
\$2.9bn Capital expenditure (2021: \$3.9bn)	\$14.0bn Net cash generated from operating activities (2021: \$19.2bn)	3.1Mt Scope 1 and 2 GHG emissions (equity Mt CO ₂ e) (2021: 3.0Mt)	15,000 Employee numbers (2021: 13,000)

Enabling the low-carbon transition

In 2022, our Iron Ore business's absolute greenhouse gas (GHG) emissions were 3.1Mt CO₂e (on an equity basis), an increase of 0.50Mt CO₂e compared to the 2018 emissions baseline. This was driven by an increase in diesel emissions due to increased haul distances, pre-strip ratios and material movement.

With abundant wind and solar resources in the Pilbara, we are developing large-scale renewables projects to contribute to our emissions reductions targets.


 **For more information** about our decarbonisation efforts in the Iron Ore product group, see our *2022 Climate Change Report* at riotinto.com/climatereport.

Safety


The number of potentially fatal incidents (PFIs) in Iron Ore increased to 25, with vehicle collisions/rollovers and falling objects accounting for the highest number of incidents. Our all-injury frequency rate (AIFR) increased to 0.68 compared to 0.67 for 2021, with the rate of injuries in our contractor workforce decreasing.

We are committed to preventing harm to our people. In 2022, we developed the mentally healthy Iron Ore strategy to mature our workplace safety culture and create an environment where our people are both physically and psychologically safe and healthy.

With changes in workforce dynamics, in particular levels of experience, we examined underlying organisational and people factors to determine the most critical gaps to be addressed. We made significant progress on influencing mindsets, behaviours and the felt experience; however, more work is underway to strengthen the application of existing safety systems such as critical risk management.

 **For more information** about our global health and safety initiatives, see pages 57-58.

In January 2023, a radioactive capsule was lost after being sent offsite to Perth. The capsule was subsequently recovered in a search operation led by Western Australia's Department of Fire and Emergency Services and supported by other agencies. The safety of our communities, our employees, and contractors is our main priority and we are undertaking an investigation, with involvement of the relevant specialist contractor, to ensure it does not happen again.

 **For more information** see the media release on our website.

Iron Ore

Year ended 31 December	2022	2021	Change
Pilbara production (million tonnes – 100%)	324.1	319.7	1%
Pilbara shipments (million tonnes – 100%)	321.6	321.6	–%
Salt production (million tonnes – Rio Tinto share) ¹	5.8	5.8	(2)%
Segmental revenue (US\$ millions)	30,906	39,582	(22)%
Average realised price (US\$ per dry metric tonne, FOB basis)	106.1	143.8	(26)%
Underlying EBITDA (US\$ millions)	18,612	27,592	(33)%
Pilbara underlying FOB EBITDA margin ²	68%	76%	
Underlying earnings (US\$ millions)	11,182	17,323	(35)%
Net cash generated from operating activities (US\$ millions)	14,005	19,177	(27)%
Capital expenditure (US\$ millions) ³	(2,940)	(3,947)	(26)%
Free cash flow (US\$ millions)	11,033	15,172	(27)%
Underlying return on capital employed ⁴	62%	100%	

1. Dampier Salt is reported within Iron Ore, reflecting management responsibility. Iron Ore Company of Canada continues to be reported within Minerals. The Simandou iron ore project in Guinea is reported within Copper.

2. The Pilbara underlying free on board (FOB) EBITDA margin is defined as Pilbara underlying EBITDA divided by Pilbara segmental revenue, excluding freight revenue.

3. Capital expenditure is the net cash outflow on purchases less sales of property, plant and equipment; capitalised evaluation costs; and purchases less sales of other intangible assets.

4. Underlying return on capital employed (ROCE) is defined as underlying earnings excluding net interest divided by average capital employed.

Financial performance

We achieved a number of operational records across the mine and rail system in the second half of 2022, due to operational improvements and the ramp-up of Gudai-Darri. In the year, we safely commissioned our Pilbara projects, despite challenging conditions with COVID-19, labour and supply chain disruptions. The focus now moves to the next tranche of mines starting with Western Range.

Underlying EBITDA of \$18.6 billion was 33% lower than 2021, due to lower prices (\$8.8 billion), following the 25% drop in the monthly average Platts index for 62% iron fines adjusted to an FOB basis. Higher sales volumes were achieved from our portside operations in China, which improved underlying EBITDA by \$0.6 billion. We also increased resourcing to support the ramp-up at Gudai-Darri and targeted investment in pit health and asset maintenance across the Pilbara.

This additional investment, together with rising input prices, including diesel price escalation and labour, resulted in 2022 Pilbara unit cash costs of \$21.3 per tonne (excluding COVID-19 costs of \$0.4 per tonne). This compared with \$18.6 per tonne in 2021 (excluding COVID-19 costs of \$0.5 per tonne).

Our Pilbara operations delivered an underlying FOB EBITDA margin of 68%, compared with 76% in 2021, largely due to the change in the iron ore price.

We price the majority of our iron ore sales (77%) by reference to the average index price, for the month of shipment. In 2022, we priced approximately 10% of sales with reference to the prior quarter's average index lagged by one month with the remainder sold either on current quarter average, current month average or on the spot market. We made approximately 72% of sales including freight and 28% on an FOB basis.

We achieved an average iron ore price of \$97.6 per wet metric tonne on an FOB basis (2021: \$132.3 per wet metric tonne) across our product suite. This equates to \$106.1 per dry metric tonne, assuming 8% moisture (2021: \$143.8 per dry metric tonne), which compares with the monthly average Platts index for 62% iron fines converted to an FOB basis of \$109.8 per dry metric tonne (2021: \$146.9 per dry metric tonne). The 3% lower realised price compared to the Platts index was due to lower average grades, partially offset by higher premiums for lump products.

Segmental revenue for our Pilbara operations included freight revenue of \$2.2 billion (2021: \$2.7 billion).

Net cash generated from operating activities of \$14.0 billion was \$5.2 billion lower than 2021, with lower pricing partly offset by a monetisation of working capital. Free cash flow of \$11.0 billion was \$4.1 billion lower than 2021 due to the factors above, partially offset by a \$1.0 billion reduction in capital expenditure to \$2.9 billion following completion of brownfield mine replacement tie-in projects.



“Last year, we continued to strengthen our partnerships with local communities and Traditional Owners, and made substantial progress in securing the future of our Pilbara business.”

Simon Trott

Chief Executive, Iron Ore



Read the full interview with Simon
on our website.

Review of operations

Pilbara operations produced 324.1 million tonnes (Rio Tinto share 272.9 million tonnes), 1% higher than 2021. Shipments of 321.6 million tonnes (Rio Tinto share 270.8 million tonnes), in line with 2021, included 35.5 million tonnes of lower grade SP10 products, 11% of shipments, on a 100% basis (2021: 11% of shipments).

Performance improvements continued across the system and we achieved a number of operational records in the second half across the mine and rail system. System inventories at the end of December were healthy, including strong blasted stocks, mine stocks and port stocks.

Our iron ore portside sales in China were 24.3 million tonnes in 2022 (14.0 million tonnes in 2021). At the end of the December, inventory levels were 7.8 million tonnes, including 5.5 million tonnes of Pilbara product. In 2022, approximately 80% of our portside sales were either screened or blended in Chinese ports.



For more information

about our capital projects and future growth options, see pages 32–33.

Aluminium

As a global leader in low-carbon aluminium, we are uniquely positioned to further decarbonise our business and support the world's transition towards a lower-carbon footprint. A critical material – lightweight and infinitely recyclable – aluminium is found in diverse products ranging from solar panels to electric vehicles and smartphones.

Snapshot of the year

0.35

AIFR
(2021: 0.33)

29%

Underlying EBITDA margin (integrated operations)
(2021: 38%)

\$3.7bn

Underlying EBITDA
(2021: \$4.4bn)

\$14.1bn

Segmental revenue
(2021: \$12.7bn)

\$1.4bn

Capital expenditure
(2021: \$1.3bn)

\$3.1bn

Net cash generated from operating activities
(2021: \$3.6bn)

21.1Mt

Scope 1 and 2 GHG emissions (equity Mt CO₂e)
(2021: 21.7Mt)

15,000

Employee numbers
(2021: 14,000)

Enabling the low-carbon transition

In 2022, our Aluminium business's absolute greenhouse gas emissions (21.1Mt CO₂e) were 4.4% lower than the 2018 equity baseline (22.0Mt CO₂e). This reduction includes improvements in processing efficiency, increased use of hydroelectric boilers in refining instead of natural gas boilers, and reduced aluminium production at the Kitimat smelter, which continues to ramp up after a strike in 2021. The 2022 emissions intensity of our managed Atlantic smelters, powered by hydroelectricity, was 2.21Mt CO₂e per tonne of aluminium. Our Vaudreuil alumina refinery has one of the lowest carbon footprints of any metallurgical alumina refinery in the world today.



For more information about our decarbonisation efforts in the Aluminium product group, see our *2022 Climate Change Report* at riotinto.com/climatereport.

Safety

In 2022, we continued to progress in our safety maturity journey, expanding our focus on contractors and integrating health and environment into the daily leadership rituals. Our Pacific assets significantly improved their all-injury frequency rate (AIFR) to a best-ever of 0.27, while a difficult year at Kitimat contributed to an AIFR in the Atlantic of 0.43, for an overall AIFR of 0.35 in 2022 compared to 0.33 in 2021. The number of potentially fatal incidents (PFIs) in our business remained steady in 2022 (29), and we remain committed to reducing these risks. The work programme we commenced in 2021 to address overhead crane asset maintenance continued into 2022, and the number of PFIs relating to falling objects has reduced by 47% compared to 2021. We will be integrating the learnings from the 2022 safety maturity model assessments to strengthen our front-line risk assessment and critical risk management programme, as well as our Safe Production System to reduce fatality risk, prevent injuries and stabilise our operations. The occupied building programme helped remove over 2,000 of our workforce from buildings with exposure to process hazards in our business. This programme is a significant step forward for process safety.



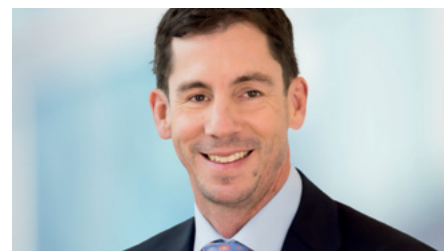
For more information about our global health and safety initiatives, see pages 57–58.

Aluminium

Year ended 31 December	2022	2021	Change
Bauxite production ('000 tonnes – Rio Tinto share)	54,618	54,326	1%
Alumina production ('000 tonnes – Rio Tinto share)	7,544	7,894	(4)%
Aluminium production ('000 tonnes – Rio Tinto share)	3,009	3,151	(4)%
Segmental revenue (US\$ millions)	14,109	12,695	11%
Average realised aluminium price (US\$ per tonne)	3,330	2,899	15%
Underlying EBITDA (US\$ millions)	3,672	4,382	(16)%
Underlying EBITDA margin (integrated operations)	29%	38%	
Underlying earnings (US\$ millions)	1,472	2,468	(40)%
Net cash generated from operating activities (US\$ millions)	3,055	3,606	(15)%
Capital expenditure – excluding EAUs (US\$ millions) ¹	(1,377)	(1,300)	6%
Free cash flow (US\$ millions)	1,652	2,272	(27)%
Underlying return on capital employed ²	10%	16%	

1. Capital expenditure is the net cash outflow on purchases less sales of property, plant and equipment; capitalised evaluation costs; and purchases less sales of other intangible assets. It excludes equity accounted units (EAUs).

2. Underlying return on capital employed (ROCE) is defined as underlying earnings excluding net interest divided by average capital employed.



“2022 has been a year of transition for our Aluminium business. We sustained investment to strengthen the health of our assets, and announced several growth projects including AP60, Alma’s billet centre and early stage expansions in recycling.”

Ivan Vella

Chief Executive, Aluminium



[Read the full interview with Ivan](#)
on our website.

Financial performance

Strong pricing in the first half fell away sharply in the second, which, together with rising energy and raw materials costs, led to a significant margin squeeze on our Aluminium business and a 16% decrease in underlying EBITDA for the year as a whole. Underlying EBITDA margin fell nine percentage points, but remained robust for the year at 29%.

Underlying EBITDA of \$3.7 billion benefited from higher product premiums for primary metal in addition to the stronger pricing environment for primary metal and alumina in the first half. However, this was offset by higher coal prices and costs for key materials such as caustic soda, coke, pitch and anodes, leading to an increase in cash costs for alumina and primary metal. We achieved an average realised aluminium price of \$3,330 per tonne, 15% higher than 2021 (\$2,899 per tonne).

Average realised aluminium prices comprise the LME price, a market premium and a value-added product (VAP) premium. The cash LME price averaged \$2,703 per tonne, 9% higher than 2021, while in our key US market, the Midwest premium duty paid, which is 57% of our volumes (2021: 55%), increased by 12% to \$655 per tonne (2021: \$584 per tonne). Our VAP sales were stable at 50% of the primary metal we sold (2021: 50%) and generated product premiums averaging \$431 per tonne of VAP sold (2021: \$230 per tonne).

Our conversion of underlying EBITDA to cash remained relatively strong, with net cash generated from operating activities of \$3.1 billion and free cash flow of \$1.7 billion.

Review of operations

Bauxite production of 54.6 million tonnes was 1% higher than 2021, despite equipment reliability issues at Weipa and Gove in Australia.

We shipped 38.0 million tonnes of bauxite to third parties in 2022, 1% higher than 2021. In 2022, segmental revenue for bauxite increased 9% to \$2.4 billion this includes freight revenue of \$635 million (2021: \$462 million).

Alumina production of 7.5 million tonnes was 4% lower than 2021. The refineries in the Pacific (Yarwun and Queensland Alumina Limited) were impacted by a range of challenges in 2022, including unplanned outages and equipment reliability issues. COVID-19 absenteeism impacted production in early 2022 but eased in the second half. Production at the Vaudreuil refinery in Quebec remained stable.

As the result of Queensland Alumina Limited's (QAL) activation of a step-in process following sanction measures by the Australian Government, we have taken on 100% of capacity for as long as the step-in continues. We are using Rusal's 20% share of capacity under the tolling arrangement with QAL. This additional output is excluded from our production results as QAL remains 80% owned by Rio Tinto and 20% owned by Rusal.

Aluminium production of 3.0 million tonnes was 4% lower than 2021, due to reduced output at our Kitimat smelter in British Columbia, Canada and Boyne smelter in Queensland, Australia. The rate of pot restarts at Kitimat picked up in the fourth quarter and Boyne smelter cell recovery efforts continued on plan. Recovery at both smelters is progressing, with full ramp-up expected to be completed during the course of 2023. All of our other aluminium smelters continued to demonstrate stable performance.



[For more information](#)
about our capital projects and future growth options, see pages 32–33.

Copper

Copper is essential to creating a sustainable, low-carbon world. Rapid electrification across all aspects of daily life is set to drive long-term demand for copper. With assets spanning the globe and an evolving suite of technologies to enable low-carbon production, we are accelerating growth and decarbonisation by producing the materials that enable a cleaner future.

Snapshot of the year

0.22

AIFR
(2021: 0.21)

49%

Underlying EBITDA
margin (product
group operations)
(2021: 59%)

\$2.4bn

Underlying
EBITDA
(2021: \$4.0bn)

\$6.7bn

Segmental
revenue
(2021: \$7.8bn)

\$1.6bn

Capital
expenditure
(2021: \$1.3bn)

\$1.4bn

Net cash generated
from operating
activities
(2021: \$2.6bn)

1.5Mt

Scope 1 and 2
GHG emissions
(equity Mt CO₂e)
(2021: 2.2Mt)

8,000

Employee
numbers
(2021: 7,000)

Enabling the low-carbon transition

In 2022, our Copper business's absolute greenhouse gas emissions (1.5Mt CO₂e) were 57% lower than the 2018 equity baseline (3.5Mt CO₂e). And we were down 33% in emissions year-on-year. The decrease in emissions was mainly driven by the closure of the coal-fired power plant at Kennecott in 2019, with the balance of power met by the utility with commensurate renewable energy certificates. Escondida also completed its repowering in 2021, sourcing green power for its operations. In 2022, we considered long-term sustainable green power solutions, and how to address emissions from diesel haulage with ongoing trials and studies. This has involved collaborative partnerships with third parties.



For more information

about our decarbonisation efforts in the Copper product group, see our 2022 *Climate Change Report* at riotinto.com/climatereport.

Safety

Our operations and projects continued to progress on their safety maturity journey throughout 2022. We recorded zero fatalities for the fourth consecutive year; however, we continued to see a steady rate of potentially fatal incidents (PFIs) across our assets and the number of PFIs (18) has not changed compared to 2021.

We ended 2022 with an all-injury frequency rate (AIFR) of 0.16 among our employees and 0.26 among our contractors. Our overall AIFR has increased slightly to 0.22 compared to 0.21 in 2021, with significant improvement for employees compared to 2021 (0.26) and a regression for contractors compared to 2021 (0.17). Critical risk management remains a priority. Recognising the disruption caused by the COVID-19 pandemic, we are also increasing our focus on employee wellbeing.



For more information

about our global health and safety initiatives, see pages 57–58.

Copper

Year ended 31 December	2022	2021	Change
Mined copper production ('000 tonnes – Rio Tinto share)	521.1	493.5	6%
Refined copper production ('000 tonnes – Rio Tinto share)	209.2	201.9	4%
Segmental revenue (US\$ millions)	6,699	7,827	(14)%
Average realised copper price (US cents per pound) ¹	403	424	(5)%
Underlying EBITDA (US\$ millions)	2,376	3,969	(40)%
Underlying EBITDA margin (product group operations)	49%	59%	
Underlying earnings (US\$ millions)	521	1,579	(67)%
Net cash generated from operating activities (US\$ millions) ²	1,374	2,634	(48)%
Capital expenditure – excluding EAUs ³ (US\$ millions)	(1,622)	(1,328)	22%
Free cash flow (US\$ millions)	(265)	1,295	(120)%
Underlying return on capital employed (product group operations) ⁴	6%	14%	

1. Average realised price for all units sold. Realised price does not include the impact of the provisional pricing adjustments, which negatively impacted revenues by \$175 million (2021: \$246 million benefit).

2. Net cash generated from operating activities excludes the operating cash flows of equity accounted units (EAUs) but includes dividends from EAUs (Escondida).

3. Capital expenditure is the net cash outflow on purchases less sales of property, plant and equipment, capitalised evaluation costs and purchases less sales of other intangible assets. It excludes EAUs.

4. Underlying return on capital employed (ROCE) is defined as underlying earnings (product group operations) excluding net interest divided by average capital employed.

Financial performance

Underlying EBITDA was down 40% to \$2.4 billion, with \$0.7 billion of the reduction a result of lower copper prices, particularly in the second half of the year. An anticipated decrease in by-product sales volumes (particularly lower gold in concentrate at Oyu Tolgoi), rising cash costs, higher energy prices and an increase in exploration and evaluation expenditure also impacted EBITDA in 2022. Underlying EBITDA margin remained strong at 49%.

Our copper unit costs, at 163 cents per pound, increased by 81 cents, largely driven by the decline in by-product credits, together with rising input and higher labour costs, following the implementation of new labour laws in Mongolia and a new five-year collective bargaining agreement at Kennecott.

We generated \$1.4 billion in net cash from operating activities, a 48% decrease on 2021, from the same drivers as underlying EBITDA, together with a smaller increase in working capital compared to 2021.

Negative free cash flow of \$0.3 billion reflected the significant investment of \$2.0 billion in our projects, an increase of 26% on 2021. This mainly related to the ongoing development of the Oyu Tolgoi underground project, underground growth projects at Kennecott and the Simandou iron ore project in Guinea.

Review of operations

Mined copper production, at 521 thousand tonnes, was 6% higher than 2021 due to higher grades at Kennecott and Escondida, partly offset by lower grades and recoveries at Oyu Tolgoi as a result of planned mine sequencing.

The 4% increase in refined copper production to 209 thousand tonnes mainly reflected a furnace failure in 2021 at Kennecott which resulted in the smelter being offline for the majority of the fourth quarter of 2021.

Unplanned maintenance was required in the fourth quarter of 2022 in our anode furnaces, leading to extended downtime and continued poor anode production.

Oyu Tolgoi underground project

A comprehensive agreement was reached with the Government of Mongolia on 25 January 2022, resetting the relationship between the partners, increasing the value the project delivers for Mongolia, and allowing underground operations to commence.

In 2022, Rio Tinto and the Government of Mongolia remained focused on supporting Oyu Tolgoi to reach the sustainable production milestone, and continuing progress on the remaining measures contained in Mongolian Parliamentary Resolution 103.

At the end of 2022, a total of 19 drawbells had been fired. Drawbell progression accelerated as a result of improvement initiatives implemented by the Oyu Tolgoi teams, bringing projected first sustainable production from Panel O forward to the first quarter of 2023 (previously first half of 2023).



“2022 has been a year of achievements. In January we reached an agreement with the Government of Mongolia, started the undercut at Oyu Tolgoi and completed the acquisition of Turquoise Hill Resources in December. In Guinea, we signed the infrastructure joint venture with our Chinese partners and the Government to unlock Simandou.”

Bold Baatar

Chief Executive, Copper



Read the full interview with Bold on our website.

At the end of December, shafts 3 and 4 sinking had reached 378 metres and 507 metres below ground level respectively. Operational safety sinking pauses have caused some delays against the 2022 reforecast⁵ to shaft sinking. Final depths required for shafts 3 and 4 are 1,148 and 1,149 metres below ground level respectively. Construction of conveyor-to-surface works continued with civil scope of works completed and other contractors mobilised to site.

Study work for Panels 1 and 2, which are required to support the ramp-up to 95,000 tonnes of ore per day, remains on track to be completed in the first half of 2023. It will incorporate any ventilation impacts due to the shaft 3 and 4 delays as a result of COVID-19 restrictions and reprioritisation of the mobilised workforce over the course of 2022.

On 16 December, we completed the acquisition of Turquoise Hill Resources Ltd (TRQ) for consideration of approximately \$3.1 billion⁶, simplifying ownership of the Oyu Tolgoi mine, significantly strengthening our copper portfolio, and demonstrating our long-term commitment to the project and Mongolia. We now hold a 66% direct interest with the remaining 34% owned by the Government of Mongolia through Erdenes Oyu Tolgoi. This is allowing us to focus fully on strengthening our relationship with the Government of Mongolia and moving the project forward with a simpler and more efficient ownership and governance structure.



For more information about our capital projects and future growth options, see pages 32–33.

5. A cost and schedule reforecast was performed in June 2022 and estimates that \$7.06 billion is required to complete the Hugo North 1 project (an increase of \$0.3 billion beyond the 2020 Definitive Estimate). The 2022 Reforecast excludes impacts of COVID-19 restrictions arising after June 2022. The 2022 reforecast remains subject to Oyu Tolgoi Board approval.

6. Total consideration of \$3,139 million for the minority interest in TRQ excludes transaction costs of \$74 million. In 2022, we paid \$2,928 million to shareholders and \$33 million of transaction costs. In 2023, we expect to pay the remaining \$41 million of transaction costs and approximately \$211 million to dissenting shareholders, depending on the outcome and timing of dissent proceedings.

Minerals

Our Minerals portfolio includes a global suite of businesses producing materials essential to a low-carbon future and projects well-positioned to meet the growing demand for electric vehicles.

We produce high-grade, low-impurity iron ore pellets and concentrate, titanium dioxide, diamonds and borates from our operations in Canada, Madagascar, South Africa and the US.

Snapshot of the year

0.38

AIFR
(2021: 0.38)

40%

Underlying EBITDA margin (product group operations)
(2021: 43%)

\$2.4bn

Underlying EBITDA
(2021: \$2.6bn)

\$6.8bn

Segmental revenue
(2021: \$6.5bn)

\$0.7bn

Capital expenditure
(2021: \$0.6bn)

\$1.5bn

Net cash generated from operating activities
(2021: \$1.4bn)

4.0Mt

Scope 1 and 2 GHG emissions (equity Mt CO₂e)
(2021: 3.5Mt)

9,000

Employee numbers
(2021: 9,000)

Enabling the low-carbon transition

In 2022, our Minerals product group's absolute greenhouse emissions were 4.0Mt CO₂e, an increase of approximately 12.5% from 2021 levels¹. The increase in emissions was mainly driven by Richards Bay Minerals (RBM) operating continuously in 2022 as opposed to reduced production in 2021. In 2022, we also advanced several key strategic decarbonisation projects. For example, we signed a 130MW solar power purchase agreement with Voltalia at RBM in South Africa, which would eventually deliver abatement of more than 200kt CO₂/year in 2025. We have also partnered with the Government of Canada in support of technological innovations at our Rio Tinto Iron and Titanium Quebec Operations in Sorel-Tracy, such as the BlueSmelting™ project, a new ilmenite smelting technology that, if fully implemented, has the potential to deliver a reduction of up to 70% in the site's overall greenhouse gas emissions.



For more information

about our decarbonisation efforts in the Minerals product group, see our *2022 Climate Change Report* at riotinto.com/climatereport.

Safety

For the fourth consecutive year, we recorded zero fatalities. In 2022, we saw an increase in the number of potentially fatal incidents (PFIs) with 19 this year, compared to 16 in 2021. The rate of injuries remained the same, with our all-injury frequency rate (AIFR) at 0.38. However, we ended 2022 with a significant increase in the AIFR of our contractor workforce, going from 0.22 in 2021 to 0.42 in 2022.

In 2023, we will continue our improvement journey, enabled by the safety maturity model, including health and environment, to achieve our objectives of creating a safe and productive workplace for our employees and contractor partners.



For more information

about our global health and safety initiatives, see pages 57–58.

¹ Our baseline emissions have been adjusted to reflect the increase in Rio Tinto's ownership interest of Diavik Diamond Mine from 60% to 100% in November 2021.

Minerals

Year ended 31 December	2022	2021	Change
Iron ore pellets and concentrates production ¹ (million tonnes – Rio Tinto share)	10.3	9.7	6%
Titanium dioxide slag production ('000 tonnes – Rio Tinto share)	1,200	1,014	18%
Borates production ('000 tonnes – Rio Tinto share)	532	488	9%
Diamonds production ('000 carats – Rio Tinto share) ²	4,651	3,847	21%
Segmental revenue (US\$ millions)	6,754	6,481	4%
Underlying EBITDA (US\$ millions)	2,419	2,603	(7)%
Underlying EBITDA margin (product group operations)	40%	43%	
Underlying earnings (US\$ millions)	849	888	(4)%
Net cash generated from operating activities (US\$ millions)	1,522	1,433	6%
Capital expenditure (US\$ millions) ³	(679)	(644)	5%
Free cash flow (US\$ millions)	814	762	7%
Underlying return on capital employed (product group operations) ⁴	22%	21%	

1. Iron Ore Company of Canada (IOC) continues to be reported within Minerals.

2. On 17 November 2021, Rio Tinto's interest in Diavik increased from 60% to 100%. Production and financials reflect this from 1 November 2021.

3. Capital expenditure is the net cash outflow on purchases less sales of property, plant and equipment; capitalised evaluation costs; and purchases less sales of other intangible assets.

4. Underlying return on capital employed (ROCE) is defined as underlying earnings (product group operations) excluding net interest divided by average capital employed.

Financial performance

In 2022, we benefited from strong market conditions for titanium dioxide pigment and borates, partially offset by a weaker market for iron ore pellets and concentrate, albeit off record levels. We also saw higher diamond prices compared with 2021, following a pandemic-related build up of demand and low inventory levels.

Underlying EBITDA of \$2.4 billion was 7% lower than 2021, primarily due to inflationary pressures, energy price increases and Rincon evaluation costs. This was partially offset by prices and higher EBITDA in relation to the increased ownership in Diavik.

Net cash generated from operating activities of \$1.5 billion was 6% higher than 2021, while free cash flow of \$0.8 billion was 7% higher, reflecting a higher EBITDA cash conversion supported by lower dividends paid to holders of non-controlling interests at Iron Ore Company of Canada.

Review of operations

Production of iron ore pellets and concentrate at IOC was 6% higher than 2021 due to the successful deployment of the Safe Production System (SPS) at the concentrator, which was completed in the year. Record performance metrics were achieved in the year, including monthly records for concentrate production and total material moved in the second quarter. Planning for SPS deployment at the pellet plant commenced in December.

Titanium dioxide production of 1.2 million tonnes was 18% higher than 2021 due to community disruptions at Richards Bay Minerals (RBM) in South Africa in 2021, and continued improved performance of operations at Rio Tinto Iron and Titanium Quebec Operations, Canada. Nationwide loadshedding of electrical power caused production constraints at RBM in late 2022.

Borates production was 9% higher than 2021, with strong production rates, higher grades and improved equipment reliability.

Our share of carats recovered was 21% higher than 2021, from our increased share of production since taking 100% ownership of Diavik in November 2021, partly offset by lower carats recovered due to lower grades.

 **For more information** about our capital projects and future growth options, see pages 32–33.



“We’re working hard in the critical minerals space. For example, we’re extracting high purity scandium oxide from the waste streams of titanium dioxide production, and we continue to invest in research and development and form key partnerships with experts from industry, academia and government.”

Sinead Kaufman

Chief Executive, Minerals



Read the full interview with Sinead on our website.

Lithium, a material for the future

The Rincon Lithium Project – a large, undeveloped lithium-brine project located in the heart of the “lithium triangle” in Argentina – will be a valuable source of rapidly produced, high-quality lithium for the global energy transition.

A long-life, scalable resource capable of producing battery-grade lithium carbonate from raw brine, the project will help us deliver this vital resource to the global energy industry while meeting our commitment to decarbonise our operations by 2050.

With the Rincon acquisition completed in early 2022, we are now developing a three thousand tonne per annum lithium carbonate starter plant. To optimise the process and recoveries, we also continue to produce battery-grade lithium carbonate from raw brine from the existing pilot plant operating at site. We are now advancing detailed studies for the full scale of operation and progressing exploration activities to further understand Rincon's basin and brine reservoir. We continue to engage with communities, the province of Salta and the Government of Argentina to ensure an open and transparent dialogue with stakeholders about the works underway.

Commercial

Our Commercial team includes global sales and marketing, procurement, and marine and logistics operations. We are the primary interface with markets, customers and suppliers – local, regional and global – through a network of over 20,000 active suppliers and almost 2,000 customers.

As the key interface to the market, our Commercial team works very closely with our customers and suppliers. We generate insights and opportunities to unlock the full commercial potential across our value chains, always striving to find better ways to provide the materials the world needs.



Finding solutions to shipping's global carbon emissions

Maritime shipping is responsible for around one billion tonnes of CO₂ emissions every year, accounting for nearly 3% of global carbon emissions. As the largest shipper by tonnage in the world, we have a role to play. We are actively exploring partnerships to achieve our commitment to have net zero vessels in our portfolio by 2030, while taking actions to reduce emissions through efficiency initiatives and alternative fuels.



For more information

visit www.riotinto.com/news/stories/decarbonising-the-high-seas.

Safety and wellbeing

In 2022, we recorded zero fatalities and a 0.14 all-injury frequency rate (AIFR), compared to 0.07 for 2021. As we continue to navigate COVID-19 impacts, we have maintained our strong focus on critical risk management and prevention programmes across areas of greatest exposure.

We continue to work on our safety performance within our maritime fleet of 17 owned, and more than 230 contracted, vessels. Although we had no fatalities on our managed operations in 2022, tragically, there was a fatality on one of the non-managed marine vessels and, in a separate incident, another mariner suffered a permanent disabling injury. We are determined to improve maritime safety for our industry and we are working closely with our shipping partners, industry associations and other mining companies.

Customer partnerships

In our mission to find better ways to provide the materials the world needs, we partner with customers to work towards our shared goal of enabling the world's transition to a low-carbon future. In 2022, some initiatives included:

- Signing a separate memorandum of understanding (MoU) with both the Ford Motor Company and Volvo Group, each of which leverages our advantage as a one-stop multi-commodity supplier for sustainable products and solutions in the low-carbon transition. Ford will also explore becoming the foundational customer for our Rincon Lithium Project in Argentina to support its production of electric vehicles.
- Strengthening our low-carbon product offering with aluminium produced by ELYSIS™ emissions-free smelting technology, used by Apple (in their iPhone SE), and Corona Canada (in Canada's first specially marked, low-carbon aluminium cans).
- Leveraging START™, our blockchain technology, to provide over 110 customers with 14 key ESG metrics. Via a QR code,

consumers can see how products were made from the mine to their hands and make more informed choices on what they buy.

- Signing a separate MoU with both Shougang Group and Salzgitter Flachstahl, and continuing significant partnerships with Nippon Steel Corporation, BlueScope, and Baowu to develop low-carbon solutions for the steel value chain. We have also successfully proven the effectiveness of Biolron™, a low-carbon iron-making process using raw sustainable biomass and microwaves.

Supplier partnerships

In the areas where we operate, we work hard to partner with and develop local businesses so they can share in our success. In 2022, we increased our spend with Indigenous suppliers in Australia by 40% from 2021 to A\$565 million.

We also actively seek partnerships with our suppliers to reduce our own emissions. In 2022, we have:

- Continued our partnership with Scania to develop smaller and more agile autonomous haul trucks. In April 2022, we launched new trials on Scania's 40-tonne-payload autonomous mining trucks and quickly reached a key milestone of driverless operation in a simulated load and haul cycle environment. These trucks will require less energy and have a smaller infrastructure footprint.
- Signed an MoU with Volvo Group to work towards decarbonising our operations through piloting Volvo's sustainable autonomous hauling solutions.
- Joined the First Movers Coalition, a global initiative to help commercialise zero-carbon technologies by harnessing purchasing power and supply chains.



For more information

about our decarbonisation initiatives, see our *2022 Climate Change Report* at riotinto.com/climate-report.

Snapshot of the year

\$55.6 billion

Group consolidated sales revenue
(2021: \$63.5bn)

2,600

sea voyages

2,100

contracts under management
(2021: 2,100)

\$20.7 billion

in contestable spend globally
(2021: \$17.9bn)

106,000

shipments by rail, truck and containers

A\$565 million

spent with Indigenous suppliers in Australia,
an increase of 40% from 2021
(2021: A\$400m)

42%

increase in spend with Chinese suppliers
from 2021
(2021: 44%)

Marine and logistics

To deliver our climate commitments on shipping, we are focusing on improving fuel efficiency, increasing the use of transitional fuels and partnering to develop end-state fuels. In 2021, we committed to reduce our CO₂ emissions intensity in shipping by 40% by 2025, five years ahead of the International Maritime Organisation (IMO) deadline. To date, we have achieved a 30% intensity reduction in conventional fuel use from an IMO 2008 baseline through operational and technical measures such as weather routing, schedule optimisation and vessel modifications.

We have a year-long biofuel trial underway and we recently received the first of nine dual-fuelled liquified natural gas-powered vessels that we are introducing into our fleet. We continue to support new technologies and industry collaborations that will contribute to the industry's low-carbon transition, including through our strategic partnerships with the Maersk Mc-Kinney Moller Center for Zero Carbon Shipping and the Global Maritime Forum.



For more information

about our shipping decarbonisation efforts, see our *2022 Climate Change Report* at riotinto.com/climate-report.

Commercial insight and outlook

Economic growth and commodity demand started positively in 2022 as the world continued its recovery from the pandemic downturn. However, the large supply shock brought about by the war in Ukraine led to energy security concerns and exacerbated inflationary pressures, while a resurgence of COVID-19 lockdowns and outbreak in China affected business activities and consumer confidence. High inflation prompted many countries, led by the US, to aggressively tighten monetary policy to re-establish price stability. These risks are carried over to 2023, and the global economy is expected to slow further. China's economic recovery from COVID-19 remains volatile, while the Chinese Government provides support to stabilise the economy, especially in the infrastructure and real estate sectors.

Iron ore

Following three consecutive years of growth to a 2021 all-time high, iron ore demand simultaneously contracted in China and the rest of the world for the first time since the beginning of the COVID-19 pandemic. The Chinese property market slump continued to worsen, while extended COVID-19 restrictions impacted China's steel demand, exerting downward pressure on prices. There were also headwinds to ex-China iron ore demand, which was negatively impacted by sharply higher energy and raw materials costs to steel producers. Iron ore prices were more resilient and market fundamentals tighter than consensus expectations because the demand weakness was offset, and at times outweighed, by even lower supply.

Combined shipments from major producers were effectively unchanged year-on-year in 2022, but remained below the volume delivered in 2018. Meanwhile, a combination of price-related and other external factors reduced overall seaborne supply. These included small-scale, high-cost producers who discontinued operations when prices declined below break-even points; supply disruptions due to the war in Ukraine; and India's decision to impose export tariffs on iron ore. Despite the introduction of a range of supportive policies and growth targets, China's domestic iron ore production also declined year-on-year in 2022 following a number of safety accidents and the imposition of operating restrictions.

Aluminium

The aluminium price rose in the first quarter of 2022 to a multi-year high, on expectations of stronger demand outlook and Russian aluminium supply cuts, both of which eventually did not materialise. The price then fell to its low point in the third quarter as fears of a global economic slowdown set in, and Chinese aluminium production rose on restarts and commissioning of new capacity. Chinese aluminium domestic demand also weakened due to COVID-19 restrictions, especially in the building and construction sector. However, the aluminium price stabilised in the fourth quarter as a result of a high level of smelter curtailments in Europe given high energy costs, and curtailments in Southern China given drought conditions and low hydropower levels.

Global aluminium inventories remained low and the market deficit provided support to the aluminium price. Elevated carbon raw material and energy prices resulted in the industry facing a significant margin squeeze in the second half of 2022.

Copper

After a record quarterly average price was reached in the first quarter of 2022, copper prices trended down from late April, as a wave of uncertainty surrounding the global economy and China's COVID-zero policy weighed on the prospects for copper demand. The average price in the third quarter was the lowest quarterly average since the fourth quarter of 2020. Global visible copper cathode inventories fell to multi-year lows, providing support to prices.

Mine supply growth, while remaining positive, stalled in 2022 due to issues such as water availability, geological and geotechnical challenges, and slower project ramp-ups contributing to a higher level of disruptions to production. Mine supply growth is expected to return over the 2023 to 2024 period, as committed projects get underway after earlier delays.



"Commercial is the key interface between our assets and the markets, our customers and suppliers. Our mission is to generate insights and opportunities to unlock Rio Tinto's full commercial potential across our value chains and future growth opportunities. We will always strive to find better ways to serve our customers and provide the materials the world needs."

Alf Barrios

Chief Commercial Officer



Read the full interview with Alf on our website.

Minerals

There was low demand growth for titanium dioxide (TiO₂) pigment in 2022 as weakness in China and the EU was only partially offset by growth in North America. Nevertheless, prices were supported by tight global high-grade supply. Inventories remained low in 2022 but are expected to grow in 2023. Structural factors relating to orebody depletion remain favourable for high-grade TiO₂ feedstock and zircon markets.

Lithium prices remained elevated on strong demand. The electric vehicle market continues to experience strong growth, supported by government policies.

There was strong buying activity for borates in 2022 due to persistent supply tightness, resulting in prices closing the year at a decade high.

In diamonds, prices started 2022 with strong growth but have cooled amid weakening demand. Global diamond supply remains stable, which is resulting in some inventory accumulation through the supply chain.



Our approach to sustainability

For 150 years, we have been entrusted with accessing the world's essential materials and making them available for society's use.

These resources are finite, and as temporary custodians of the land where we operate, we have a responsibility to extract the full value from the minerals and materials we produce in the safest and most sustainable way possible.

Our approach to sustainability is guided by our purpose: finding better ways to provide the materials the world needs. Our shareholders, employees and host governments expect us to find ways to lower our impact, decarbonise our operations and increase circularity, while contributing to a positive legacy for the host communities and countries where we operate.

And we have a big role to play in the world's transition to a low-carbon future – the materials we produce are essential in many low-carbon technologies. It means we must deliver our own decarbonisation, alongside investing in research and development that enables our customers to decarbonise more quickly.

We know that responsibly managing our business impacts is fundamental if we want to continue to grow and deliver on our strategy. Two of our core objectives in our strategy relate to strengthening our social licence and achieving impeccable environmental, social and governance (ESG) credentials. As part of these commitments, we align our business priorities with society's expectations and ensure sustainability considerations are at the core of every decision we make.

To meet our goals, we are focusing on developing the right mindset and culture, encouraging our people to work together to find new solutions and building partnerships with those who share our ambition for a more sustainable future.

Our sustainability framework

Our sustainability framework describes how we manage the ESG issues that are important to us and our stakeholders, and how we contribute to the United Nations Sustainable Development Goals (UN SDGs).

Our sustainability framework guides our work towards achieving impeccable ESG credentials and strengthening our social licence. This includes providing people and communities with economic opportunities; safeguarding and promoting the health, wellbeing and human rights of people and communities; combatting climate change; and being excellent stewards of the natural resources entrusted to us.

Our commitment to running a transparent, values-based, ethical business underpins all our work.

People and society:

Supporting social and economic opportunity

We aim to:

- Provide people and communities with social and economic opportunities so that they can live and grow sustainably.
- Play our role to advance a fair and socially inclusive energy transition.

Becoming a socially responsible business partner

We aim to:

- Build a healthy, diverse and inclusive workforce, support local communities to achieve their goals and aspirations and deliver positive social outcomes.

Planet:

Supplying low-intensity materials

We aim to:

- Decarbonise our value chains (Scope 3) and maximise the full value of our resources.
- Encourage circularity and provide critical minerals that the world needs to advance.

Becoming a trusted steward of resources

We aim to:

- Decarbonise our operations (Scope 1 and 2 reduction).
- Minimise environmental and heritage impacts and act as a responsible steward of water and biodiversity to strengthen our resilience to a changing environment, assessing impacts across the supply chain.

The United Nations Sustainable Development Goals

Our approach to sustainability aligns with the United Nations Sustainable Development Goals (UN SDGs), which are recognised as the global blueprint for a sustainable future. The SDGs are a useful reference point to ensure our sustainable focus areas reflect society's expectations and help us direct our efforts where they can deliver the most impact.

Our sustainability framework focuses on the two lead goals that we feel are most relevant to operating our business responsibly and where we can have the biggest impact: responsible consumption and production (SDG 12) and decent work and economic growth (SDG 8).

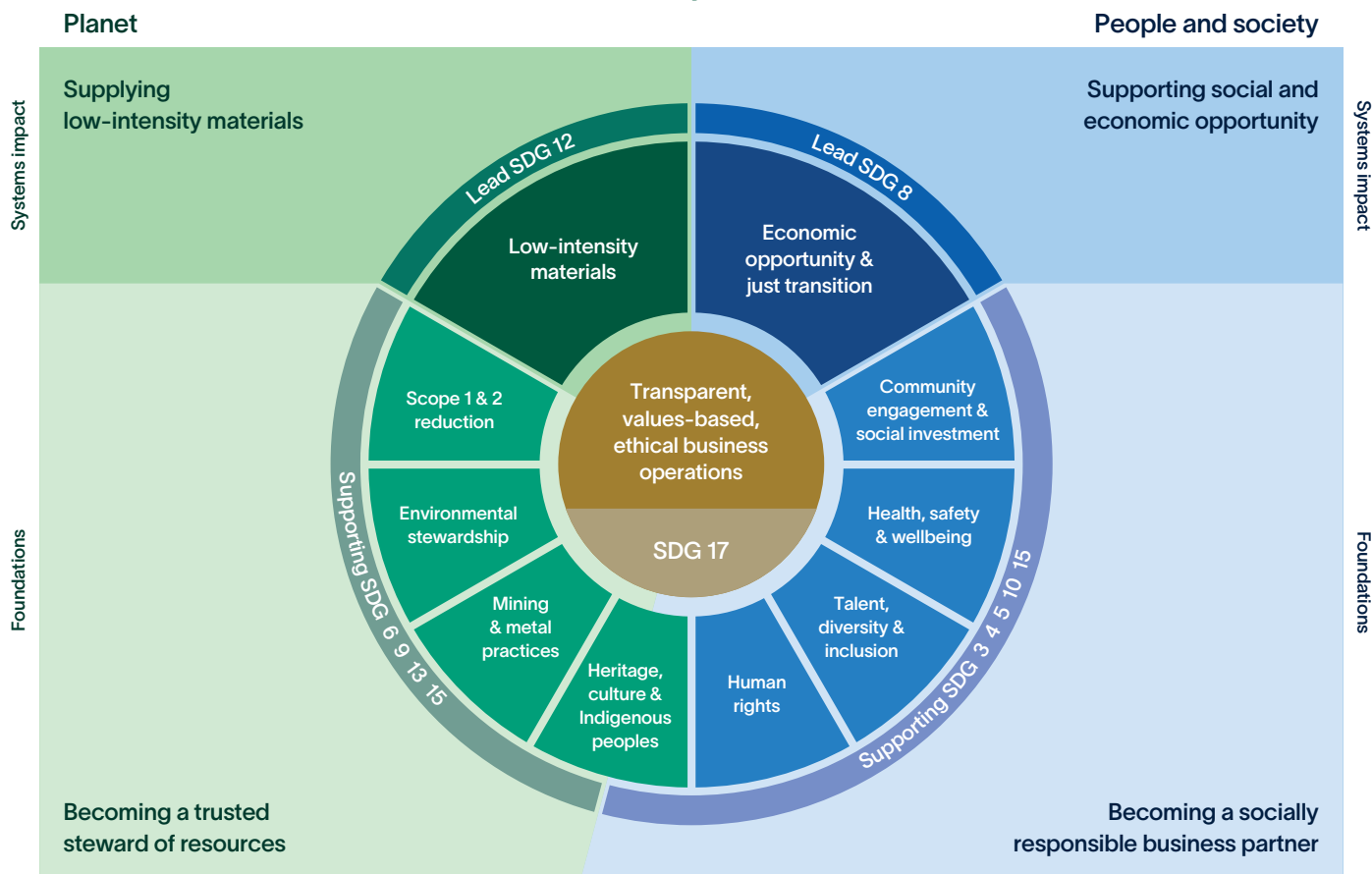
Our business operations also contribute to eight supporting SDGs (3, 4, 5, 6, 9, 10, 13, 15), while partnerships for the goals (SDG 17) reflects our approach to sustainability and is fundamental to the way we run our business.



For more information

about our approach to the UN SDGs, see our website.

Sustainability framework



How we report on sustainability

We want to ensure all our stakeholders benefit from the success of our business. To do this, our priorities and performance must align with society’s expectations, which are constantly evolving. So each year we complete a sustainability materiality assessment to understand which issues and topics matter most to, and have the greatest impact on, our stakeholders and our business.

We gather information on sustainability topics and their impact from internal and external stakeholders and employees via interviews, surveys, and reviews of publicly available materials. We ask them what is important now, and what they think will be important in five to ten years. The insights we gather through this process also guide our approach to sustainability and how we report externally.

What is important now

Our internal and external stakeholders are broadly aligned on the four most important sustainability topics. Climate change is the most important issue and includes concerns about emissions reduction and how resilient and adaptable our business is to cope with climate-induced change. Respecting human rights; cultural and heritage site management; and health, safety and wellbeing are other highly material topics. For our business, the safety and wellbeing of our people remains our highest priority (see page 57). Business integrity, governance, and local community relations are important topics as we continue to build trusting relationships with our partners, employees and host countries.

What will be important in the future

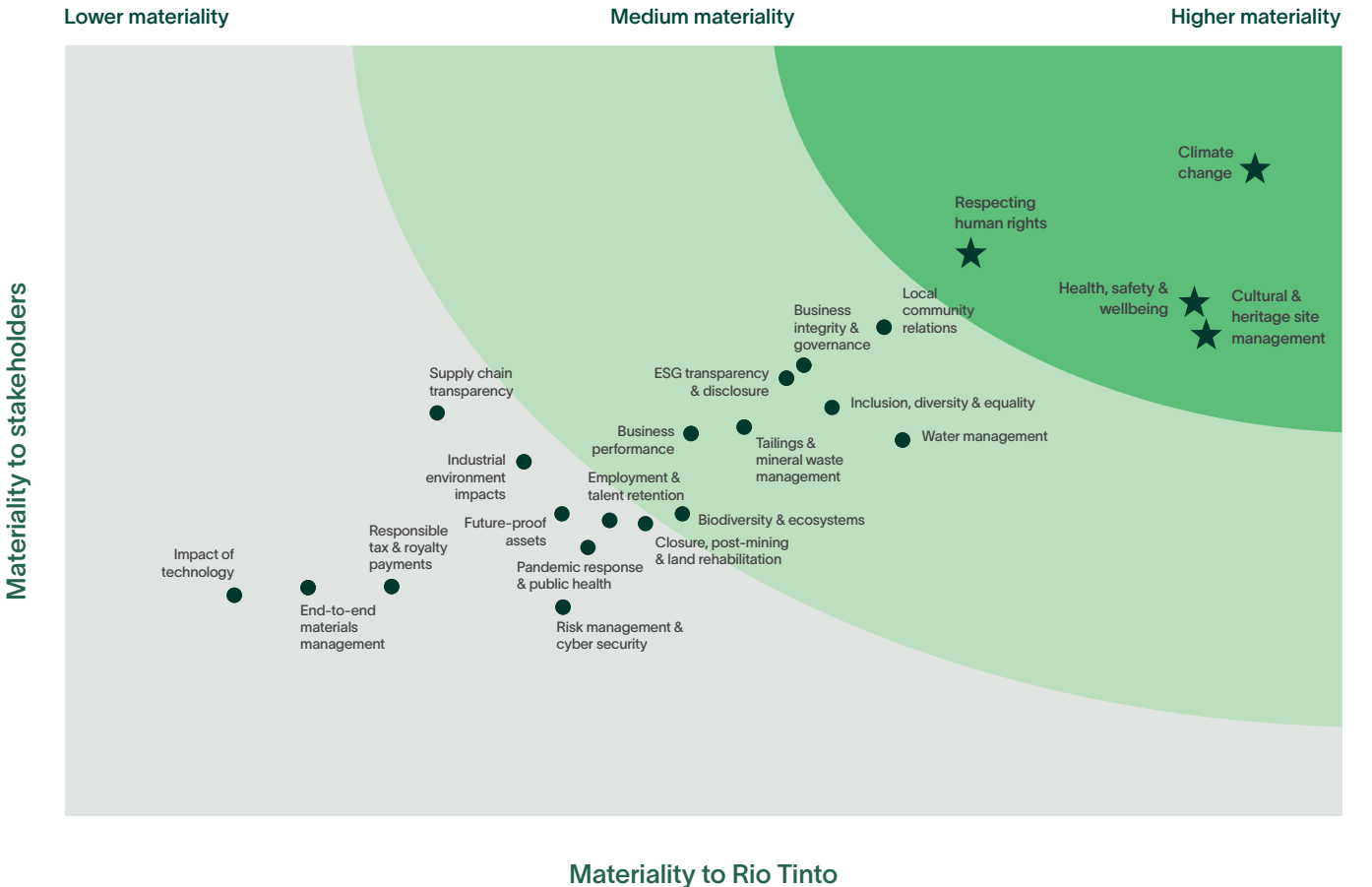
Our internal and external stakeholders feel that climate change will only continue to increase in importance over the next decade, as will geopolitical uncertainty, the impact of technology, respecting human rights, business integrity and governance, supply chain transparency and end-to-end materials management. Other emerging critical topics include water management due to the reliance of local communities and mining operations on an increasingly scarce resource, and biodiversity due to the increasing impacts of climate change. Managing all these well will be integral to our social licence to operate.

Reporting our performance

Our sustainability materiality assessment records the threshold at which an issue or topic becomes important enough for us to report on externally. The importance of a topic is based on the significance of its impact on stakeholders. A sustainability materiality assessment differs from financial materiality, which may use financial metrics or other quantitative analyses to determine what would be considered a significant or material impact.

As a member of the International Council on Mining and Metals (ICMM), we commit to reporting on our sustainability performance against Global Reporting Initiative (GRI) standards and implementing the ICMM Performance Expectations (PEs).

The ICMM Mining Principles framework focuses on the implementation of systems and practices related to a broad range of sustainability areas. In line with the ICMM’s requirements, all 29 Rio Tinto managed operating and refining assets completed an ICMM PEs self-assessment before 30 September 2022. A self-assessment was also completed for Rio Tinto Corporate. These assets met the requirements in the areas of ethical business practice, decision making and stakeholder engagement.



Our teams identified opportunities to improve our performance in human rights, risk management, health and safety, environmental performance, conservation of biodiversity, responsible production and social performance. We will work through these opportunities with our assets over the coming months.

The majority of our sustainability reporting is incorporated into this *Annual Report* and supplemented by our full *2022 Sustainability Fact Book* containing current and historical data on topics including health, safety, environment, climate, communities, human rights, responsible sourcing, ICMM PEs and transparency.



For more information

see our *Sustainability Fact Book* at riotinto.com/sustainabilityreporting.

Governance and assurance

The Sustainability Committee oversees strategies to manage social and environmental risks, including management processes and standards. The Committee reviews the effectiveness of management policies and procedures relating to safety, health, employment practices (apart from remuneration, which is the responsibility of the People & Remuneration Committee), relationships with neighbouring communities, environment, security and human rights, land access, political involvement and sustainable development. Given its strategic significance, climate change is overseen directly by the Board.



For more information

about our Sustainability Committee, see page 108 .

This year, the Group's auditor KPMG was again engaged to provide the Directors of Rio Tinto with assurance on selected sustainability subject matters. KPMG's limited assurance statement satisfies the requirements of subject matters 1 to 4 of the ICMM assurance procedure.



For more information

about our external auditors and internal assurance, see page 106 .

Non-financial information statement

The Sustainability section includes information required by regulation in relation to:

- Environmental matters – pages 66-70
- Our employees – pages 59-60
- Social matters – pages 53-56
- Human rights – page 61
- Corruption and bribery – pages 73-75.

Other related information can be found here:

- Our business model – page 17
- Principal risks and how they are managed – pages 76-86
- Non-financial key performance indicators – pages 50-51.

Notes on data

The data summarised in this Sustainability section relates to calendar years. Unless stated otherwise, parameters are reported for all managed operations without adjustment for equity interests. Where possible, we include data for operations acquired before 1 October of the reporting period. Divested operations are included in data collection processes up until the transfer of management control.

How we report

	Annual Report	Climate Change reports ¹	CSP Report ²	Tax reports ³	Human Rights reports ⁴	Sustainability Fact Book
Linking sustainability to purpose and strategy	●	●				
Materiality and material topics	●					
Climate change	●	●				●
Economic contribution	●			●		●
Human rights	●				●	●
Indigenous peoples	●		●			●
Memberships and certifications						●
Sustainability data and trends						●

1. Includes our *2022 Climate Change Report* and *Scope 1, 2 and 3 Emissions Calculation Methodology*.

2. Our *Communities and Social Performance Commitments Disclosure Report* will from 2023 be incorporated into our *2023 Annual Report*.

3. Includes our *Taxes Paid Report* and *Country-by-Country Report*.

4. Includes our *Modern Slavery & Human Trafficking Statement* and our *Voluntary Principles on Security and Human Rights Report*.





For more information

see the full reporting suite on our website.



2022 sustainability targets and key achievements

Supplying low-intensity materials

Lead SDGs



Supporting SDGs



Target

To achieve net zero emissions from our operations (Scope 1 and 2) by 2050.

Key achievements

\$537 million

(C\$737 million) to be invested over eight years to decarbonise our Rio Tinto Iron and Titanium (RTIT) Quebec Operations in partnership with the Government of Canada.

\$29 million

invested in constructing an aluminium recycling facility at our Arvida Plant in Saguenay–Lac-Saint-Jean, Quebec, Canada to expand our offering of low-carbon aluminium solutions.

One-year biofuel trial

in partnership with BP to reduce carbon emissions from our marine fleet.

First production

of spodumene concentrate, a mineral used in the production of lithium for batteries, at a demonstration plant in our RTIT Quebec Operations in Canada.

1.2 million


low-carbon beverage cans produced as part of our partnership with Corona Canada. The cans were made using our aluminium leveraging ELYSIS™ technology.

Around 20 tonnes


of tellurium can now be produced every year at Kennecott in Utah, US. Tellurium is a critical mineral used in advanced thin film photovoltaic solar panels.

Becoming a trusted steward of resources

Lead SDGs



Supporting SDGs



Targets

To reduce our absolute Scope 1 and 2 greenhouse gas emissions by 15% by 2025 and by 50% by 2030.

To achieve local water stewardship targets for selected sites by 2023.

Key achievements

7% reduction

in Scope 1 and 2 greenhouse gas emissions below our 2018 baseline. (2021: 4.3%)

5 of the 7

water stewardship targets remain on track for attainment in 2023. For more information about individual water target performance in 2022, see pages 67–68. (2021: 5 of 7)

40-tonne-payload

agile autonomous haul trucks trialled with Scania at our mine in Western Australia’s Pilbara region, offering potential environmental and productivity benefits.

8 submissions

from technology innovators selected to progress beyond the Charge on Innovation Challenge.

522km²

cumulative land rehabilitated to end of 2022, mostly at our bauxite mines in Australia, mineral sands mines in South Africa and Madagascar, and at our iron ore mines and exploration areas in the Pilbara, Western Australia. (2021: 494km²)

\$4 million

to explore new approaches in carbon mineralisation technology as a way to safely and permanently store carbon as rock.

Supporting social and economic opportunity

Lead SDGs



Supporting SDGs



Target

To increase contestable spend sourced from suppliers local to our operations year-on-year.

Key achievements

\$2.7 billion

spent with local¹ suppliers, which represents 14.5% of total contestable spend.

\$188 million

spent with Indigenous suppliers in Canada.

\$25.5 million

invested through the Rio Tinto COVID-19 Fund between 2020 and 2022 to support global grass-roots, community COVID-19 preparedness and recovery programmes.

\$62.6 million

contributed to community programmes across a wide range of social and economic categories. (2021: \$72.1 million)

6 formal agreements

signed with Indigenous rights holders across our global footprint.

48% increase

in Australian Indigenous leaders. (2021: 31 leaders; 2022: 46 leaders)

Becoming a socially responsible business partner

Lead SDGs



Supporting SDGs



Targets

To reach zero fatalities and to eliminate workplace injuries and catastrophic events. All-injury frequency rate target: 0.38

To have all of our businesses identify at least one critical health hazard material to their business, and demonstrate a year-on-year reduction of exposure to that hazard.

To reduce the rate of new occupational illnesses each year.

To improve diversity in our business by:

- Increasing women in the business (including in senior leadership) by 2% each year.
- Aiming for 50% women in our graduate intake.
- Aiming for 30% of our graduate intake to be from places where we are developing new businesses.

To improve our employee engagement and satisfaction.

Key achievements

Zero fatalities

at managed operations. (2021: 0 fatalities)

0.40

all-injury frequency rate (AIFR). (2021: 0.40)

1.37 million

critical risk management (CRM) verifications. (2021: 1.31 million)

2.8% increase

in the rate of new occupational illnesses since 2021.

9 assets

achieved an exposure reduction to known health risks (airborne contaminants and noise). (2021: 13 assets)

2-point increase

in our employee satisfaction score (eSAT) since 2021 (from 71 to 73). (2021: 2-point decrease)

22.9%

of our workforce are women, up 1.4% from 2021².

25%

of executive leaders are women, same as 2021.

28.3%

of senior leadership are women, up 0.9% from 2021.

30%

of Board roles are held by women, down 6.4% from 2021.

53%

of our graduate intake are women, down 5% from 2021.

36%

of our graduates were from places where we are developing new businesses, up 1% from 2021.

1. We take a "site-centric" view of the definition of local, which allows operations to establish their own definition, based on a set of common principles. These principles require that each operation, in defining "local" takes into consideration its geographic, social and economic area of impact as well as ownership. For example, suppliers located within the Pilbara Region of Western Australia are defined as "local" for Rio Tinto Iron Ore's Pilbara Operations. This approach is consistent with international best practice and aligns with the ICMM Social and Economic Reporting Framework guidance.

2. Women % increase is 1.37% rounded to 1.4%.



People and society

Our operations can have far-reaching impacts on society. We work hard to avoid or minimise adverse impacts and seek to understand, and invest in, the diverse knowledge, cultures and resources that exist in areas where we operate. Our ambition is to contribute to positive and enduring outcomes for our workforce and the countries and communities where we operate.

In 2022, we continued to progress on our objectives to achieve impeccable ESG credentials and strengthen our social licence. Among other initiatives, we focused on becoming a better partner to our host communities, enhancing our safety maturity model, and beginning to implement the Everyday Respect recommendations.


Community engagement and social investment

Effective communities and social performance (CSP) is fundamental to our business. Without the support of the communities where we live and work, we cannot operate. We aim to contribute to a shared future and positive legacy by developing lasting relationships with people, learning about and supporting their goals and aspirations, avoiding or mitigating adverse impacts, and respecting different cultures and connections to lands and waters.

We are finding better ways to work with communities and Indigenous peoples, particularly in how we protect heritage. We are moving to a model of co-management of land and waters, and we are updating our agreements to deliver more enduring socioeconomic, heritage and environmental outcomes. This, in turn, delivers greater certainty for mine development.

Our CSP teams span our entire business and work in partnership with communities to understand how the work we do affects their lives, culture and heritage. By doing so, we can optimise benefits and reduce negative impacts, both for local communities and our business. Our teams include people who have a range of expertise, from archaeologists, anthropologists, social scientists and economic development experts to human rights specialists and operational leaders. While these teams lead our technical activities, our social licence is the responsibility of all employees. Everyone has a role to play in our engagement with, and contribution to, host communities and society more broadly.

Our CSP and site teams are also starting to work with Indigenous communities to explore opportunities for them to participate in our climate initiatives.

 **For more information**
about our climate initiatives, see our *2022 Climate Change Report* at riotinto.com/climate-report.

2022 progress

Strengthening social performance

We continue to strengthen our social performance governance, capacity and capability. In 2022, we launched our revised Communities and Social Performance Standard. It applies to all managed operations globally and will help us work thoughtfully, responsibly and transparently. It provides clear direction on what success looks like and the minimum standard expected across our global operations.

In 2022, we also launched the 2022 to 2027 Group CSP vision, goal and strategic framework, which will guide our activities over the next five years and help improve our performance. Our CSP vision is to respect and enable communities to realise their goals and aspirations and create long-term shared benefits.

We continue to build internal capability and collaboration across our teams working in CSP, Indigenous Affairs and Cultural Heritage. In 2022, we held two global conferences in Brisbane and Montreal for more than 260 CSP employees to explore complex technical issues and share good practice and learnings. These conferences also offered the opportunity to engage with civil society organisations, investors and academia on emerging CSP trends and practice. As we evolve our approach to co-design and co-management, we continue to listen to the wealth of knowledge that resides both inside and outside our business.

QIT Madagascar Minerals (QMM)

In 2022, QMM worked together with national and local authorities, representatives of the communities and Traditional Owners to address complaints raised by members of the local communities through a grievance management process. Throughout the year, the parties continued to work together to find equitable and sustainable solutions and we will continue to work closely with the community on these issues in 2023. Despite the challenges at QMM, we are implementing initiatives to strengthen

our collaboration with the community.

One example is our village nursery project, which generates income for the community that is supporting the rehabilitation of the area surrounding the Mandena mine. In 2022, QMM invested over \$550,000 to support rehabilitation activities, producing 300 tonnes of compost and providing 1,500,000 seedlings used for commercial tree planting, ecological restoration, greening of the area around Mandena and an offset plantation near the future mining lease in Ambatoatsinana. Community associations are the input suppliers, and some community members are also employed. More than 400 households have benefited from QMM's rehabilitation activities. In addition, QMM will increase its spending on its Corporate Social Responsibility Policy over the next three years to implement development projects in full collaboration with the communities and for the benefit of all local community members.

Resolution Copper project, Arizona, US

At our Resolution Copper project in Arizona, we continue to strengthen relationships with local communities and Native American tribes by deepening our engagement and partnership support.

We recognise the enduring historical connection Native American tribes have with the land at, or near, the proposed mine and we have partnered with the Tonto National Forest Service and Native American tribes to develop a programme to train tribal members in archaeological surveys and to help us identify sites of special significance to tribes. For more information, see resolutioncopper.com

The project is going through comprehensive and independent social and environmental regulatory reviews. The US Forest Service (USFS) published the Final Environmental Impact Statement (FEIS) in January 2021. In March 2021, the US Department of Agriculture (USDA) directed the USFS to retract the FEIS, which allowed the agency to undertake further review and consultation.

Communities and social performance targets

In 2022 we finalised a new suite of CSP targets, following the end of our previous target reporting period (2016-2021). The new targets will help us monitor progress towards the core objectives of our CSP Group strategy. We have transitioned from having individually set and defined local asset targets to common global targets, which will allow us to see progress across the Group as well as for individual assets. Our assets will continue to maintain local targets and metrics, developed in consultation with local communities, in addition to the global targets. Reporting will evolve over the next 12 months.

Communities and social performance targets 2022-2026

Reporting status

By 2026, all sites to co-manage cultural heritage with communities and knowledge holders.	Progress will be evaluated through a co-management maturity assessment currently in development for reporting from 2023.
Year-on-year increase in contestable spend sourced from suppliers local to our operations.	Baseline included in the <i>2022 Sustainability Fact Book</i> for: – Rio Tinto Group – Product groups Progress against target reported annually from 2023.
By 2026, 70% of total community investment to be through strategic, outcomes-focused partnerships.	Progressive reporting through roll-out of the social investment strategy and framework in 2023.
By 2024, 100% of employees in high human rights risk roles to complete yearly job-specific and general human rights training.	Progressive reporting with 2022 focus on training development and role mapping.
By 2026, 100% of employees to complete yearly general human rights training.	

Simandou project, Guinea

At our Simandou iron ore project in Guinea, we are working with communities to help them prepare for construction and future operations by identifying and managing our impacts, and designing and delivering local social investment and regional economic development programmes. In addition to implementing environmental and social impact mitigation measures, our teams are working with local communities to enhance social infrastructure, deliver livelihood restoration initiatives and build community resilience.

Recognising the cumulative impacts that will occur as a result of the development of Simandou, we are also working with our infrastructure and joint venture partners to ensure the consistent application of internationally recognised environmental and social performance standards across the entire project footprint. We are also working towards raising local capacities to maximise local content. Engaging with local entrepreneurs and investing in training and development of local capacities is key to optimise benefits to our host communities.

Oyu Tolgoi, Mongolia

We focus on long-term sustainable development in Mongolia, increasing transparency in our business processes and building trust with local communities through community investment and local employment. In 2022, local employment at Oyu Tolgoi increased by 25% from January to September as a result of a comprehensive recruitment process and local talent development.

Since 2015, Oyu Tolgoi has made a yearly contribution of \$5 million to a Development Support Fund (DSF) – administered jointly by Oyu Tolgoi and the community – for community programmes and projects in the Umnugovi aimag. In 2022, after reaching \$38.9 million, the fund invested in constructing a community school, a kindergarten, and a health care centre, increasing accessibility to quality educational and healthcare services for community members and creating more than 480 permanent jobs. The DSF also funded the Gobi History and Nature Museum, which opened in May 2022. It has already benefitted tourism in the region by attracting more than 28,000 people, and it is playing an important role in protecting and promoting Mongolian cultural heritage.

We continue to engage with local communities through the Khanbogd Tripartite Council (TPC). In 2022, we focused on herder sustainable livelihood, student scholarships and pastureland water access.

Compagnie des Bauxites de Guinée SA (CBG), Guinea

CBG is a bauxite operation in Guinea owned by Halco Mining Inc. (51%) and the Guinean Government (49%). Halco is a consortium comprised of Rio Tinto (45%), Alcoa (45%) and Dadco Investments (10%). Rio Tinto participates on the boards of Halco and CBG, with representation on various shareholder oversight committees. Through our Board and committee roles, we monitor and support CBG's approach to environmental protection, community issues and human rights. We are aware of the concerns regarding access to

land and water, and the pace of livelihood restoration programmes as well as concerns regarding CBG's stakeholder engagement. In 2022, sustainability advisory committees at Halco and CBG levels met regularly, strengthening our oversight and providing support to CBG for the improvement of CBG's social and environmental practices, including for the development of an ongoing human rights due diligence process. Both the Halco and CBG advisory committees are closely following CBG's response to a complaint made to the International Finance Corporation's (IFC) Office of the Compliance Advisor Ombudsman (CAO). The mediation process facilitated by the CAO has conducted seven sessions in 2022 and through a collaborative approach the parties made important progress towards an agreement on the improvement of community access to water. Halco continues to participate in the mediation process as an observer, alongside the IFC.

Panguna mine, Bougainville, Papua New Guinea

The Panguna mine was operated by Bougainville Copper Limited (BCL), majority-owned by Rio Tinto, for 17 years from 1972 until 1989, when operations were suspended due to a civil war, which lasted until 1998. In 2016, Rio Tinto transferred its 53.83% majority shareholding in BCL to the Autonomous Bougainville Government (ABG) and the Papua New Guinea (PNG) Government for no consideration, enabling the ABG and PNG to hold an equal share in BCL of 36.4% each.

In September 2020, the Human Rights Law Centre (HRLC) filed a complaint against Rio Tinto on behalf of 156 Bougainville residents with the Australian National Contact Point (AusNCP) regarding the Panguna site.

In 2021, as an outcome of the AusNCP engagement, a joint committee of stakeholders, the Panguna Mine Legacy Impact Assessment Committee, was formed to oversee a detailed independent assessment of the Panguna mine to identify and better understand the environmental and human rights impacts of the mine. The Committee is chaired by an independent facilitator with representatives from the ABG, the Independent State of PNG, clan leaders and landowners, local communities, Rio Tinto, BCL and HRLC. It has met regularly since its formation.

In 2021, the Committee commissioned the Panguna Mine Preparatory Phase Report to inform priority areas for the Impact Assessment. Completed in 2022, the report identified risks of potential failure of the levee at the former Main/Pump station, and potential flooding events along the Kawerong and Jaba river. On behalf of the ABG, Tetra Tech Coffey completed on-the-ground investigations in October 2022 and will present findings to the ABG who will determine next steps.

In 2022, the Committee selected and endorsed Tetra Tech Coffey to complete phase 1 of the independent environmental, social and human rights Legacy Impact Assessment. The Legacy Impact Assessment began in December 2022 and will provide all parties with a clearer understanding of the impacts, so that together we can consider the best way forward.

Jadar lithium-borates project, Serbia

We continue to believe that the Jadar lithium-borates project in Serbia can contribute to enhancing the electric vehicle supply chain ecosystem in Serbia. We continue to explore options with all stakeholders on how to progress this world-class opportunity to the highest environmental standards.

Group-wide COVID-19 fund

In 2021, we committed \$25 million to help the communities where we live and work respond to the pandemic. Our assets led the implementation of the fund, supporting grassroots communities across three pillars: response, recovery, and resilience. The remaining funds were allocated in April 2022 to support communities in Madagascar, Mongolia, Serbia and South Africa. More information is available on our website.

Social contribution

Supporting economic opportunities for our host communities and regions is a key priority for us and we strive to employ local people, buy local products and engage local services. In 2022, our total voluntary global social investment was \$62.6 million, covering a wide range of social and economic programmes. In 2022, we spent \$2.7 billion with suppliers local to our operations, which is 14.5% of our total contestable spend.

88 Indigenous rangers

across 12 Pilbara Traditional Owner groups will be supported to deliver cultural land management, through our contribution of A\$11.8 million over five years towards Ranger Programs.

Humanitarian support

through \$5 million donated to humanitarian efforts in Ukraine. We also contributed A\$271,530 through our global employee appeal.

Residents of 10 towns

in the Shire of Ashburton and City of Karratha in the Pilbara region of Western Australia will realise improved social outcomes over the next ten years through our A\$75 million contribution.

Indigenous history

will be preserved through a two-year archaeological partnership with the Cheslatta Carrier Nation in Canada, to better understand the history of Indigenous communities and human migrations.

1,000 people

in remote rural communities will have access to mobile health care for the first time, through our contribution of \$375,000 to Clinic Mobile des Oubliés, a Guinean social enterprise.

550,000+ students


in elementary and high schools in Quebec will have access to a free homework helpline and learning website through our contribution of C\$1 million over three years.

Culturally safe care

for mothers and children will be made available to First Nations and Inuit patients and families at Sainte-Justine through our C\$500,000 donation.

Update on our communities and social performance commitments

In October 2022, we released our final standalone report on our progress on the commitments we made after the tragic destruction of the rock shelters at Juukan Gorge. Significant updates since this report are summarised below under three areas of interest: relationships, governance and process, and leadership and inclusion.

 **For more information**
see our 2022 Communities and Social Performance Commitments Disclosure Report on our website.

In 2023, we will repeat the feedback process with Traditional Owners in the Pilbara. This will provide a three-year longitudinal perspective on our relationships. In parallel, we will undertake a project to design and pilot a community feedback process for host communities where we operate globally.


Relationships

We have changed the way we engage with Indigenous communities. We are progressively working more closely in partnership with Indigenous peoples across our operations to preserve and protect cultural heritage. We are moving to a model of co-management to ensure Indigenous voices are heard as part of our decision making.

Remedy agreement with the Puutu Kunti Kurrama and Pinikura Aboriginal Corporation


In November 2022, we agreed with the Puutu Kunti Kurrama and Pinikura Aboriginal Corporation to create the Juukan Gorge Legacy Foundation as part of a remedy agreement relating to the destruction of the rock shelters at

Juukan Gorge in the Pilbara region of Western Australia in May 2020. Financial support will be provided to the Traditional Owner-led foundation to progress major cultural and social projects, including a new keeping place for storing important cultural materials. The agreement forms part of our commitment to remedy and rebuild the relationship with the Puutu Kunti Kurrama and Pinikura people.

 **For more information**
see our website.

Updated agreement with the Yindjibarndi people

As part of our commitment to modernise our relationships with Traditional Owners, in November 2022, we signed an updated agreement with Yindjibarndi Aboriginal Corporation. The agreement aims to provide better social and economic outcomes for future generations and reflects our commitment to create opportunities for Yindjibarndi people to participate in our operations. The agreement also includes support for Yindjibarndi Aboriginal Corporation to develop community, commercial and cultural projects and programmes to fulfil its aspirations of self-determination.

 **For more information**
see our website.

Pilbara Cultural Land Management project

As part of our A\$11.8 million investment over five years into Ranger programs in Western Australia, we announced a partnership with the Pilbara Cultural Land Management Project (PCLMP) in October 2022. The PCLMP will enable 12 Pilbara Traditional Owner groups to take part in training programmes to help develop tools that support cultural, heritage and environmental mapping, monitoring and management. The project will provide greater employment opportunities and ongoing social and cultural benefits. For more information, see our website.

We are also investing in developing and diversifying individual Ranger Programs across the Pilbara, partnering with Murujuga Aboriginal Corporation, Karlka Nyiyaparli Aboriginal Corporation and Yindjibarndi Aboriginal Corporation. The Aboriginal-led Ranger Programs provide connection to culture, opportunities for healing and strengthening families, and holistic support to achieve generational change.

Working with Indigenous communities in Canada

We continue to collaborate with Indigenous groups in Canada to implement agreements. We have 11 active long-term impact benefits/participation agreements, and three potential agreements are in discussion. Our agreements include areas such as training and employment procurement, land and water management, joint environmental monitoring and community investment. We are also working in partnership with Indigenous communities to look at how we protect and preserve cultural heritage.

At our Diavik Diamond Mine in the Northwest Territories, we are working with Indigenous partners to develop criteria for water quality to ensure that water is healthy and safe from a western science perspective and from a traditional cultural use perspective. This initiative values both western science and traditional knowledge and it will be evaluated equally by the Wek'èezhii Land and Water Board and the regulator. It is part of a co-management regulatory regime to ensure future traditional use of the local land and water. In the northern part of British Columbia, we have announced a significant archaeological research project together with the Cheslatta Carrier Nation. The project will excavate sites of remarkable cultural and historical significance that could date back more than 10,000 years.

Economic contributions (US\$ million)

	2022	2021	2020	2019	2018
Profit after tax for the year	13,076	22,575	10,400	6,972	13,925
Underlying earnings	13,275	21,380	12,448	10,373	8,808
Underlying earnings per share (US cents)	819.6	1,321.1	769.6	636.3	512.3
Net cash generated from operating activities ¹	16,134	25,345	15,875	14,912	11,821
Capital expenditure ²	(6,750)	(7,384)	(6,189)	(5,488)	(5,430)
Net (debt)/cash	(4,188)	1,576	(664)	(3,651)	255
Consolidated sales revenue	55,554	63,495	44,611	43,165	40,522
Employment costs	(6,002)	(5,513)	(4,770)	(4,522)	(4,728)
Payables to governments ³	(9,313)	(12,789)	(8,224)	(7,175)	(7,217)
Amounts paid by Rio Tinto	n/a ⁴	(13,334)	(8,404)	(7,635)	(6,575)
Amounts paid by Rio Tinto on behalf of its employees	n/a ⁴	(1,486)	(1,353)	(1,284)	(1,342)

1. Data includes dividends from equity accounted units, and is after payments of interest, taxes and dividends to non-controlling interests in subsidiaries.

2. Capital expenditure is presented gross before taking into account any disposals of property, plant and equipment.

3. Payables to governments includes corporate taxes, government royalties and employer payroll taxes.

4. Our Taxes Paid Report will be published later this year on [riotinto.com](https://www.riotinto.com).

	2022	2021	2020	2019
Community investment ¹ (discretionary)	62.6	72.1 [^]	47	36.4
Development contributions ² (non-discretionary)	18.2	19.1	12.8	12 [*]
Payment to landowners ³ (non-discretionary)	299	222.9	165.9	147

* In 2019, \$13 million was reported for development contributions. This has been revised down to \$12 million due to an error noted in reporting.

[^] The notable increase in community investment is associated with the completion of the \$25 million COVID-19 pledge, a review of social investment strategies across product groups and the launch of a number of significant multi-year partnerships, particularly through Rio Tinto Iron Ore and Rio Tinto corporate teams.

1. Community investments are voluntary financial commitments, including in-kind donations of assets and employee time, made by Rio Tinto managed operations to third parties to address identified community needs or social risks.

2. Development contributions are defined as non-discretionary financial commitments, including in-kind donations of assets and employee time, made by Rio Tinto to a third party to deliver social, economic and/or environmental benefits for a community, which Rio Tinto is mandated to make under a legally binding agreement, by a regulatory authority or otherwise by law.

3. Payment to landowners are non-discretionary compensation payments made by Rio Tinto to third parties under land access, mine development, native title, impact benefit and other legally binding compensation agreements.

In the Saguenay–Lac-St-Jean region of Quebec, we announced the signing of an agreement with Pekuakamiulnuatsh First Nation in December 2022. This agreement – named Kuessilueu, which means “the wind is turning” in Nelueu – is the start of a collaborative process that will bring Pekuakamiulnuatsh and Rio Tinto representatives together in a co-designed approach to identify priorities and recommendations on governance, jobs and training, business opportunities, cultural heritage, environment, partnerships, and energy transition. The agreement will involve a large group of people and aims to create a movement, with each participant becoming an agent of change in their respective area. As part of this agreement, an Indigenous awareness programme will be launched for our employees in the region.

Governance and process

During 2022, we continued to revise our standards, systems and processes to ensure we are working responsibly to avoid and minimise impacts and risks to our operations, people and communities.

Australian Advisory Group

We have established an Australian Advisory Group (AAG) to provide guidance on current and emerging issues, and better manage policies and positions that are important to both Australian communities and our broader business. The group continues to refine its scope and procedures for providing high-quality advice to the Chief Executive Australia and the Executive Committee.

Our cultural heritage risks

We have now operationalised the set of controls that manage our cultural heritage risks, with an emphasis placed on understanding the control performance at a local level. Our global Communities and Social Performance Area of Expertise continues to provide subject matter advice and support to our assets to strengthen the risk assessment processes across our business.

Independent cultural heritage management audit

In 2020, we engaged Environmental Resources Management (ERM) to undertake an independent cultural heritage management audit across all our sites. Phase one of the audit was completed in mid-2022 and focused on 20 audits across our Australian assets. Field work for phase two was completed in December 2022 and focused on 17 audits across our non-Australian operations.

Phase one of the audit found that the changes introduced over the past two years have improved on-ground management. For example, a number of assets globally are progressing projects with community partners to document intangible cultural heritage values. This includes methodologies such as constellation mapping and training on new methods for recording oral histories. The report identified four areas for improvement: managing water as a cultural resource, managing artefacts, integrating data, and continuing to build our team of experienced cultural heritage practitioners.

A summary of audit findings from phase one and two will be released at the end of the first quarter in 2023. Based on the recommendations, we will then work on a response plan in consultation with our cultural heritage teams and cultural heritage knowledge and rights holders.

Leadership and inclusion

We are evolving our culture to encourage a mindset and behavioural shift at all levels of our organisation. We have a programme of work in progress that focuses on advancing respect for the peoples and cultures on whose land we live and work, which links closely to the work we are doing as part of the Everyday Respect initiative.

We continue to increase the number of Indigenous leaders in our business and develop our cultural competency. Reducing the barriers for Indigenous employees in our business and increasing cultural intelligence will help us become a better operator and a more inclusive workplace.

 **For more information**
see page 59.

In October 2022, we launched an internal protocol for the use of Indigenous cultural and intellectual property in Australia to ensure we follow appropriate processes when commissioning or reproducing Indigenous design or artwork within our business and engaging in Indigenous art and design projects. This will continue to be rolled out throughout 2023.

Truth and reconciliation in Canada

We continue to create learning opportunities for our people in Canada to raise awareness about the history, culture and rights of Indigenous peoples. During National Indigenous History Month, we held a series of events focusing specifically on Indigenous women. In September, we celebrated National Truth and Reconciliation Day and hosted a panel focusing on tangible ways to promote reconciliation and create a more inclusive and culturally safe work environment.

Addressing employment barriers in Canada

In addition to raising awareness, we have been focusing on identifying and addressing some of the recruitment opportunities and barriers for Indigenous peoples, and particularly Innu First Nations candidates. We prioritised eastern Canada in 2022 and took a number of actions. We established employment and training committees in partnership with Indigenous job placement agencies and we revised our recruitment process, including hiring criteria, pre-employment checks and verification processes. These changes resulted in 31 new Indigenous hires.

Indigenous participation

In 2021, our Iron Ore product group developed an Indigenous participation strategy to attract and develop Indigenous employees and promote a culturally safe working environment. Throughout 2022, we continued to make significant progress. We have:

- Enhanced our recruitment processes.
- Updated our employment programme to remove obstacles to employment and provide training and development opportunities for Indigenous peoples.
- Delivered a training programme to increase the cultural knowledge of non-Indigenous employees.
- Implemented an Indigenous participation dashboard to ensure leaders are enabled to make informed choices on improvement initiatives.
- Enhanced our Indigenous Talent Review programme, which in 2022 saw 23 participants from a cohort of 151 promoted to roles of Supervisor or above.

Indigenous leadership in Australia

As at end of 2022

46

Indigenous leaders in our workforce (A-H band)

(November 2020: 6)

39%

Women in our Indigenous leader cohort (A-H band)

1,549

Indigenous employees in our workforce
(equivalent to 6.6%)

87%

Cultural connection programme participation among A-E leaders

16%

Indigenous graduates in cohort
(26 graduates in total)

94

Indigenous professionals participating in our cultural onboarding programme

17

Indigenous leaders graduating from RioInspire (Emerging Indigenous Executive Leaders)

Health, safety and wellbeing

Caring for one another is one of our values – it is part of who we are and the way we work, every shift, every day. Nothing is more important than the safety and wellbeing of our employees, contractors and communities.

2022 progress

We have now exceeded four years without a fatality. Although this is an important milestone, it is not one we take for granted. While we recognise the commitment made by all our employees and contractors to make us a safer company, we continue to believe all incidents and injuries are preventable and focus on identifying, managing and, where possible, eliminating risks.

Although we had no fatalities on our managed sites in 2022, we are saddened by the loss of a mariner on board a non-managed chartered vessel, and a permanent disabling injury suffered by another mariner in a separate incident, also on a non-managed chartered vessel. We remain determined to improve maritime safety for our industry through a multi-year programme to identify, manage and eliminate risks in the marine supply chain.

We continue to see serious incidents at our own operations. Our main risks relate to falling objects, fall from height, and vehicles and driving.

Our all-injury frequency rate (AIFR) remained stable at 0.40, compared to 2021. We continue to see a disparity between the number of injuries among employees and contractors, so we remain focused on including contractors in our safety culture.

Critical risk management (CRM) remains our primary fatality elimination tool by helping ensure that critical controls are in place and working where there is a fatal risk. In the last year, we continued to simplify our critical risk content, particularly for risks of rail impact or collision, mooring and drowning.

To address risks related to vehicles and driving, in late 2021 we made significant changes to the Group procedure for mass transportation, a component of our vehicles and driving Group standard. These changes included the mandatory implementation of in-vehicle monitoring systems, and fatigue and distraction technology in all buses we operate, as well as increased safety feature requirements for vehicles purchased after January 2022. To tackle risks associated with falling objects, in the last year we also worked to improve the asset integrity of overhead cranes across our operations.

In 2023, we will re-focus our attention on CRM to address the frequency of potentially fatal incidents (PFIs) across all critical risks. We will work to enhance the quality and impact of verifications – used for checking that the right critical controls are in place for each task – and we will use the data we collect to understand early trends, so that we can intervene before incidents occur.

Across our business, our commitment remains on advancing our safety culture. The safety maturity model (SMM), introduced in 2019, was enhanced in 2022 to provide our leaders and their teams with clear guidance on managing health and environment risks, as well as on integrating contractors in a way that helps keep them safe. We also directed our efforts towards better understanding the felt experience of our workforce and the effectiveness of safety rituals.

To help leaders understand and apply the SMM enhancements, we ran a series of “teach-in” sessions covering the key changes, including maturity indicators (systems, symbols, behaviours and felt experience), the importance of mindsets in supporting behaviour and culture change, and the critical steps in the assessment process, including scoring. We also evolved our assessor training programme to reflect these enhancements, as well as to improve assessors’ understanding of the model and consistency in its application.


As a result of the enhancements we introduced to the SMM, we also stepped up the requirements for what defines each level of safety maturity across our business. With the inclusion of health, environment and contractors, we have reset our expectations on how to lead for both physical and psychological safety, while also caring for the environment.

Although we know this will be a multi-year journey, we are encouraged by the results of the 2022 assessments, which deepened our understanding of the safety culture at each site. In addition, feedback received from site teams confirmed that the assessments provided actionable insight into where to focus to become a safer workplace.

Mental health and wellbeing

Mental health is a core part of our safety culture. We have a responsibility to support the wellbeing of our people, beyond the traditional areas of health and safety, and we are committed to creating a work environment that is free from psychological harm.

We understand that our employees’ mental health can be impacted by psychosocial risks at work, so we continue to strengthen our psychosocial risk management. To support an environment where everyone feels safe, respected and included, we are progressing all 26 recommendations from the *Everyday Respect Report*, with a focus on training leaders in building psychological safety and becoming upstanders, rectifying any unsafe facilities and building plans to make our facilities more inclusive, and providing a more people-centric response to support those impacted by harmful behaviours and disrespect.

 **For more information**
about the Everyday Respect initiative,
see page 16.

We are a member of the Minerals Council of Australia (MCA) Psychosocial Risk Management Working Group, chaired by MCA and industry partners, to improve the understanding and management of psychosocial risk within our industry.

In 2022, we continued our work to help leaders recognise psychosocial hazards; assess the risks; and implement, evaluate and monitor effective controls, just as for any other health or safety risk. We also continued embedding our mental health framework to raise awareness of mental wellbeing, reduce stigma and increase the capacity of our leaders to recognise and support individuals experiencing mental illness.

Aligned with our commitment to give our employees the tools and skills they need to support their mental health, we continue to provide and promote the Employee Assistance Programme (EAP), our mental health toolkit and our global Peer Support Programme, which includes more than 1,500 peer supporters worldwide. We also support our people through our domestic violence support programmes, which cover 100% of employees.

We continued to support global mental health campaigns such as R U OK? Day and World Mental Health Day. In October 2022, we held our mental health week to support mental wellbeing in the communities where we operate and encourage our people to look out for one another. We ran a programme of activities that included our first-ever global calls dedicated to mental health. The full communications programme reached employees via leader and peer supporter conversations, Yammer posts, intranet articles and a combination of four live and recorded webinars on topics such as resilience and the connection between mental health and menopause. We further encouraged conversations by sharing employees’ stories and experiences with mental health, and having senior leaders and members of our Executive Committee share their personal reflections and commitment to mental health.

Our safety maturity model

Much of the success of our safety culture is a result of the implementation of our SMM, now in its fourth year. The SMM, as our blueprint for safety, brings together the best practices from across our business in leadership and engagement, learning and improvement, risk management and work planning. Together, these practices define how we can lead for physical and psychological safety. Since implementing the model, we have evolved our focus from verifying systems and rituals to assessing the impact of the model on people’s mindsets. We believe all our employees and contractors should feel that they can work without injuring themselves, speak up and make decisions to keep themselves safe. We have evolved the SMM accordingly, including the way we train our assessors and perform assessments at our sites.

Occupational health

In 2022, we recorded a higher number of new occupational health illnesses compared to the previous year, with 69 (2021: 61¹), in line with our increased focus on medical assessments. These assessments are a key requirement in ensuring and maintaining our employees' fitness for work, addressing legislative requirements and managing risk profiles. In the last year, we began work to standardise and simplify such assessments to help improve our health performance.

We also ran two workshops for our global health practitioners to share learnings, best practice and recent technology developments.

In 2022, we continued the post-pandemic return to normal for occupational and industrial hygiene sampling. This includes analysis of noise, airborne particulates, gas and other contaminants that can lead to adverse health effects for our employees and contractors. We also reinstated our health surveillance – audiometry, spirometry and biological monitoring – to proactively identify potential occupational illnesses.

The data collected over 2022 allows for semi-quantitative assessments of risk and identifies areas where we can implement or enhance control measures. Each product group worked on identifying projects within their assets which, with the support of the Areas of Expertise, will be designed, developed and implemented to reduce exposures for our employees and contractors.

We also updated and simplified our guidance notes on Occupational Exposure Limits and Occupational Hygiene Statistics to simplify these processes. This will help our teams manage and report hygiene risks.

Recognising the need to improve the transparency and detail of our health data, we performed a Group Internal Audit in 2022. We are now implementing the audit recommendations by working to improve the reporting of our data. These recommendations include reviewing gaps in guidance, updating our existing guidance to address these gaps, re-training our health practitioners and improving the available consolidated reports to enable further insights.

Re-doubling our efforts on delivering products that safeguard the environment, health and safety of our communities and end-consumers, we brought together colleagues from our product groups, Health, Environment and Commercial teams to develop a roadmap for future-proofing our product stewardship.

HSES transformation

The Health, Safety, Environment and Security Transformation Programme, implemented across five sites, is simplifying the way we work and increasing the value we get from the information we collect, ultimately making our business safer. We are piloting the core modules at Bell Bay and Dampier Port in Australia, and Boron in the US. At Saguenay–Lac-St-Jean in Quebec, Canada, we are piloting three of the environment modules: air, water and greenhouse gas. Global deployment of the core modules will start in 2023.

COVID-19

In 2022, as we entered the endemic stage of the COVID-19 outbreak, we saw fewer cases across our business. We stood down our COVID-19 global Business Resilience teams and transitioned our strategy for managing the disease to a risk-based approach, in the same way we manage other infectious diseases. We continue to monitor the situation and follow safety precautions to reduce exposure to the virus and protect our people, contractors, their families and the communities where we operate. We also continue to offer support to those impacted by COVID-19, including long COVID and any psychological impacts.

1. Originally reported as 51 in 2021 due to medical diagnosis and/or investigation outcomes finalised after the end of the year, resulting in additional occupational health illnesses reported after the 2021 Annual Report publication.

Safety and health performance

	2022	2021	2020	2019	2018
Fatalities at managed operations	0	0	0	0	3
All-injury frequency rate (per 200,000 hours worked)	0.40	0.40	0.37	0.42	0.44
Number of lost-time injuries ²	225	216	187	227	223
Lost-time injury frequency rate (per 200,000 hours worked) ³	0.25	0.25	0.22	0.27	0.26
Safety maturity model (SMM) score ⁴	4.7	5.7	5.4	4.5	–
Rate of new cases of occupational illness (per 10,000 employees) ⁵	14.9	14.5	17.1	20.5	29.1
Number of employees ⁶	54,000	49,000	47,500	46,000	47,500
Fines and prosecutions – safety (US\$'000) ⁷	339.0	646.2	25.4	40.7	59.0
Fines and prosecutions – health (US\$'000)	0	5	0	1.4	0

2. Figure in 2018 restated from that originally published to ensure comparability over time.

3. Figures in 2018, 2019 and 2021 restated from those originally published to ensure comparability over time.

4. Figures in the table represent the Rio Tinto Group average SMM score at the end of each year. Each year, assets are added or removed from the SMM programme based on project and closure cycles. New assets to the programme are baselined in the first quarter of each year and added to the Group average at the end of the year. In 2022, enhancements made to the SMM assessment approach significantly raised the bar for assessed maturity. This required a reset of all baseline scores at every operation, which were reduced by 1.5. A revised average maturity of 4.2 served as baseline for 2022 assessments.

5. Rate of new cases of occupational illness (NCOI) = number of all new cases of occupational illnesses x 10,000/number of employees (based on average monthly statistics).

6. These figures include the Group's share of joint ventures and associates (rounded).

7. In 2022, we paid safety fines resulting from non-compliances identified during MSHA inspections at our Boron Operations, California, US and Kennecott Copper and Bingham Canyon mines, Utah, US. OSHA violations at our Wilmington operations, California US; violation of the *Mine Health & Safety Act* at Diavik Diamond Mine, Northwest territories Canada and a fine in the Magistrate's Court of Western Australia for an incident that occurred at our DSL-Port Hedland operations WA, Australia in 2018.

Contributing causes for newly reported illness cases (employees)

	2022
Noise induced hearing loss	21
Musculoskeletal disorders	30
Mental stress	4
Others	14


Note: There can be one or more illness reported for each employee/contractor.

Talent, diversity and inclusion

Our culture is a key enabler of our purpose. It will make us a better partner and allow us to attract and retain the people we need to unleash the full potential of our business. We are finding better ways to support and engage our people, which means creating an environment where everyone feels comfortable being themselves, has the courage to speak up if something is not right and listens to each other with care and curiosity.

2022 progress


At the beginning of the year, we reported the findings and recommendations from an independent review of our workplace culture to better understand, prevent and respond to harmful behaviours across our global operations. The *Everyday Respect Report* proposed 26 recommendations, all of which we are implementing. This is just one way we are evolving our culture to create a safe, respectful and inclusive workplace.

 **For more information**
about the immediate actions we have taken in response to the *Everyday Respect Report*, see page 16.

Continuing to listen and learn

To help us understand how our people feel about the company and our direction, we conduct two annual Group-wide employee engagement surveys. Close to 36,000 employees participated in our latest survey in October 2022, and our employee satisfaction score (eSAT)¹ improved from 71 in 2021 to 73. The feedback shows that the changes we are making are moving us in the right direction.

Evolving a culture takes time and commitment. Continuing to focus on the evolution of our culture will remain a key priority for everyone in 2023.

 **For more information**
about our work to evolve our culture, see page 16.

Building an inclusive and diverse workforce

Having an inclusive and diverse workforce is a competitive advantage. It will enable us to find better ways to do things and ensure that we reflect the communities where we work.

In 2022, we extended our family-friendly policies by updating our global standard for paid parental leave to meet differing family needs, ensuring that all new parents are eligible for 18 weeks minimum paid parental leave.

We have been working on increasing the representation of Indigenous employees in our business and ensuring they have a stronger voice. In 2022, we partnered with the Australian Graduate School of Management at the University of New South Wales to deliver the RioInspire programme (formally known as the Emerging Indigenous Executive Leaders programme). The programme has been tailored to focus on developing executive-ready Indigenous leaders who will have an influential role in shaping the future of our business. The first group of Rio Tinto Indigenous leaders completed the globally recognised, six-month programme in April 2022.

We continue to focus on the representation of women across all levels in our business. In 2022, we increased the representation of women in our workforce from 21.6% to 22.9%. We hired 2,982 women in the last 12 months, an 18% increase on 2021.

We continued to evolve our award-winning graduate programme in 2022 and recruited our biggest cohort yet with 265 graduate roles. Of these, 53.2% were women and 36% were from nationalities where we are building new businesses². In Australia, 15% of the graduate intake (up from 10% in 2021) and 2.2% of our vacation student programme (down from 15% in 2021) were Indigenous.

Developing our people

We continue to invest in our people. Through the Safe Production System (SPS), we are empowering people to develop and share sustainable, best-practice solutions to define how to work safely and optimally. In 2022, our focus has been on upskilling our people with technical knowledge on best practices and encouraging the right mindsets and behaviours to better engage our people. To set us up for a continued successful and rapid rollout of SPS in 2023, we have now trained 20 Mindset and Behaviour Coaches and 218 Change Partners, and certified 61 leaders in SPS deployments.

 **For more information**
about SPS, see page 34.

We know leaders play a critical role in shaping our culture. In 2022, we continued to invest in personal leadership development through the Voyager programme. And as at 31 December 2022, more than 300 senior leaders have experienced the Voyager journey.

We have also expanded our technical expertise and now have 130 people formally recognised as a technical RioExpert™ through our RioExcel™ programme. And in partnership with LinkedIn Learning, we launched an online energy and climate change curriculum for employees who want to understand more about how they can contribute to reducing both Rio Tinto's and their personal carbon footprint.


Ensuring equality through pay equity

Ensuring that employees with similar skills, knowledge, qualifications, experience and performance are paid equally for the same or comparable work is intrinsically linked to our commitment to inclusion and diversity.

Our equal pay gap, the primary lens we use when assessing gender pay, measures the extent to which women and men employed by our company in the same location and performing work of equal value receive the same pay. In 2022, we further reduced our equal pay gap compared to 2021, which is now 1% in favour of men.

Gender pay gap is a measure of the difference between the average earnings of women and men across the Group (excluding incentive pay), regardless of role, expressed as a percentage of men's earnings. In 2022, our gender pay gap was just over 1% in favour of women, consistent with previous years.

We are committed to eliminating any residual pay inequities based on gender or other non-legitimate dimensions of difference.

 **For more information**
about our commitment to pay equity, see our website [riotinto.com/payequity](https://www.riotinto.com/payequity)

52,000

workforce of employees and contractors, an increase of 9.8% since 2021 (47,000), excludes non-managed operations.

11,062 new hires

of which 4,317 were contractors becoming permanent employees (2021: 7,895 new hires of which 3,098 were contractors).

22.9% women

in our workforce, an increase of 1.4%³ since 2021 (21.6%). Workforce breakdown: 11,934 women; 40,119 men; 2 undeclared gender.

59% employees

participated in myShare⁴, an increase of 4% (2021: 55%).

1. eSAT (employee satisfaction) is a measure of how happy employees are to work at Rio Tinto (average score).

2. Identifying with a nationality is not mandatory. More than 48% of our graduates have not formally reported a nationality.

3. Women % increase is 1.37% rounded to 1.4%.

4. myShare, our global employee share plan.

Workforce data by region^{1,2}

Region	Average Employee Headcount ³	Headcount Distribution %	Absenteeism ⁴	Average Contractor Headcount ⁵	Headcount Distribution %
Africa	2,530	5.4%		78	1.5%
Americas	15,021	32.4%	1.3%	781	16.0%
Asia	5,113	11.0%	1.2%	146	3.0%
Australia/New Zealand	22,681	48.9%	4.5%	3,856	78.7%
Europe	1,085	2.3%	0.2%	37	0.8%
Total	46,430	100.0%	2.9%	4,898	100.0%

1. Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as of 31 December 2022.

2. Rates have been calculated based on average monthly headcount in the year.

3. Employee Headcount excludes Non-Executive Directors, contractors and people not available for work.

4. Absenteeism includes unplanned leave (sick leave, disability, parental and other unpaid leave) for populations on global, centralised HR systems. Non-Executive Directors and contractors.

5. Contractors include those engaged on temporary contracts to provide services under the direction of Rio Tinto leaders.

6. The sum of the categories may be slightly different to the Rio Tinto total shown due to rounding.

Workforce data by category and diversity^{1,2,3}

Category	Headcount Distribution %	Gender ⁴				Age Group				Region				
		Women (count)	Men (count)	Women %	Men %	Under 30	30-39	40-49	Over 50	Africa	Americas	Asia	Australia/NZ	Europe
Senior leaders	1.1%	163	412	28.3%	71.7%	0.0%	8.4%	44.1%	47.5%	3.6%	26.4%	11.0%	46.3%	12.7%
Managers	7.8%	1,326	2,725	32.7%	67.3%	0.4%	25.9%	44.0%	29.7%	4.3%	34.0%	11.1%	44.9%	5.7%
Supervisory and professional	36.2%	5,646	13,181	30.0%	70.0%	11.4%	37.1%	29.9%	21.6%	5.0%	25.5%	15.0%	52.5%	2.0%
Operations and general support	54.2%	4,580	23,627	16.2%	83.8%	16.7%	29.3%	26.7%	27.3%	6.1%	34.9%	7.8%	49.8%	1.4%
Graduates	0.7%	216	165	56.7%	43.3%	86.8%	11.9%	1.3%	0.0%	6.3%	32.5%	14.7%	44.9%	1.6%
Total	100.0%	11,931	40,110	22.9%	77.1%	13.8%	31.5%	29.3%	25.4%	5.4%	31.4%	10.8%	50.3%	2.1%

1. Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as of 31 December 2022.

2. Excludes Non-Executive Directors, Executive Committee, contractors and people not available for work 2017-2020. From 2021, the definition used to calculate diversity was changed to include people not available for work and contractors (those engaged on temporary contracts to provide services under the direction of Rio Tinto leaders) excluding project contractors.

3. Calculations have been completed in line with general rounding principles, assured by external auditors.

4. In 2022, two individuals' gender was undeclared.

Employee hiring and turnover rates^{1,2,3}

		Gender ⁴		Age Group				Region				
	Total	Women	Men	Under 30	30-39	40-49	Over 50	Africa	Americas	Asia	Australia/NZ	Europe
Employee hiring rate ^{5,6}	21.1%	29.8%	70.2%	37.5%	33.5%	19.0%	9.9%	4.5%	27.0%	13.6%	52.5%	2.4%
Employee turnover rate ⁷	9.8%	10.1%	9.8%	14.3%	9.3%	7.9%	10.6%	4.7%	7.3%	4.4%	13.0%	14.0%

1. Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as of 31 December 2022.

2. Excludes Non-Executive Directors and contractors.

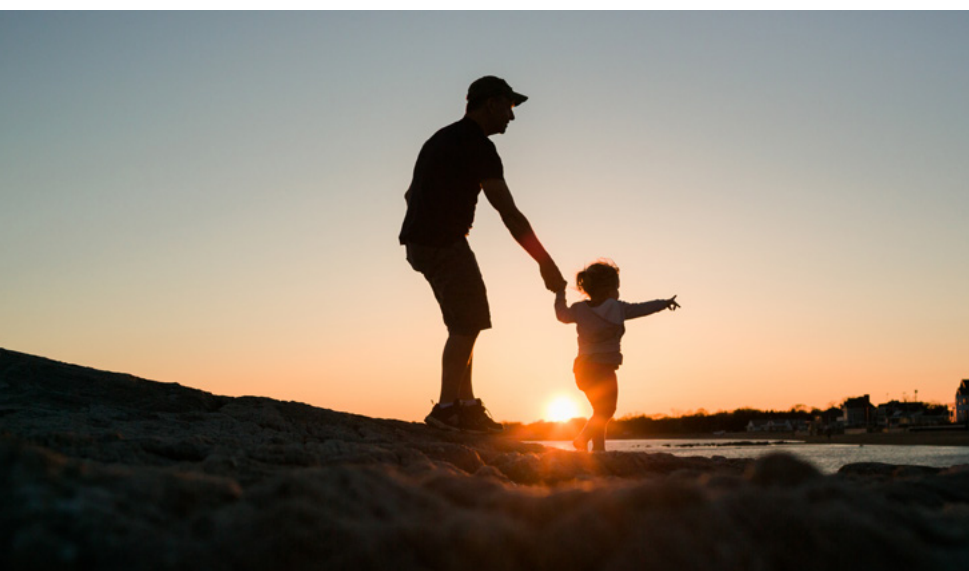
3. Rates have been calculated based on average monthly headcount in the year per category.

4. In 2022, two individuals' gender was undeclared.

5. Total hiring rate is calculated as total employee hires over average employee headcount for the year.

6. Hiring rate includes total employee hires per category over total hires for the year.

7. Turnover rate excludes temporary workers and the reduction of employees due to business divestment. Turnover rate includes total terminations per category over average monthly headcount in the year per category.



Empowering families with flexibility

We have updated our global standard for paid parental leave to better suit different family needs. Many parents like Garry, who works in our finance team in Singapore, have been able to participate in recent months. With this programme, Garry could take the full 18 weeks and split the time into two blocks to allow for more flexibility.



Learn more

about our updated parental leave policy in our interview with Garry on our website.

Human rights


Respecting human rights relies on good governance, knowing our potential impacts, empowering and enabling our people, and working with others to help avoid adverse human rights impacts from occurring in the first place.

Progress in 2022

Governance

The Sustainability Committee has overarching accountability for our approach to human rights. We are working on improving our human rights performance, strengthening a range of areas to help prevent our involvement in adverse human rights impacts, and providing for, or cooperating in, remediation when we identify that we have caused or contributed to harm.

In 2022, we revised our Human Rights Policy to advance our human rights performance in line with our business objectives and values and to meet external commitments and emerging regulatory requirements. The updated policy reflects emerging human rights areas including just transition, human rights defenders and human rights due diligence. It also reiterates our commitment to implement the UN Guiding Principles on Business and Human Rights (UNGPs), the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises, the IFC Performance Standards, the UN Global Compact's ten principles, the Maritime Labour Convention, the ICMM Mining Principles, and the Voluntary Principles on Security and Human Rights (Voluntary Principles).

 **For more information** about our security and human rights work programme, see our annual *Voluntary Principles Initiative Report*, published on our website.

Our Group Internal Audit (GIA) team reviewed the design of our modern slavery controls and presented summary observations and opportunities to the Sustainability Committee in October 2022. The internal audit identified opportunities to enhance management of third-party risks across non-financial domains (including modern slavery); to improve governance over the management of modern slavery risk; and to further improve Board visibility of modern slavery disclosures. This was part of a three-year phased approach to provide assurance across our human rights programme. We will implement the actions from the internal audit during 2023, and will continue to work with GIA to provide further assurance over our human rights governance framework.

Obtaining feedback from stakeholders, including receiving complaints or registering grievances, is a vital part of our human rights approach. Our stakeholders have access to myVoice, our confidential, anonymous and independently operated whistleblowing programme, through which human rights grievances can be reported.

Salient human rights issues

Consistent with the UN Declaration on the Rights of Indigenous Peoples, we acknowledge and respect Indigenous peoples' connection to lands and waters and commit to demonstrate progress towards, or achievement of, Free, Prior and Informed Consent of affected Indigenous communities across all phases of the asset lifecycle.

Aligned with the UNGPs, we continue to mature our processes and systems. For example, we identify the priority human rights issues that could severely impact people through our activities or business relationships. These issues, listed below, consider our operational footprint, value chain and external contexts and remain unchanged from 2021:

- Land access and use
- Indigenous peoples' rights
- Security
- Inclusion and diversity
- Community health, safety and wellbeing
- Workplace health and safety
- Labour rights (including modern slavery)
- Climate change and just transition (respecting human rights while transitioning to a low-carbon economy).

In 2022, several assets, including Simandou, Oyu Tolgoi and those in Gladstone, Queensland, Australia undertook risk assessments to review their priority human rights issues. These assessments provide assets with a more complete understanding of their risk context and are an important part of our commitment to implement the UNGPs. This work will continue into 2023.


Our business relationships

It is important that we address our potential involvement in human rights harm that may occur through relationships with our suppliers, customers and joint venture partners. We engage and collaborate with our business partners to advance respect for human rights in line with international standards, the UNGPs and our values.

Using a risk-based approach, we pre-screen potential business partners on human rights and require suppliers (including subcontractors) to adhere to our Supplier Code of Conduct, which includes respect for human rights.

More than 17,000 business partners completed baseline screening in 2022, and over 200 were escalated for human rights review, which is approximately a 60% increase compared to 2021. Our Commercial team also held conversations about human rights with several strategic suppliers at supplier relationship meetings.

Modern slavery provisions are included in our standard global supply contract and purchase order terms and conditions, as well as our marine chartering contracts. During 2022, we updated human rights considerations in our Supplier Code of Conduct and contributed to updating our Code of Conduct – The Way We Work, which was launched internally in February 2023. In 2023, we will perform a more detailed review of the Supplier Code of Conduct to further clarify our expectations of suppliers on human rights and other matters.

 **For more information** about our human rights and modern slavery approach, see our annual *Modern Slavery Statement* on our website.

Capacity building on human rights

In 2022, we enhanced our in-house human rights expertise by establishing a dedicated human rights team within the Communities and Social Performance Area of Expertise.


However, we also believe everyone in the business has a role to play in implementing our commitment to respect human rights.

Our employees and contractors develop a better understanding of human rights issues through general and targeted training. In 2022, our training objectives were to demystify human rights and identify ways to integrate and operationalise human rights. We hosted 39 human rights workshops for our teams in Ethics and Compliance, the Business Conduct Office, Marine, Communities and Social Performance, as well as joint venture partners and other relevant stakeholders. We also launched an online learning module to raise awareness about modern slavery. This module is compulsory for our Commercial, Legal, Ethics and Integrity, and Communities and Social Performance Area of Expertise teams, but it is available to everyone in the business. Training feedback results indicated that over 90% of participants now understand what modern slavery is, how to report a concern and what we are doing to address risks.

Our Marine team continued to develop their Seafarer Welfare and Safety Programme, which included dedicated human rights training for more than 108 marine officers and 77 seafarer crew members in the Philippines and India.

We have summarised our human rights training records in the *2022 Sustainability Fact Book*.

We also participated in a number of collaborative human rights initiatives in 2022 and continued our external engagement with peers, civil society organisations, governments and others to help inform our approach to human rights management.

 **For more information** about how we engaged with our key stakeholders, including civil society organisations, see pages 55-56.

Planet

We take our role as long-term stewards of the world's natural resources, including land, water and the ecosystems they support, seriously. We know that the way we produce these products is just as important as the minerals and metals themselves.

In 2022, we continued to progress our objectives to achieve impeccable ESG credentials and strengthen our social licence. Among other initiatives, we focused on minimising the risks and the environmental footprint of our operations and working on our Climate Action Plan. We rehabilitated 16 square kilometres of land, and to help us reduce our carbon footprint, we set up a new team of specialists focusing on nature-based solutions. Our freshwater consumption increased by 6GL, so reducing our extraction from water sources of this quality continues to be a priority for us.



Employees maintaining the native Kakadu species saplings, which will be planted at the Ranger Mine rehabilitation areas.
Energy Resources Australia Ltd.

Climate change

The low-carbon transition is at the heart of our business strategy. We are focused on growth in the materials that enable the transition, decarbonising our operations and partnering with our customers to decarbonise our value chains. Our operational emissions targets are ambitious: to reduce emissions by 15% by 2025 and 50% by 2030, reaching net zero by 2050. Our targets cover more than 95% of our reported Scope 1 and 2 emissions and are aligned with 1.5°C pathways.

The Board approves our overall strategy, our policy positions and our *Climate Change Report*. The Board sets the 2025, 2030 and 2050 emissions targets and monitors performance against the targets and operational resilience. The Chair of the Board is responsible for our overall approach to climate change. The Board and the Risk Management Committee provide oversight of our principal risks and the Audit Committee monitors the overall effectiveness of our system of risk management and internal controls.

The Principal Risks and Uncertainties section in this report considers both physical climate risks and low-carbon transition risks. The Chief Executive is responsible for delivering the Climate Action Plan approved by the Board. Our approach to climate change and target execution considerations integrates risk management, portfolio reviews, capital investments, annual financial planning and government engagement.

2022 progress

In 2022, we worked towards our Climate Action Plan that our shareholders approved in a non-binding resolution at our annual general meetings. The low-carbon transition is complex: developing the technologies and implementing the major projects needed to decarbonise our business will take time. In 2022, our Scope 1 and 2 emissions were 30.3Mt CO₂e (31.0Mt in 2021). This reduction of 7% below our 2018 baseline is primarily the result of switching to renewable power at Kennecott and Escondida in prior years, as well as lower than planned production from Kitimat and Boyne Smelter in 2022. We did not advance the actual implementation of our abatement projects as fast as we would have liked last year, so our capital expenditure on decarbonisation projects was \$94 million, lower than we anticipated when we set our targets. Challenges have included late delivery of equipment, resourcing constraints impacting study progress, construction and commissioning delays, and project readiness.

Our “6+1” abatement programmes

In response, we established six abatement programmes, with dedicated people, to focus on the decarbonisation challenges that cut across our product groups: repowering our Pacific Aluminium Operations, renewables, ELYSIS™, alumina process heat, minerals processing and diesel transition. We are building capability and gaining a deeper understanding of our decarbonisation challenge (both constraints and opportunities),

and our related operational expenditure increased to approximately \$140 million in 2022. As a result, we are better placed to deliver the complex and large-scale structural changes to our energy system needed to achieve our 2030 target.

We are progressing work towards 1GW of renewable power in the Pilbara. In 2022, we installed the first 34MW at Gudai-Darri and are planning investments of \$600 million for solar, storage and transmission to deliver a further 230MW solar power and 200MWh storage from 2023 to 2026. Once fully operational, this will displace approximately 30% of our gas usage. In other locations, power purchase agreements can be a better option for us and in 2022 we signed a 130MW solar power purchase agreement for Richards Bay Minerals in South Africa.

Our Pacific Aluminium Operations are in coal-based power grids and account for 28% of our Scope 1 and 2 emissions. A formal market Request for Proposals (RFP) was undertaken in June 2022 to support the development of large-scale wind and solar power to supply power to the Boyne smelter through the Queensland grid by 2030. This smelter requires 960MW capacity of reliable power to operate, which equates to at least 4GW of quality wind and solar power capacity with firming. We continue to work with the Queensland Government and energy providers to design a renewable energy solution for this smelter.

Our Processing Centre of Excellence focuses on decarbonising our harder-to-abate operations in alumina, iron ore pelletisation and titanium dioxide. In 2022, we agreed to partner with the Government of Canada to invest \$537 million (C\$737 million) to reduce emissions by up to 70% at the Rio Tinto Iron and Titanium Quebec Operations. This work supports technological innovations, including BlueSmelting™, a new ilmenite smelting technology that allows us to reduce and eventually eliminate the use of coal in the process. We also continued our studies with the Australian Renewable Energy Agency and Sumitomo Corporation on the role of hydrogen in alumina refining.

Our experience with our abatement projects and progress tracking suggests there will be delays, and that we will require greater use of offsets to achieve our 2025 target. We established one additional programme to increase our investments in nature-based solutions projects. If done well, these projects can play a substantial role in addressing carbon emissions and biodiversity loss, while also providing benefits to local communities. Our people working on these “6+1” programmes, along with our substantial investments in technology development, will drive the innovation and solutions needed to accelerate our low-carbon transition and ensure the long-term resilience of our business.

Decarbonising our value chains

Our Scope 3 emissions were 584Mt CO₂e in 2022 – over 1% of the global total. This is primarily from our customers in Asia processing our iron ore into steel and bauxite into aluminium, so our level of control is limited. Our approach to Scope 3 emissions balances ambition, pragmatism and our level of agency: it is focused on our most significant sources and is grounded in actions where we can have impact. While it is clear that we have a key role to play, we do not set an overall Scope 3 emissions target as we have limited ability to directly influence the production processes of our customers or their customers.

In 2022, we increased our engagement with nearly all our direct iron ore and bauxite customers and worked with them to optimise their current operations and to develop the low-carbon technologies needed to reduce emissions across our value chains. It is encouraging that this issue remains very high on the agenda when we meet our customers.

An inevitable structural shift toward green steel is underway. In the short term, the industry is predominantly focusing on blast furnace optimisation and we are working closely with customers to support their ambitions. In the medium term, the industry will move towards cleaner processing routes such as Direct Reduced Iron – Electric Arc Furnace (DRI-EAF). Steelmakers will increasingly value higher grade ores with less impurities that are more energy efficient to process. Therefore, we are working in partnerships with customers, technology providers, universities and others to develop low-carbon technologies to process our iron ore into steel. This includes exploring DRI pathways using hydrogen and sustainable biomass. We are also working on options to beneficiate and upgrade our Pilbara ores to be better suited to low-carbon steel making technologies.

Learn more

about these partnerships in our 2022 *Climate Change Report* at riotinto.com/climate-report.

Our total Scope 3 emissions from shipping and logistics were 8.8Mt CO₂e. Our shipping emissions intensity was 30% below our 2008 baseline, putting us on track to meet the International Maritime Organisation (IMO) decarbonisation goal of a 40% reduction in shipping emissions intensity by 2025, which is five years ahead of the IMO deadline.

Addressing the Task Force on Climate-related Financial Disclosures (TCFD) recommendations

Climate-related disclosures on governance, strategy and risk management, as well as metrics and targets, are integrated into this report. However, given constraints in our *Annual Report*, our *2022 Climate Change Report* and our *2022 Sustainability Fact Book* supplement these disclosures and are available on our website at riotinto.com/reports. Together, these reports are consistent with the four thematic areas, 11 recommended disclosures and “Guidance for All Sectors” set out in the October 2021 Implementing the Recommendations of the Task Force on Climate-Related Financial Disclosures. We will continually enhance our reporting and further integrate climate disclosures as recommended by the TCFD in future Annual Reports. To aid readers, the key climate-related disclosures can be found in the index here:

TCFD recommendation	Our response	
Governance		
Describe the Board’s oversight of climate-related risks and opportunities.	2022 Annual Report: <ul style="list-style-type: none">– Governance framework: page 100 ^{AR}– Evaluating our performance: page 101 ^{AR}– Board skills matrix: page 103 ^{AR}– Audit & Risk Committee report: page 104 ^{AR}	<ul style="list-style-type: none">– Sustainability Committee report: page 108 ^{AR} 2022 Climate Change Report: <ul style="list-style-type: none">– Climate governance: page 33
Describe management’s role in assessing and managing climate-related risks and opportunities.	2022 Climate Change Report: <ul style="list-style-type: none">– Our strategy and approach to climate change: pages 8-9– Producing materials essential for the low-carbon transition: pages 10-13	<ul style="list-style-type: none">– Enhancing our resilience to physical climate risk: pages 28-31– Climate governance: page 33
Strategy and risk management		
Describe the climate-related risks and opportunities the organisation has identified over the short, medium, and long term.	2022 Annual Report: <ul style="list-style-type: none">– Strategic context and strategy: pages 12-13– Corporate information (note h): pages 153-155 ^{AR} 2022 Climate Change Report: <ul style="list-style-type: none">– Our strategy and approach to climate change: pages 8-9	<ul style="list-style-type: none">– Producing materials essential for the low-carbon transition: pages 10-13– Definition of short, medium, and long-term time horizons: page 6
Describe the impact of climate-related risks and opportunities on the organisation’s businesses, strategy, and financial planning.	2022 Annual Report: <ul style="list-style-type: none">– Strategic context and strategy: pages 12-13– Corporate information (note h): pages 153-155 ^{AR} 2022 Climate Change Report: <ul style="list-style-type: none">– Our strategy and approach to climate change: pages 8-9– Producing materials essential for the low-carbon transition: pages 10-13	<ul style="list-style-type: none">– Reducing the carbon footprint of our operations: pages 14-18– Partnering to reduce the carbon footprint across our value chains: pages 22-27– Capital allocation alignment with our decarbonisation strategy: page 19
Describe the resilience of the organisation’s strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.	2022 Climate Change Report: <ul style="list-style-type: none">– Our strategy and approach to climate change: pages 8-9– How we have considered climate change scenarios in our financial statements: pages 35-36	<ul style="list-style-type: none">– Producing materials essential for the low-carbon transition, including our approach to scenarios and implications for our portfolio: pages 10-13– Enhancing our resilience to physical climate risk: pages 28-31
Describe the organisation’s processes for identifying and assessing climate-related risks.	2022 Annual Report: <ul style="list-style-type: none">– Risk management: pages 76-78– Longer-term viability statement: page 78– Principal risks and uncertainties: pages 79-81, 85	2022 Climate Change Report: <ul style="list-style-type: none">– Enhancing our resilience to physical climate risk: pages 28-31– Climate governance: page 33
Describe the organisation’s processes for managing climate-related risks.	2022 Annual Report: <ul style="list-style-type: none">– Risk management: pages 76-78– Longer-term viability statement: page 78– Principal risks and uncertainties: pages 79-81, 85	2022 Climate Change Report: <ul style="list-style-type: none">– Enhancing our resilience to physical climate risk: pages 28-31– Climate governance: page 33
Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation’s overall risk management.	2022 Annual Report: <ul style="list-style-type: none">– Risk management: pages 76-78– Longer-term viability statement: page 78– Principal risks and uncertainties: pages 79-81, 85	2022 Climate Change Report: <ul style="list-style-type: none">– Enhancing our resilience to physical climate risk: page 28-31– Climate governance: page 33
Metrics and targets		
Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.	2022 Annual Report: <ul style="list-style-type: none">– Key performance indicators: page 24– Emissions metrics: page 65 2022 Climate Change Report: <ul style="list-style-type: none">– Capital allocation alignment with our decarbonisation strategy: page 19	<ul style="list-style-type: none">– Climate governance: page 33– Emissions data: pages 37-39 2022 Sustainability Fact Book: <ul style="list-style-type: none">– Energy; GHG emissions; water
Disclose Scope 1, Scope 2 and, if appropriate, Scope 3 greenhouse gas (GHG) emissions and the related risks.	2022 Annual Report: <ul style="list-style-type: none">– Key performance indicators: page 24– Emissions metrics: page 65 2022 Scope 1, 2 & 3 Emissions Calculation Methodology <ul style="list-style-type: none">– pages 3-5	2022 Sustainability Fact Book: <ul style="list-style-type: none">– Energy; GHG emissions; water
Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.	2022 Annual Report: <ul style="list-style-type: none">– Key performance indicators: page 24– Emissions metrics: page 65 2022 Climate Change Report: <ul style="list-style-type: none">– Our Climate Action Plan: pages 6-7	2022 Sustainability Fact Book: <ul style="list-style-type: none">– Energy; GHG emissions; water

Greenhouse gas emissions (GHG)

Scope 1, 2 and 3 GHG – equity basis

Equity GHG – million tonnes carbon dioxide equivalent (Mt CO ₂ e)	2022	2021	2020	2019	2018
Scope 1 emissions	22.8	22.8	22.9	23	24.4
Scope 2 emissions	7.5	8.2	8.8	8.4	9.3
Total Scope 1 & 2 emissions	30.3	31	31.7	31.4	33.7
Carbon offsets retired	0.0*				
Scope 3 emissions	583.9	558.3	576.2	–	–
Operational emissions intensity (tCO ₂ e / t Cu-eq)(equity) ¹	6.2	6.3	6.2	6.1	6.1

Our 2030 greenhouse gas emissions targets are to reduce our absolute Scope 1 & 2 emissions by 15% by 2025 and 50% by 2030 compared with our 2018 equity baseline. Please see GHG Emissions Methodology sheet for details of our approach to reporting Scope 1, 2 & 3 emissions. Note that our 2022 equity emissions and our 2018 baseline do not include the additional equity share of the Oyu Tolgoi mine that was purchased in mid-December 2022. Queensland Alumina Limited (QAL) is 80% owned by Rio Tinto and 20% owned by Rusal. However, as a result of QAL's activation of a step-in process following the Australian Government's sanction measures, Rio Tinto is currently entitled to utilise 100% of the capacity at QAL, but paying 100% of the costs for as long as that step-in continues. Our 2022 equity emissions and our 2018 baseline include QAL emissions on the basis of Rio Tinto's 80% ownership. In 2022, the additional emissions associated with the step-in were 0.53Mt. Rusal has commenced proceedings challenging the validity of the step-in and the sanctions regime may change over time, such that the duration of the step-in remains uncertain. Historical Scope 1 and 2 emissions have been restated to reflect improvements in data quality.

1. Historical information for copper equivalent intensity has been restated in line with the 2021 review of commodity pricing to allow comparability over time.

* We retired 10,000 offsets in 2022 as part of a trial carbon offset iron ore cargo with a steel producer in China. Further information on this transaction is provided in the 2022 Climate Change Report.

Scope 1 and 2 GHG – equity basis. Performance against target

Equity greenhouse gas emissions (Mt CO ₂ e)	2022	2018
Baseline Scope 1 & 2 emissions	30.3	
2018 emissions target baseline (adjusted for acquisitions & divestments)		32.5

2022 equity GHG by product group and source (Mt CO ₂ e)	Electricity ¹	Anodes & Reductants	Process Heat	Mobile Diesel	Other	2022 Total Emissions (Mt CO ₂ e)
Aluminium	9.5	5.0	5.2	0.3	1.2	21.1
Aluminium (Pacific)	7.7	1.7	0.2	0.0	0.2	9.7
Aluminium (Atlantic)	0.5	3.3	0.3	0.0	0.7	4.8
Bauxite & Alumina	1.2	0.0	4.7	0.2	0.3	6.5
Minerals (includes Iron Ore Company of Canada)	1.6	1.4	0.7	0.3	0.0	4.0
Iron Ore (includes Dampier Salt)	0.8	0.0	0.1	2.2	0.0	3.1
Copper	0.5	0.0	0.2	0.8	0.0	1.5
Other (includes Shipping and corporate functions)	0.1	0.0	0.0	0.5	0.0	0.6
Total	12.5	6.3	6.2	4.1	1.2	30.3

Note: The sum of the categories may be slightly different to the Rio Tinto total due to rounding.

1. Electricity includes imported power and own generation; process heat includes diesel consumption from stationary sources such as pumps; mobile diesel sources are haul trucks, locomotives and other mining fleet.

2022 equity GHG by location (Mt CO ₂ e)	Scope 1 Emissions (Mt CO ₂ e)	Scope 2 Emissions (Mt CO ₂ e)	Total Emissions (Mt CO ₂ e)
Australia	12.6	5.6	18.2
Canada	6.1	0	6.1
South Africa	0.4	1.3	1.7
USA	1	0	1
Other: Rest of Africa	0.3	0	0.3
Other: Europe	0.3	0	0.3
Other: Asia, New Zealand, Central America, South America	2.1	0.6	2.7
Total	22.8	7.5	30.3

Scope 3 greenhouse gas emissions – equity basis

Total equity Scope 3 GHG (M tCO ₂ e)	2022	2021 Restated	2020 Restated
Scope 3 emissions – Upstream	32.6	32.3*	30.4*
Scope 3 emissions – Downstream	551.3	526	545.8*
Total	583.9	558.3	576.2


* Numbers restated from those originally published to ensure comparability over time.

Environmental stewardship

As environmental stewards, we focus on responsibly managing shared resources to protect the health, safety and livelihoods of local communities. We manage risk to minimise adverse environmental impacts from our operations and to sustain our shared ecosystems, planet and natural resources for future generations. In July 2022, the United Nations recognised “the right to a clean, healthy and sustainable environment” as a human right, further underlining our responsibilities to people and the planet.

2022 progress

As a forum member of the Taskforce on Nature-related Financial Disclosures (TNFD), we are preparing to pilot the prototype risk management and opportunity disclosure framework at our Simandou site in Guinea. This framework will help businesses with the transparency and management of nature-related risks. We continue to provide feedback on the framework through our membership of the International Council on Mining and Metals (ICMM). We are also refreshing our approach to managing nature-related risk and developing a pathway to increasing our disclosures in line with TNFD.

 **For more information**
about our nature-related disclosures, see our 2022 Sustainability Fact Book at riotinto.com/sustainabilityreporting.

We have also strengthened our approach to environmental risk management by developing a shared language and a standardised set of controls, and ensuring we are assessing the full breadth of potential environmental impacts in a consistent way across our business.

As part of the Health, Safety, Environment and Security Transformation Programme, we have continued to develop and implement the environment modules, with the “air” and “water” modules in use at our Saguenay–Lac-Saint-Jean operations in Quebec, Canada. The programme will improve how we manage our environmental data, allowing us to use this information to support our decision making, meet the growing demand for transparency, and set meaningful targets for continuous improvement in environmental performance.

We have also worked to ensure that environmental management is consistent and embedded across all processes in our business and through the lifecycle of our operations. To support our assets in managing their environmental performance, we incorporated environmental risk ownership and performance measurement into the safety maturity model (SMM), which focuses on leadership behaviours in the field and critical risk management.

With our product groups, Health and Commercial teams, we started developing a roadmap for future-proofing our product stewardship to ensure that we continue to deliver products that safeguard the environment, health and safety of our communities and end-consumers.


Water

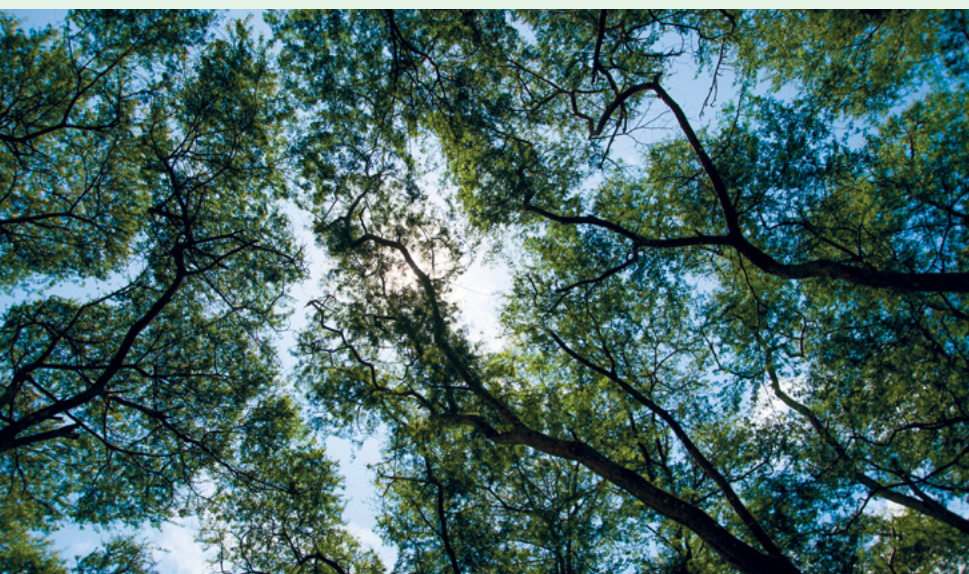
Water is a shared resource critical to sustaining biodiversity, people and economic prosperity. Increasingly disrupted weather patterns and more extreme weather events due to climate change, and a growing world population, mean efficiently managing water is more important than ever.

The way we think about water and manage associated risks reflects the diversity of our operations and geographic locations. A small proportion of our assets operate in water-scarce regions, while others must remove excess water to allow safe mining operations. These are examples of the many potential risks we manage across the lifecycle of our diverse operations.

We share water with the communities and nature surrounding our operations, so we aim to avoid permanent impacts on water resources by carefully managing the quality and quantity of the water we use and return to the environment. This means balancing the needs of our operations with those of the local communities and ecosystems. We do this while considering the impact of climate change, already felt in the level of rainfall and water security at some of our operations. We understand this responsibility extends beyond the life of our operations.


To address this complexity, we adopt a catchment-level approach to developing potential solutions and managing our risks and impacts within our operations. We use baseline water stress as determined by the World Resource Institute to identify operational catchments of most concern.

 **For more information**
visit our website www.riotinto.com/water



Exploring nature-based solutions

In 2022, we launched a new team of specialists focused on nature-based solutions, who will explore and invest in high-quality projects that implement internationally accepted social and environmental safeguards and contribute to reducing our carbon footprint. As part of this work, we will partner with host communities and other local stakeholders to learn from them and jointly find ways to improve the resilience and protect the biodiversity of land in and around our operations.

 **For more information**
see our website.

Group water risk profile (% of managed operations)

To manage our water impacts, we first need to understand the specific risks at more than 50 operating sites, as well as our overall Group impacts. To do this, we have developed a water risk framework that considers:

- Water resource
- Quality and quantity
- Dewatering
- Long-term obligations

We use this framework to identify, assess and manage water risks. This comprehensive approach extends beyond our mandatory reporting obligations and allows us to have relevant conversations about water risks internally and with stakeholders in the communities where we operate. In 2022, we continued to embed the last component of the framework – the Group water control library – which describes all controls identified to manage our water risks.

Our Group water risk profile shows the level of exposure against each of the four risk categories. Most of our water risks sit in the “low” to “moderate” range. There are some in “very high” and “high” categories for each. Regardless of the level of risk, we apply rigorous standards and processes to manage them.

● Not applicable
 ● Low risk
 ● Moderate risk
 ● High risk
 ● Very high risk

Water resource

Is there enough water available for both environment and community needs, and our operational use?



The water resource risk at Oyu Tolgoi in Mongolia is assessed as moderate, even though it is located in the Gobi Desert. Oyu Tolgoi sources its water requirements from a deep water supply, the Gunii Hooloi aquifer, a 150-metre deep resource holding around 6.8 billion cubic metres of non-drinkable saline water. Oyu Tolgoi uses this water source efficiently with water recycling and conservation practices implemented across the operation.

Water quality and quantity

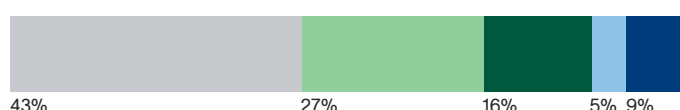
Does the way we manage water on site, or discharge excess water, cause environmental impacts or operational constraints?



Our QIT Madagascar Minerals (QMM) operation in Madagascar operates in a highly sensitive area from a water, broader environment and community perspective. The discharges from our operation have the potential to impact receiving water quality and, therefore, the water quality risk is assessed as high. We are working to improve management activities on site, including our ability to more accurately measure our water discharge quality, and the deployment of a dedicated water treatment plant to adjust the discharge pH.

Dewatering

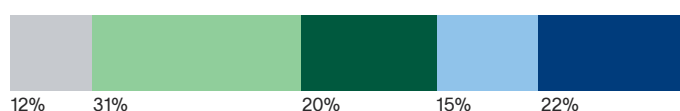
Does the removal of water from the operational areas of our sites impact regional aquifers or our mine plans?



Impacts associated with dewatering and water supply activities in the Pilbara are recognised as a very high risk for our business. Returning water to the aquifers impacted by our mining activities in a controlled manner is the focus of a number of studies. We are working with Traditional Owners on water management.

Long-term obligations

Do our operational activities generate long-term or ongoing obligations related to water?



We may sometimes generate impacts that we are required to manage over the long term, such as post-closure pit lakes in the Pilbara, or potential seepage from our waste rock or tailings facilities in our aluminium and copper sites. Our systems and standards aim to ensure that risks are identified early and managed appropriately and responsibly throughout the asset lifecycle.

2022 progress

Our water balance

Our Group water balance outlines where water was withdrawn from, discharged to, recycled or reused, and consumed at our operations.

The reported categories correlate with the requirements of the ICMM, Minerals Council of Australia and Global Reporting Initiatives.

We also report on our aggregated water balance for sites in water-stressed areas. We assess baseline water stress using the World Resources Institute's Aqueduct Water Risk Atlas mapping tool.



For more information

see the 2022 Sustainability Fact Book at riotinto.com/sustainabilityreporting.

Our water withdrawals

Our total operational withdrawals for 2022 were 1,119 GL, a 4% increase compared with 2021. Freshwater, or category 1 quality, withdrawals accounted for 432 GL or 39% of this total, which remains consistent with our 2021 withdrawals. Freshwater is generally suitable for consumption with minimal treatment required. Where possible, we aim to minimise our extractions from water sources of this quality.

Total discharges for 2022 were 638 GL, a 3% reduction compared with 2021. Total water recycled or reused for 2022 was 328 GL, a 6% increase over our 2021 performance.

Our 2019–2023 water targets

Our five-year water targets allow us to be more transparent about our water usage, risk profile, management and specific challenges. These targets, and the data required to measure progress against them, are helping us become better water stewards.

Our water targets were set in 2019 and consist of one Group target and six site-based targets, reflecting our catchment-based approach and recognising that we manage vastly different water-related risks across our business. The


site-based targets were chosen based on their water risk profile, our ICMM commitments, and local community and environmental interdependencies.

We continued to make progress against our Group target in 2022. We verified and updated water allocation volume data and estimated surface water catchment rainfall-runoff volumes for all our managed operations. A disclosure platform has been developed and is planned for public release in 2023.

In 2023, we will continue embedding our water risk framework and associated controls across our product groups and focus on delivering our site-based targets. We will also begin the development of our 2024–2029 water targets.

Progress against our targets

Group target	Water risk theme	Status	Commentary
Rio Tinto Group (Tier 1¹)			
By 2023, we will disclose – for all managed operations – permitted surface water allocation volumes, annual allocation usage and the associated surface water allocation catchment rainfall-runoff volume estimate.	Water resource	On track	Progress remains on track. A disclosure platform has been developed and is planned for public release in 2023.
Site-based target	Water risk theme	Status	Commentary
Pilbara operations, Iron Ore (Tier 1)			
Our Iron Ore product group will complete six managed aquifer recharge investigations by 2023.	Dewatering (aquifer reinjection)	On track	Successful completion of four of the proposed six managed aquifer recharge investigations.
Oyu Tolgoi, Copper (Tier 1)			
Oyu Tolgoi will maintain average annual water use efficiency at 550 L/tonne of ore to concentrator from 2019–23.	Water resource (intensity and efficiency)	Achieved for 2019–22	Average annual water use efficiency maintained below 550 L/tonne for 2022.
Kennecott Utah Copper, Copper (Tier 1)			
Kennecott will reduce average annual imported water per ton of ore milled by 5% over the 2014–18 baseline of 393 gal/ton (1,487L/ton) at the Copperton Concentrator by 2023.	Water resource (import reduction)	Not on track	Kennecott has continued to focus on the target in 2022, which has resulted in improved water intensity through the concentrator, with the 2022 intensity 12% lower than in 2021. This brings the intensity in line with the 2014–2018 baseline.
Ranger Mine², Energy Resources of Australia Limited (ERA), Closure (Tier 1)			
ERA will achieve the planned total process water inventory treatment volume by 2023, as assumed in the Ranger water model.	Quantity/quality (inventory reduction)	Not on track	In May 2022, ERA commenced a feasibility study update in connection with a lower technical risk rehabilitation methodology and to further refine the Ranger Project Area rehabilitation execution scope, risks, cost and schedule. The 2022 Feasibility Study is forecast to be completed in September 2023 and will ultimately lead to a revised Mine Closure Plan, incorporating an updated Ranger water model.
QIT Madagascar Minerals (QMM), Minerals (Tier 2³)			
QMM will develop and implement an improved integrated site water management approach by 2023.	Quantity/quality (discharge quality)	On track	In 2022, we completed the development of our long-term water management strategy and implemented a pilot water treatment plant that allowed us to discharge water compliant with pH and aluminium criteria for the second half of the year. We are working to improve our long-term water management practices on site, including our ability to more accurately measure our water discharge quality, and the deployment of a full-scale dedicated water treatment plant.
Queensland Alumina Limited (QAL), Aluminium (non-managed joint venture) (Tier 2)			
QAL will complete the following four water-related improvement projects from the QAL five-year environment strategy by 2023:	Quality/quantity (discharge quality)	On track	Progress of nominated water-related improvement projects is aligned with current project schedules.
– Project L1: integrity of bunds and drains	Joint venture performance improvement		
– Project W3: caustic pipe and wasteline 4 integrity			
– Project W6: residue disposal area surface/ground water impacts			
– Project W7: residue disposal area release to receiving environment			

 **For more information**
about our progress against our site-based water targets, see our website www.riotinto.com/water

1. Tier 1 water targets form part of the Rio Tinto external limited assurance programme.

2. Ranger Mine is owned and operated by ERA; Rio Tinto is a 86.3% shareholder in ERA.

3. Tier 2 water targets do not form part of the Rio Tinto external limited assurance programme.

Biodiversity

The interconnected impacts of climate change and biodiversity loss pose significant risks to people and the environment. We recognise our responsibility to effectively mitigate the impact of our operations on nature, and we are mindful of our own dependence on healthy ecosystems to run a successful business.

Healthy natural environments with functioning ecosystems are key to climate resilience. They also provide important services to the communities where we operate and our business. We are committed to protecting biodiversity and our ambition is to achieve no net loss. This means striking a balance between negative impacts on biodiversity and positive outcomes achieved through mitigation.

2022 progress

We continue to assess the sensitivity of our planned activities using combined global datasets of threatened species and conservation and protected areas, developed by the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC). This helps inform our risk-prioritisation of assets in areas of high biodiversity, including exploration and project sites, and supports our allocation of resources. In 2022, we enhanced the resolution of our assessments with

improved geo-spatial data for our assets, ensuring the protection of sensitive areas in proximity to our activities.

As a founding partner of UNEP WCMC's 19-year-old Proteus Partnership, and aligned with our drive to build our internal capability, we continued to deliver biodiversity training to employees across the business. In 2022, we prioritised QIT Madagascar Minerals (QMM), Simandou and our Commercial team in China to receive biodiversity training, which we delivered in their respective languages.

We continue to innovate to help us become better environmental stewards. At QMM and Simandou, we have begun assessing the feasibility of using new environmental DNA technology to help us understand the full scope of species in and around our operations, allowing for more tailored and effective mitigation measures. In 2023, we are looking to expand this approach according to our sites' risk prioritisation. At our Weipa operations in Australia, we trialled machine learning to help us with monitoring by replicating human identification of the endangered Palm Cockatoo, freeing up resources for increased conservation work.

We also invested C\$2.67 million to support the Saguenay Fjord Ecosystem Research Group in Quebec, Canada, which brings together researchers and professionals from INREST¹, Université du Québec à Chicoutimi, and Université Laval. The group will document and understand the factors that influence the Saguenay Fjord ecosystem, which is both a unique natural ecosystem and a crucial waterway for the economy of the Saguenay–Lac-Saint-Jean region and the province of Quebec. This knowledge will help keep our shipping operations running in a way that is safe for the Saguenay ecosystem.

In 2022, we completed an independent review of the monitoring programmes of our high-priority biodiversity sites, which included ensuring that management plans and actions adequately address risks to nature.

At the Simandou project in Guinea, and drawing on data collected over the last decade, in 2022 we continued updating our baseline assessments. In the second quarter of 2023, we will publish the revised Environmental and Social Impact Assessment.

Land

We are temporary custodians of the land on which we operate, and we aim to rehabilitate the land as soon as it becomes available.

2022 progress

In 2022, we rehabilitated 16 square kilometres of land, mostly at our bauxite mines in Australia, mineral sands mines in South Africa and Madagascar, and at our iron ore mines and exploration areas in the Pilbara, Western Australia. In the southern Gobi Desert in Mongolia, following successful rehabilitation of the Oyu Tolgoi to Khanbogd Soum old dirt road, we relinquished around 50 hectares of land, returning the land back to its original use of grazing by the local herders.

Through the development of our environmental risk control libraries, we are also strengthening how we plan for and implement progressive rehabilitation.

In 2022, our land footprint – total disturbed area – was 3,810 square kilometres, an increase of 75 square kilometres compared to 2021. This includes all disturbances to our operating assets and activities, such as exploration activities, smelters, mines and supporting infrastructure.

Our rehabilitation teams partner with research centres and universities to refine rehabilitation approaches and improve outcomes. In 2022, as a forum member of the Australian-led Cooperative Research Centre for

Transformations in Mining Economies (CRC TiME), we contributed to the coordinated investment into innovative research that addresses the complex challenges underpinning mine closure and relinquishment.

 **For more information**
about our closure work, see page 71.

We also completed several trials using satellite-derived data to determine if we could measure rehabilitation performance at a global scale, while at the same time complementing the monitoring data collected locally. In addition, 16 of our operations completed rehabilitation trials to improve seed germination, erosion and topsoil quality.

Waste

2022 progress

Waste and residues from our operational activities are key areas of environmental risk management. In 2022, we continued to focus on managing potential contamination from these sources. This included working to remove all use of PFAS (perfluoroalkyl and polyfluoroalkyl substances) in fire-suppression systems at our sites by the end of 2022. Although we removed the use of PFAS in the majority of these systems, in some instances this transition will not be completed until 2024

at the earliest. This is due to delays in starting the retrofit or overhaul of major pieces of infrastructure, as well as challenges in sourcing alternative fluorine free substances for use in fire-suppression systems in some jurisdictions.

At some of our long-life assets, we continually evaluate past waste management practices that have led to a need for remediation in the present. For example, in 2022, we remained focused on finding additional ways to transform waste and by-products from our aluminium operations into materials for use in the construction and agricultural sectors.

We have assets with chemically reactive mineral waste risks, which we manage by conducting independent reviews to assess the effectiveness of our risk management programmes and identify areas for improvement. In 2022, we conducted reviews at Yarwun in Australia, Oyu Tolgoi in Mongolia, and at Kennecott, Boron, Resolution Copper and the Ridgeway closed site in the US.

 **For more information**
about tailings, see page 71.

1. Northern Institute for Research in Environment and Occupational Health and Safety.

Air quality

Clean air is critical for the health of our host communities and the surrounding ecosystems. We are working to improve air quality management, focusing on emissions of particulate matter and gases from our operational activities, including mining, materials handling, processing and transportation. The potentially hazardous emissions we monitor at operations are:

- sulphur oxides (SO_x), mainly at our aluminium and copper smelters
- nitrogen oxides (NO_x), mainly from burning fossil fuels
- gaseous fluoride emissions from aluminium smelters
- respirable particulate emissions (PM₁₀ and PM_{2.5}), very fine particles from mining and processing operations and from burning fossil fuels.

Our emphasis is on reducing emissions at source by upgrading equipment to use the best available technologies, adding air pollution control equipment, and using renewable energy or alternative feed material where possible. Our air quality management programmes include monitoring, sampling at source, incident tracking and risk assessments.

Many of our assets have multi-year air quality improvement projects in place. For example, at our Boron operations in California, US we updated a boiler to reduce the amount of nitrogen oxides emitted. At our Pilbara Iron Ore operations, in a region prone to high dust emissions, we created a working group to improve our dust management. The group developed and implemented new controls and improved the dust management systems.

For example, at the West Angelas mine, we installed a new dust collector which reduced respirable dust (PM₁₀) emissions by 59%.

In some instances, we did not comply with permissible emission limits. For example, in April, at our Arvida plant in Saguenay–Lac-Saint-Jean, Quebec, Canada our continuous monitoring system indicated that we exceeded the monthly emission limit for dust and fluoride in pot rooms. This had no adverse impact on air quality, and we remained compliant with our daily and annual limits. We investigated, made adjustments to comply with the emission limit and resumed compliance the following month.

With the evolution of climate and our operating conditions, we are focusing on prevention to make sure that we understand evolving conditions and how we can adapt our operations.

Operational environment overview

	2022	2021	2020	2019	2018
Significant environmental incidents ¹	0	3	0	0	0
Fines and prosecutions – environment (\$'000) ²	109.8	7.4	27.4	19.0	284.7
Land footprint – disturbed (cumulative square kilometres) ³	3,810	3,735	3,630	3,627	3,595
Land footprint – rehabilitated (cumulative square kilometres) ³	522	494	490	489	485
Mineral waste disposed or stored (million tonnes)	973	1,005	987	905	886
Non-mineral waste disposed or stored (million tonnes)	0.76	0.65	0.47	0.28	0.27
SO _x emissions (thousand tonnes)	66.2	70.2	75.7	79.0	84.2
NO _x emissions (thousand tonnes) ⁴	64.4	62.3	65.2	64.3	62.0
Fluoride emissions (thousand tonnes)	2.35	2.36	2.27	2.34	2.61
Particulate (PM ₁₀) emissions (thousand tonnes) ⁵	181.7	142.3	143.2	131.5	136.2

1. Significant environmental incident is an incident with an actual consequence rating of major or catastrophic. We measure and rate incidents according to their actual environmental and compliance impacts using five severity categories: minor, medium, serious, major, or catastrophic. Major and catastrophic environmental incidents are usually reported to the relevant product group head and the Rio Tinto Chief Executive as soon as possible.

2. In 2022 we paid environmental fines totalling \$109,782 resulting from overflow of containment pond during high rainfall events at our Gove Operations, Australia; release of caustic solution to land at Yarwun, Australia; the death of a goitered gazelle and cutting trees without a permit at Oyu Tolgoi, Mongolia; failing to meet PM₁₀ emission limit at Kennecott Utah Copper, US; non-compliance with carbonaceous by-products storage at spent pot liner treatment plant, Canada; violation of hazardous materials transportation statute at Kitimat smelter, Canada; operation of gas pipeline without estimated rehabilitation costing approval at Boyne smelter, Australia; and non-compliance related to storing contaminated soil, residual materials and sludge at Havre-Saint-Pierre and Lac Tio, Canada.

3. Figures in 2019–2021 have been restated from those originally published to ensure comparability over time.

4. The increase of NO_x emissions from 2019–2020 is due to change in calculation method from emissions factors to direct measurement using stack sampling data. The figures for 2020 and 2021 have been restated from those originally published to ensure comparability over time.

5. PM₁₀ emissions increased by 32kt in 2022 with the commencement of production at Gudai-Darri. We are trialing alternative dust suppressants.



Air quality control at Cape Lambert. The Pilbara, Western Australia.

Mining and metals practices

Tailings

We engage with stakeholders throughout the lifecycle of our tailings storage facilities, from design to closure. We also collaborate closely with external bodies to improve the way tailings are managed across our industry.

We manage 95 tailings storage facilities (TSFs) across our global assets. There are a further 43 non-managed TSFs. Altogether, there are 57 active TSFs, 39 are inactive and 42 are closed. There have been no external wall failures at any of our TSFs for more than 20 years.

We work through technical committees and joint venture relationships to support leading practice in tailings management. Our full tailings disclosure is available on our website riotinto.com/tailings and we periodically update the list of TSFs to reflect operational and ownership changes, including changes due to the transition to closure or remediation obligations for legacy assets and reclassification of facilities. Our list also includes links to TSFs managed by our joint venture partners.

Our facilities are regulated and permitted and have been managed for many years to comply with local laws, regulations, permits, licences and other requirements. Tailings management has been included in the Group risk register since 2010, and our Group safety standard for tailings and water storage facilities has been in place since 2015. Our internal assurance processes verify that our managed TSFs operate in accordance with this standard, which we updated in 2020.

Our operational TSFs have emergency response plans – tested through training exercises in collaboration with stakeholders such as local emergency services – and follow strict business resilience and communications protocols.

2022 progress

In December 2022, we updated previously disclosed information on our global TSFs. All facilities were assigned a consequence classification in accordance with the regulatory or industry body that oversees tailings in each region or jurisdiction. Additional technical data from updated downstream impact assessments, required under the Global Industry Standard on Tailings Management (GISTM) and our own internal standard for tailings and water storage facilities, resulted in a modification to hazard classifications of some facilities. Consequence classifications are not ratings of the condition of a facility or the likelihood of failure; instead, they rate the potential consequence if the facility were to fail.

Since the launch of GISTM in August 2020, we have continued work on our implementation plan. We have completed a gap analysis against our internal tailings management, environment, and communities and social performance standards, and developed improvement plans to close identified gaps. We are working towards having all TSFs with a potential consequence rated “extreme” or “very high” in conformance with GISTM by August 2023, with all remaining facilities in conformance by August 2025.

90+

legacy assets managed within our portfolio

38

of our assets have asset closure strategies in place

We played an active role in the ICMM tailings working group in 2022, which published key guidance materials to support the safe, responsible management of tailings with the goal of eliminating fatalities and catastrophic events.

These include:

- The Tailings Reduction Roadmap, which provides strategic direction on how to accelerate the development and adoption of technologies to reduce tailings production.
- The Tailings Management Good Practice Guide, which provides guidance on good governance and engineering practices to support continuous improvement in tailings management.
- The Good Practice Guide training materials, designed to build awareness and capability in good governance and tailings engineering practices.

In 2022, we also:

- Conducted multi-disciplinary risk assessments for all our “very high” and “extreme” consequence facilities.
- Continued to support the Future Tails partnership, a collaboration between Rio Tinto, BHP and the University of Western Australia (UWA). In 2022, the Graduate Certificate in Tailings Management at UWA had 106 enrolled students from 12 countries in micro-credentialled units. Two PhD candidates also commenced their research programmes in 2022.
- Partnered with BHP on tailings filtration solutions at very high throughputs for copper operations, which supports our goal of increasing water recovery and recycling.
- Continued to regularly convene the Tailings Management Committee with our designated Accountable Executives, which provides coordinated governance of tailings management practices across the Group.

Closure

Through safe and responsible asset closure, we are working to deliver shared benefits for host communities, employees and investors; positive ESG outcomes; and innovative solutions that minimise long-term liabilities. We do this in partnership with our stakeholders, embedding closure considerations throughout the lifespan of our assets – in the way we design, build, run, close and transition them.

As temporary stewards of the land where we operate, we partner with our stakeholders to develop a shared vision for the future of the lands and host communities. Balancing environmental, financial and social considerations, we look for opportunities associated with progressive closure, remediation and repurposing, and, where appropriate, long-term monitoring and maintenance.

At the end of 2022, closure provisions on our balance sheet totalled \$15.8 billion (2021: \$14.5 billion).

2022 progress

Argyle diamond mine

We continue to close the Argyle diamond mine in Western Australia. In 2022, we completed the high-reach demolition of structures and processing equipment on site and progressed reprofiling and rehabilitation works. We are engaging with Miriwoong and Gija Traditional Owners on how to best support and expand meaningful participation as we progress closure activities.

Gove refinery and residue disposal areas

While mining continues at our Gove bauxite operations in the Northern Territory in Australia, we are implementing progressive closure activities, including the decommissioning and demolition of the refinery and progressive capping of the bauxite residue disposal areas. In 2022, we completed the relocation of essential services, including electrical and water, from the refinery footprint to begin safe demolition. This work supports the security of services for the town of Nhulunbuy post closure.

Ranger uranium mine

Energy Resources of Australia (ERA) is rehabilitating the Ranger uranium mine in the Northern Territory, Australia. We are committed to the successful rehabilitation of Ranger to a standard that will establish an environment similar to the adjacent Kakadu National Park, a World Heritage site. We acknowledge the Traditional Owners, the Mirarr people's, consistent opposition to developing the Jabiluka uranium deposit and restate our full support for ERA's commitment that the deposit would never be developed without the Mirarr people's consent. Our utmost priority and commitment is to the rehabilitation of the Ranger Project Area in a way that is consistent with the wishes of the Mirarr people.

Following ERA's announcement of cost and schedule overruns in February 2022, we sought to work constructively with ERA's Independent Board Committee (IBC) to find a funding solution to meet its rehabilitation obligations. This included engaging for several months on an interim entitlement offer that was deferred by the IBC in July 2022 when its proposed terms failed to obtain major shareholder support.

In October 2022, ERA's IBC resigned as directors of ERA to allow for the introduction of new perspectives to address the rehabilitation costs.

While a funding solution for the rehabilitation is being identified and agreed by new ERA Independent Directors, we agreed to amend an existing A\$100 million credit facility to assist ERA with its management of immediate liquidity issues.

Together with ERA and other key stakeholders including the Mirarr people, we supported the recent amendments to the Atomic Energy Act 1953 (Cth), which will allow rehabilitation activities at Ranger to extend beyond the previously legislated timeframe of January 2026.

Legacy assets

We manage over 90 legacy assets in nine countries. Where appropriate, we rehabilitate these sites and work with local stakeholders to transition them to their next use. For example, at Mount Rosser in Jamaica, an inactive bauxite residue storage facility, we have covered 95% of the site with vegetation, seeing a diverse and sustainable mix of plant species all using a top-soil-free rehabilitation method. We progressed rehabilitation at Pohatcong, a packaging site in New Jersey, US by completing in-situ thermal remediation to treat and eliminate contaminants in soil. In France, we completed our post-mining obligations at Le Thoronet, a former bauxite mine, and handed back the site to the French authorities for monitoring and maintenance.

We continue to work in partnership with the French Ministry of Ecological Transition to further restore the site and create a diverse space with public hiking trails set to open in 2023.

We continued work on our GISTM compliance plan, and in 2022, we strengthened our knowledge of legacy sites.

Strengthening our approach

We completed six asset closure strategies in 2022, now in place for 38 of our operations. These strategies create a progressive vision for future land use after our operations cease and focus on opportunities to reduce closure costs and risks over the asset lifecycle. All of our operating sites have closure plans. We review these plans regularly to align with stakeholder expectations and to incorporate lessons learned from other closure projects. At operations with joint ownership structures, we work in partnership with other asset owners to ensure closure is considered throughout asset design, planning and operations.

Working in partnership



Successful closure needs to align with the expectations of host communities and governments. We are developing new approaches to engagement, such as co-creation of the future use and landform, co-execution and co-governance. To achieve this, we are working with host communities, including Indigenous partners, on rehabilitation, revegetation and long-term monitoring at many sites.

We look for opportunities across our portfolio to contribute to decarbonisation efforts for the communities where we operate. For example, at our Gove bauxite operations, we are working to introduce solar power into the grid to support sustainable power for the region beyond mining.

We partner with universities, governments and other organisations to find opportunities to repurpose and reprocess mineral and industrial waste, improve treatment and valorisation of mining-influenced waters, and explore the social aspects of mine closure.


For example:

- We joined the Mining Microbiome Analytics Platform project to identify microbes that could help the industry mine and remediate sites more sustainably. For more information, see our website.
- Through our joint venture partnership with Regeneration Enterprises, we developed partnership strategies on re-mining and remediation of two legacy assets. We have engaged key technology, research and development, and ecological partners in our closure work.
- We joined the National Alliance for Water Innovation, a public-private partnership that brings together a team of industry and academic partners. The team examines the critical technical barriers and research needed to radically lower the cost and energy of desalination to secure an affordable, energy-efficient and resilient water supply for the US economy.
- We continued engagement in partnership with the Gove Peninsula Futures Reference Group (GPRFG) to plan for a sustainable future for Nhulunbuy and the Gove Peninsula post-mining for the benefit of Yolngu land owners, local communities and businesses. Members include the Gumatj and Rirrattjingu Traditional Owners, the Northern Land Council, the Northern Territory Government, Australian Government and Rio Tinto. Learn how the GPRFG is supporting a positive transition on their website govefutures.nt.gov.au

 **For more information**
about closure provisions and financial statements, see page 182 .

The slow journey from red mud to green plants

A once-barren area that for decades was the collection point for red mud, which is waste related to bauxite processing, Mount Rosser in Jamaica is now an area of increasing plant and animal diversity. It is replete with lessons about ecology, chemistry, botany, relationships with local communities, and the importance of steadfast perseverance. Above all, this decades-long remediation project demonstrates that progress is possible even when there is no easy solution.

 **Learn more**
on our website.





Transparent, values-based and ethical business

The way we do business is increasingly important to our investors, host communities, workforce and broader society. They want to know that we conduct ourselves responsibly and that suppliers and customers across our value chain do so as well.

To help us continue to run a transparent, values-based and ethical business, in 2022 we updated our Code of Conduct – The Way We Work, which we launched internally in February 2023. We also trained 24,857 of our people in how to recognise and manage business integrity dilemmas and further developed our confidential reporting programme myVoice.

Ethics and compliance

We want our people and partners to uphold the highest standard of integrity, act ethically and do the right thing. Sometimes this requires courage, which is one of our three values.

2022 progress

Business integrity

During 2022, we delivered several compliance programme improvements to ensure we continued to be in line with our current business integrity risks. We are exposed to reputational, financial and non-financial risk through the actions of third parties we engage with. We are updating our Third-Party Risk Management programme so we can optimise risk assessments, processes, systems and tools, and improve integration with other associated business processes. We are also managing our risk exposure to economic sanctions, monitoring new sanctions and continuing our ongoing assessment of our supply chains.

In 2022, we focused on how we monitor key fraud controls. We conducted a fraud risk assessment and reviewed the current measures we have in place to prevent and detect fraud risk. This will help us better understand the root causes of fraud and how we can improve our response.

We also updated our data privacy standard, which sets out the minimum requirements for how to collect and process personal data. Our monitoring now covers requirements of the data privacy programme.

Annual training

We know that our reputation as a business that acts ethically and with integrity depends on the actions and decisions we make every day. We empower our people to seek guidance when faced with an ethical or business integrity dilemma – both to prevent incidents from occurring, and to protect them and others from harm. To help our workforce navigate grey areas and spot business integrity red flags, we have developed an online training course that challenges them to make ethical decisions through a number of interactive scenarios. Our online business integrity induction training provides all new joiners with an introduction to ethics and compliance as well as the tools they need to recognise and understand business integrity risks. In addition to online training, the Ethics and Compliance team provides ongoing targeted face-to-face sessions on key risk areas including bribery and corruption, data privacy and competition.

24,857 employees

undertook compliance training in 2022

Code of Conduct

In early 2023, we launched our updated Code of Conduct – The Way We Work, which is available on our website at www.riotinto.com. Our Code of Conduct will work as a central tool in reshaping our culture and it demonstrates what living our values of care, courage and curiosity should look like. The code sets out our commitment to conducting business with integrity and provides clarity about the behaviours we expect and why responsible business conduct matters. The new code is broader in scope than our previous code and reflects changes in both internal and societal expectations regarding business conduct. It will help our people reflect on the potential impacts our decisions may have on the business and others. Updates to our Code of Conduct will be made available on our website pursuant to relevant laws and regulations.


myVoice, our confidential reporting programme

We have continued to develop our confidential reporting programme myVoice, which is designed to help our people voice concerns about potential misconduct or improper behaviour. Our care for our people and our desire to understand contributing factors for misconduct sit at the core of this programme.

The Business Conduct Office (BCO) is working to increase transparency and improve how we capture learnings from the myVoice programme by expanding the team to include a reporting and governance function. We continue to see an increase in reporting and we believe this means that more people are feeling comfortable to share their concerns. In 2022, we received 1,459 reports through the myVoice programme channels. Of these cases, 63% were substantiated, including 77 cases which were reports received in 2021.

The BCO is currently implementing two key recommendations from the *Everyday Respect Report* that was released in February 2022. We are setting up a discrete unit of experts who will support and care for our people who have been impacted by harmful and disrespectful behaviours. The team will also be available to support leaders and human resources professionals in how to respond, and other people who have been affected by those behaviours. Separately we are also redesigning our investigation process to make sure it is trauma-informed, caring and people-centred.

The BCO reports to our Chief Legal Officer, Governance & Corporate Affairs; the Board; and the Global Ethics and Compliance Committee.

 **For more information**
about the Everyday Respect initiative,
visit riotinto.com/everydayrespect.

myVoice* case activity

	2022	2021	2020	2019	2018
Number of reports	1,459	1,246	748	805	679
Number of reports per 1,000 employees	28.1	26	16.3	17.9	14.3
Substantiated claims (%)	63%	51%	42%	34%	34%

* myVoice (introduced in 2021), replaced the programme formerly known as Talk to Peggy or Speak-OUT.

Transparency

Transparency encourages accountability – ours as well as others’ – and allows us to have fact-based conversations about the issues at hand.

Being open and transparent about our tax payments, mineral development contracts, beneficial ownership and our stance on a range of other sustainability issues – such as climate change – allows us to enter into open, fact-based conversations with our stakeholders, and provides a better understanding of everyone’s roles and responsibilities.

We are recognised as a leader in transparent tax reporting. We are a founding member of the Extractive Industry Transparency Initiative (EITI) and have actively supported EITI’s principles and global transparency and accountability standards since 2003. We are also a signatory to the B Team Responsible Tax Principles.

Political integrity

We do not favour any political party, group or individual, or involve ourselves in party political matters. We prohibit the use of funds to support political candidates or parties. Our business integrity procedure includes strict guidelines for dealing with current and former government officials and politicians, and they cannot be appointed to senior employee positions or engaged as consultants, in certain circumstances, without the approval of executive management and our Chief Ethics & Compliance Officer.

We regularly engage with governments and share information and our experiences on issues that affect our operations and our industry. We join industry associations where membership provides value to our business, investors and other stakeholders. We outline the principles that guide our participation and the way we engage, as well as a list of the top five associations by membership fees paid, on our website [riotinto.com/industryassociations](https://www.riotinto.com/industryassociations). We also track and disclose how we engage on climate policy issues, disclosing when the policies and advocacy positions adopted by industry associations differ materially from ours. We continue to strengthen our approach and disclosures on industry associations.

Voluntary commitments, accreditations and memberships

We take part in a number of global, national and regional organisations and initiatives that inform our sustainability approach and standards, which in turn allows us to better manage our risks. These external organisations and initiatives assess and recognise our performance, and we participate in industry accreditation programmes for some of our products.



For more information

about our voluntary commitments, accreditations and memberships, visit our website <https://www.riotinto.com/sustainability/our-approach>



Student mentoring programme. Weipa, Australia.



Risk management

Taking risks responsibly is key to delivering our strategy in a way that creates value for our customers, shareholders, employees and partners.

Our risk appetite

Climate change and the low-carbon transition are at the heart of our strategy to strengthen our resilience and pursue new growth opportunities and partnerships.

Partnering to decarbonise our assets

Our targets are to reduce our Scope 1 and 2 emissions by 15% by 2025, and by 50% by 2030 (relative to 2018 levels) and reach net zero by 2050.

We estimate that we will invest \$7.5 billion in capital between 2022 and 2030 to deliver our decarbonisation strategy.

When we evaluate our decarbonisation projects, we consider five elements: value, materiality of abatement, maturity of emission reduction, competitiveness versus internal and external benchmarks, and alignment with our net zero 2050 target.

Develop products and technologies to support our customers’ decarbonisation

We partner with customers, competitors, suppliers, technology developers, governments and universities to find solutions. We aim to spend \$400 million every year in research and development on the five components of our technology roadmap: health and safety, lightening our overall environmental footprint, supporting growth, decarbonising our business and our products, and improving productivity.

Grow in materials that meet demand for energy transition

We focus on excelling in development, and being the best operator in commodities essential for the drive to net zero.

We continue to consider higher-risk jurisdictions and broadening our target commodities.

We aim to spend up to \$3 billion on growth capital every year, while maintaining capital discipline in pursuit of value-accretive opportunities.

Our determination to be the best operator and have impeccable environmental, social and governance (ESG) credentials is underpinned by our zero tolerance for non-compliance with our operational procedures, laws and obligations. These expectations are outlined in our Group policies, standards and procedures, which are published on our website at riotinto.com/policies.

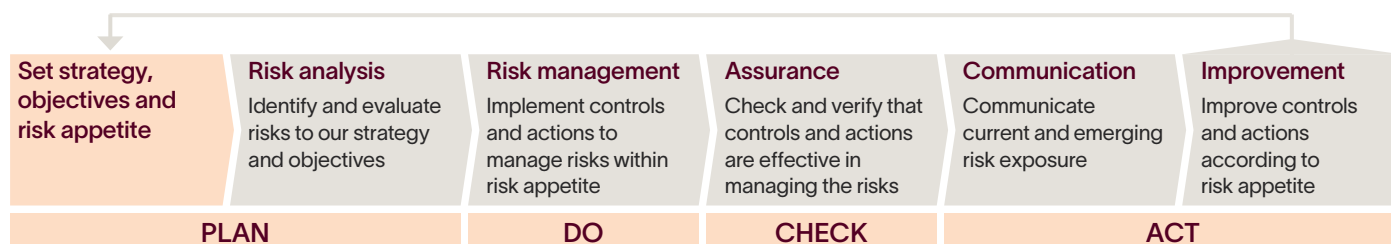
Our approach to risk management

To protect and create value, we aim to have the right people at the right level managing risks.

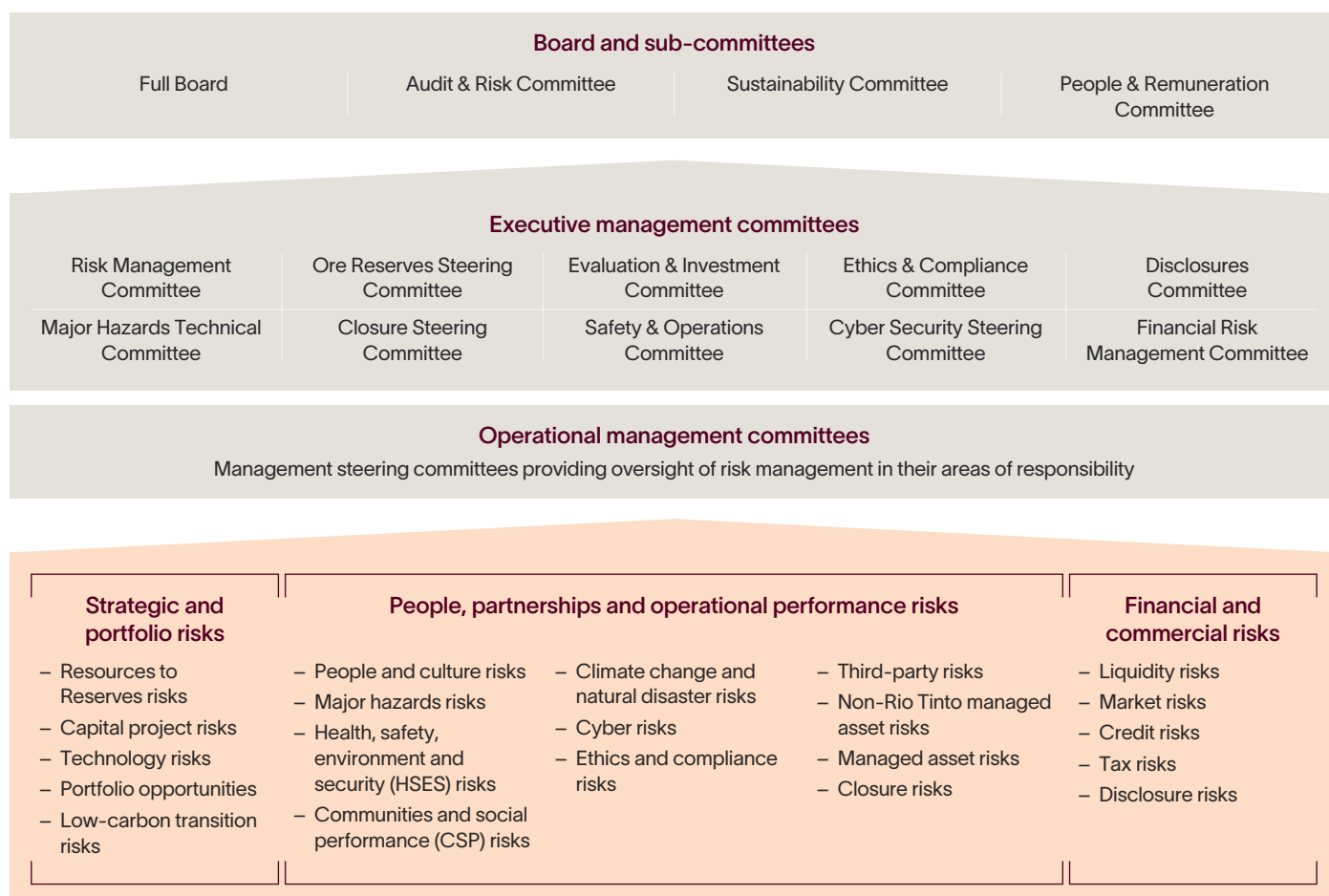
Our strategy, values and risk appetite inform and shape our risk management framework. We embed risk management at every level of the organisation to effectively manage threats and opportunities to our business and host communities, and our environmental impact.

Our risk management process can be described as a Plan-Do-Check-Act cycle. We monitor how well we manage material risks to our objectives by checking and verifying the implementation of our response plans (actions and controls) and our actual performance against objectives. We enhance the check-and-verify step by applying the three lines of defence approach.

Our risk management process



Governance structure supporting our risk management framework



The Board and the Executive Committee oversee our principal risks, and the Audit & Risk Committee monitors the overall effectiveness of our risk management and internal controls framework. In addition, the operational management committees of our product groups and Group functions also oversee risk management in their area of responsibility, with insights from assurance and compliance activities.

At the front-line operational level, all employees are required and empowered to identify and manage the risks that arise within their area of responsibility. This governance structure supports our risk management framework and enables effective management of material risks.

Emerging risks

Emerging risks are highly uncertain by nature. As a company, we are exposed to many complex and sometimes interrelated risks, due to the number of commodities we produce and our global footprint. We track leading indicators of emerging risks and their likely impact on us and the communities where we operate. We proactively analyse the impact of these risks through plausible scenarios of the interplay of the global megatrends, as outlined in the Strategy section on page 12.

We are impacted by growing geopolitical tensions and macroeconomic uncertainty that could potentially impact global growth and affect market volatility and sentiment.

Cyber-security attacks have become more destructive. An emerging area of exposure for the business is the rapid digitalisation and transformation of operational technology environments.

Climate change and the low-carbon transition continues to provide both upside and downside uncertainties for us. We address these uncertainties under our principal risks 2, 3, 4 and 12 detailed in the following pages. We closely monitor and assess the impact of climate change through scenarios; see pages 152–153 ^{AB}. Our *2022 Climate Change Report* outlines our current and future initiatives and partnerships, and how we aim to work together to meet our Scope 1 and 2 targets and Scope 3 goals.

Longer-term viability statement

Delivering our strategy depends on our four objectives: to be the best operator; to achieve impeccable environmental, social and governance (ESG) credentials; to excel in development; and to strengthen our social licence. Our business model supporting our strategy is underpinned by the quality of our assets, the capabilities of our people, our operational and sustainability performance, innovative partnerships, and disciplined capital allocation. For more information about our strategy and business model, see pages 13–17.

Our business planning processes include modelling a series of macroeconomic scenarios and using various assumptions that consider internal and external factors. As part of our robust risk management framework, we closely track, monitor and mitigate principal risks to our business plan.

Viability assessment process and key assumptions

The assumptions underlying our business plan and macroeconomic forecast have the greatest level of certainty for the first three years. Our longer-term viability assessment examines the first five years (2023–27) of the business plan. This allows for a detailed analysis of the potential impacts of risks materialising in quick succession in the first three years, and enables us to further stress test the business plan for risk materialising towards the end of the time period, although with less certainty. This allows our Directors to assess the Group's capacity to exercise financial levers available in both the three-year and five-year time frames to maintain our viability.

The Principal risks and uncertainties section outlines risks that could materially affect our performance, future prospects or reputation. For the viability assessment, we have considered our principal risks that could severely impact the Group's liquidity and solvency.

Assessment of viability

Our longer-term viability assessment considers the following principal risks and key assumptions.

Principal risk A – “Remaining competitive through economic cycles or shocks”

Scenario assumptions: Continued elevation of supply-side pressure and sharp interest rate rises triggers stagflation and liquidity crises in developing economies. A housing crisis leads to positive but low growth in China. Commodity prices experience large negative pricing shocks in 2023, sustained through to 2027.

Principal risk B – “Preventing fatalities, permanent disablements, and illness from a major hazard or safety event” or “Preventing material business disruption and/or data breaches due to cyber events”

Scenario assumptions: Occurrence of a singular catastrophic event resulting from a major cyber-security breach or operational failure, such as a tailings and water storage facility failure, extreme weather event or underground or geotechnical event resulting in multiple fatalities, cessation of operations and significant financial impacts. We have assumed two such events occur within the assessment period, in 2023 and 2026.

Principal risk C – “Delivering on our growth projects”

Scenario assumptions: Materialisation of a risk impacting our ESG credentials (such as “building trusted relationships with Indigenous peoples” and “building trusted relationships with communities”) and our ability to deliver our growth strategy. We have assumed an impact on our near-term key projects and considered available alternatives. The assumed financial impact is in addition to any non-financial impact, such as reputational damage to the Group or disruption to the culture and way of life of the communities where we operate.

We quantify the expected financial impact of each risk based on internal macroeconomic and business analysis, as well as internal and external benchmarking on similar risks.

The first five years of our business plan have been stress tested for each risk to assess the impact on the Group's longer-term viability, including whether additional financing facilities would be required. In addition to liquidity and solvency, the assessment also considered other financial performance metrics, as well as dividend payments. These metrics are subject to robust stress tests and reverse stress tests.

The most severe scenario, albeit unlikely, considers the financial impact of all three risks materialising at the start of the assessment period, followed by a second major hazard or cyber event occurring towards the end of the five-year period. Without management action, this scenario would create both an immediate and prolonged severe impact, resulting in the Group's free cash flow performance over the assessment period being materially impacted.

We have a suite of management actions available to preserve resilience through the assessment period, including accessing lines of credit, reducing organic and inorganic growth capital expenditure, and raising capital. Our financial flexibility could potentially be limited during the peak of the crisis. The viability of the Group remained sound under all tested scenarios.

We have also conducted reverse stress testing by assessing the impact of reducing price levels, and we have concluded that the Group remains viable in the very low probability of prolonged price declines across all commodities.

Four factors underpin the resilience of our business model:

- The competitive position and diversification of our commodities portfolio.
- The disciplined capital allocation framework and commitment to prudent financial policy.
- The payout shareholder return policy, which is based on earnings and is, therefore, more sustainable.
- The focus on achieving impeccable ESG performance and strengthening our social licence, which allows for growth and maintaining access to debt capital and bank loan markets.

Considering our current position and the robust assessment of our principal risks, the Directors have assessed the Group's prospects over the next five years (until 31 December 2027) and reasonably expect that we will continue to operate and meet our liabilities as they fall due over that period. However, in the long term, two principal risks with long-dated consequences could potentially have a material impact on our viability:

- Growing our iron ore business to meet the demand for green steel.
- Leaving a positive legacy for future generations, by embedding closure considerations throughout the lifespan of our assets.

 **For more information**
see pages 81 and 86.

Principal risks and uncertainties

The principal risks and uncertainties outlined in this section reflect the risks that could materially affect (negatively or positively) our ability to meet our strategic objectives.

A principal risk is one or a combination of risks that emerge due to external or internal factors. It could be of any nature, and manifest and escalate from any part of the business as an opportunity or a threat. Where risks are material to the Group, they are escalated to the Risk Management Committee and, as appropriate, to the Board or its committees. This requires a strong risk culture, which we continue to develop and foster.

To ensure we can prioritise our efforts and resources, we regularly assess our principal risks' potential impact and likelihood. These assessments, and the effectiveness of our associated controls, reflect management's

current expectations, forecasts and assumptions. By definition, they involve subjective judgments and depend on changes in our internal and external environments. While we deploy preventative and mitigative controls to reduce the likelihood of risks occurring, and manage potential impacts, some inherent risks to our business remain. These include natural disasters, where there is limited capacity in the international insurance markets to transfer such risks. We closely monitor these threats and develop business resilience plans. We also seek to bring an equal level of rigour and discipline to our managed and non-managed joint ventures as we do to our wholly-owned

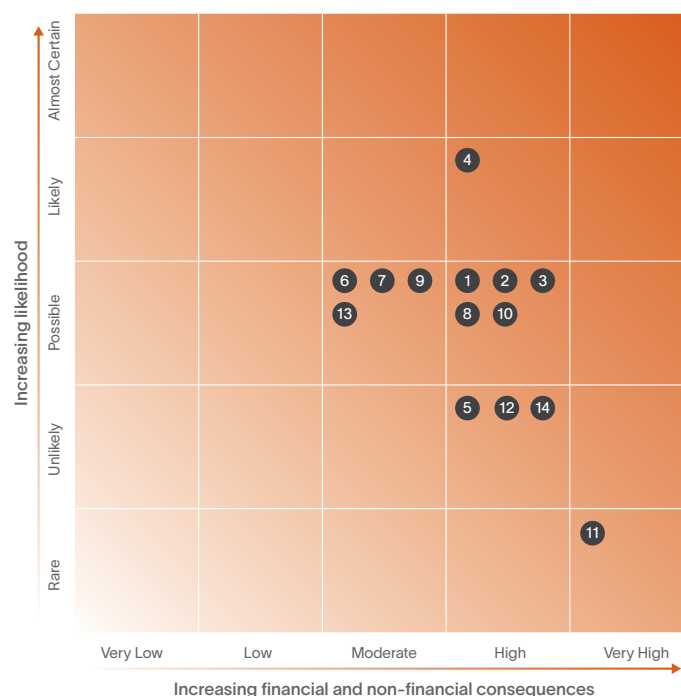
assets, through engagement and influence, in line with applicable laws. The timeframe of our principal risks is within five years unless explicitly stated otherwise. The principal risks, uncertainties and trends outlined in this report should be considered forward-looking statements and are subject to the cautionary statement on page 347 ^{AB}.

This year, we have reframed our principal risks in the context of our overarching strategic objectives: to be the best operator; to achieve impeccable environmental, social and governance (ESG) credentials; to excel in development; and to strengthen our social licence. These are summarised in the table.

Current assessment of principal risks

As of February 2023

Principal risk	Objective	Oversight
1 Transforming our culture, enabling us to live our values	● Best operator	Board
2 Achieving our decarbonisation targets competitively	● Impeccable ESG	Board
3 Delivering our growth projects	● Excel in development	Board
4 Growing our iron ore business to meet the demand for green steel	● Best operator	Board
5 Remaining competitive through economic cycles or shocks	● Best operator	Board
6 Withstanding the impacts of geopolitics on our trade or investments	● Best operator	Board
7 Attracting, developing and retaining people with the requisite skills	● Best operator	Board
8 Building trusted relationships with Indigenous peoples	● Social licence	Sustainability Committee
9 Building trusted relationships with communities	● Social licence	Sustainability Committee
10 Conducting our business with integrity, while complying with all laws, regulations and obligations	● Impeccable ESG	Board
11 Preventing fatalities, permanent disabilities and illness from a major hazard or safety event	● Best operator	Sustainability Committee
12 Minimising our impact on the environments we work in and building physical resilience to changes in those environments, including climate change and natural disasters	● Impeccable ESG	Sustainability Committee
13 Leaving a positive legacy for future generations, by embedding closure considerations throughout the lifespan of our assets	● Social licence	Sustainability Committee
14 Preventing material business disruption and data breaches due to cyber events	● Best operator	Board



1. Transforming our culture, enabling us to live our values

Sharing and demonstrating our values unlocks opportunities in everything we do. We are working on building a workplace where all our people are trusted and empowered to be their best selves and help drive change.

Strategic alignment

 **Best operator**

Opportunities

Our values inspire our people to contribute in ways that align with our purpose and strategic direction, enabling us to build a workplace where everyone feels safe, respected and included.

Threats

As societal expectations are changing, and higher standards are placed on organisations, we must ensure that we are consistently displaying and living our values. Without change or action, our ability to attract and retain partners and talented people will be negatively impacted. The trust from host communities and countries may also be weakened, limiting our operating licence and growth opportunities.

In February 2022, we released the findings and recommendations from an independent review of our workplace culture (*Everyday Respect Report*). The findings in this report also aligned with the recommended actions coming from the Parliament of Western Australia's Inquiry into Sexual Harassment in the Mining Industry, released in June 2022. Both reports highlighted the scale of change required in our business and across the resources sector.

Risk oversight

The Group Executive Committee and the Board.

Management's response

We embarked on a culture change programme led by the refresh of our values in 2021. We have accelerated this work in 2022 through the Everyday Respect task force. In 2022, we also updated our Code of Conduct – The Way We Work (launched in early 2023), to be clearer and more comprehensive. It acts as the blueprint for our key principles, sets out our commitments to stakeholders and clarifies how we expect our people to behave.

To help our leaders and teams live our values, we have:

- Launched our updated purpose and values, supported by internal communications and leadership training.
- Launched several Everyday Respect task force workstreams to address sexual harassment, bullying and racism in our workplace; built safe and appropriate facilities; and encouraged caring, human-centred responses to disrespectful and harmful behaviours.
- Improved our internal whistleblowing programme, myVoice, which is open to employees and external stakeholders to report on behaviour inconsistent with our values and Code of Conduct.
- Introduced behavioural training for leaders to encourage care and respect.

2. Achieving our decarbonisation targets competitively

Climate change continues to be at the heart of our strategy, and our ability to deliver on our objectives hinges on achieving our Scope 1 and 2 targets between now and 2050. Finding a balance between our ESG commitments and our need to invest for growth will support us in leaving a positive legacy and delivering superior shareholder returns while remaining competitive.

Strategic alignment

 **Impeccable ESG**

Opportunities

Decarbonising our assets can enhance our competitive advantage and embed a culture of energy efficiency that could benefit our host communities. Renewable energy projects will likely provide energy in excess of our needs at certain times, improving the availability of renewable energy in the communities where we operate.

We are also in a strong position to be the leading supplier of green materials to support the energy transition in North America due to a range of beneficial factors, such as our government partnerships, deep technological capability, advanced critical minerals research, competitive energy access and port infrastructure.

Threats

Delays in priority initiatives will threaten our Scope 1 and 2 target delivery and our ability to respond proactively and competitively. Our ability to successfully engage and partner with governments and other external parties to achieve grid decarbonisation is a fundamental uncertainty, particularly for our 2025 targets as we continue to develop our pipeline of decarbonisation projects. The rate of progress towards our targets could expose us to reputation and litigation risks.

Key exposures

Our 2026 to 2030 target delivery relies on abatement from technologies still in the research and development phase.

Risk oversight

The Risk Management Committee and the Board.

Management's response

We have:

- Committed \$7.5 billion in capital expenditure to the delivery of our targets through six large abatement programmes (including 95% of our Scope 1 and 2 emissions) focused on renewables (including 1GW in the Pilbara, 130MW at Richards Bay Minerals and 4GW at our Pacific Aluminium Operations), ELYSIS, process heat (Yarwun, Queensland Alumina Limited) and diesel, supplemented by nature-based solutions and offsets.
- Prioritised carbon abatement projects based on five key elements: value, materiality of abatement, maturity of emission reduction, competitiveness versus internal and external benchmarks, and alignment with the net zero 2050 target.
- Established a dedicated team (Rio Tinto Energy Development) to support the delivery of large-scale renewable solutions (primarily wind and solar) that are required across our major energy regions.
- Set up a dedicated Energy and Climate Change Centre of Excellence, currently focusing on assessing our exposure to physical climate change risks and capability uplift throughout the organisation.
- Developed several innovations including establishing the Office of the Chief Scientist; dedicating more than 500 employees to research and development across Canada, France, Australia and the UK; and establishing an Innovation and Technology Centre in China to partner with universities, governments, research laboratories and startups.
- Continued to address our Scope 3 emissions by supporting our customers in their decarbonisation journey (see our 2022 *Climate Change Report* for details), providing low-carbon products (such as aluminium from ELYSIS) and reducing our CO₂ emissions intensity in shipping by 40% by 2025 (currently over 30% to date).
- Joined partnerships to develop a zero-carbon fleet; for example, we are piloting battery-powered trucks with Komatsu in 2025 and Caterpillar in 2026.

3. Delivering on our growth projects

Our growth strategy relies on the success of our exploration (greenfield and brownfield) and acquisition activities in addition to our ability to develop these resources faster and more competitively than others, while aiming for impeccable ESG credentials. However, developing these projects requires complex multi-year study and execution plans, which carry significant delivery risks.

Strategic alignment

● Excel in development

Opportunities

Active and focused exploration and business development efforts can potentially increase or diversify our commodity resource base. We may convert a greater proportion of resources to reserves more competitively through operational efficiencies, deployment of new technologies or improved understanding of our orebodies.

Threats

New high-quality deposits are increasingly scarce, and those that are known require advances in processing technology, significant capital investment in infrastructure, or would negatively impact our ESG credentials. Additionally, as studies and projects progress, they are susceptible to changes in technical requirements, approvals, societal expectations, or underlying commercial or economic assumptions that could impact economic viability.

Key exposures

The Oyu Tolgoi underground expansion, and increasing approval time frames in the Pilbara and in projects including Simandou, Resolution Copper, Jadar, Rincon and Winu.

Risk oversight

The Investment Committee, the Ore Reserves Steering Committee and the Board.

Management's response

We have:

- Focused on excelling in development to deliver inorganic and organic growth by increasing alignment across the Group. We have leveraged our in-house capabilities better (including our Exploration teams, technical Centres of Excellence, Business Development team, the Battery Materials team, and Specialised Projects and Studies division).
- Focused on our ambition to invest up to \$3 billion per year of growth capital expenditure, which includes energy transition commodities, such as copper, battery materials, high-grade iron ore and critical minerals (rhenium, tellurium, scandium, selenium).
- Broadened our scope to include higher-risk jurisdictions and targets, and considered minimum viable projects that can grow and create optionality or are a strategic fit.
- Introduced a stage-gate approval process that included progress monitoring to ensure capital discipline for projects.
- Ensured robust ESG and human rights due diligence during merger and acquisition assessments and in new country entries.

4. Growing our iron ore business to meet demand for green steel

Steel decarbonisation will affect the value of iron ore. We have an opportunity to unlock business value by optimising our iron ore product strategy, partnering with technology providers and universities, and innovating with our customers to meet future demand for green steel.

Strategic alignment

● Best operator

Opportunities

We are working with our customers, universities and technology providers to develop and test technologies that will realise value from our Pilbara Ore. Some examples of current active partnerships include Baowu, Nippon Steel Corporation, POSCO, BlueScope, Shougang Group, Australian National University and Nottingham University. More information about our partnerships is available on our website.

Threats

The iron and steel process routes required to decarbonise the steel industry may not favour our Pilbara low- and mid-grade ores, impacting the competitiveness of the Iron Ore portfolio. The transition of the steel value chain towards net zero will need new technologies and extensive industry transformation.

Risk oversight

The Steel Decarbonisation Steering Committee and the Board.

Management's response

We have:

- Adjusted our Iron Ore portfolio to bring high-grade ore to the market (for example, our Simandou project).
- Established the Steel Decarbonisation team to identify and develop technical and commercial options through strong partnerships across the steel value chain with projects focused on:
 - Improving existing processes, such as blast furnace optimisation.
 - Pilbara ore characterisation and beneficiation through partnerships with a number of universities.
 - Partnerships with customers to develop and test new technologies suitable for Pilbara ore (such as Biolron™).

5. Remaining competitive through economic cycles or shocks

We aim to remain competitive, preserve resilience and maintain access to debt capital and bank loan markets by having cost-competitive assets, a diversified commodities portfolio, a strong balance sheet, prudent financial policies and strong ESG credentials.

Strategic alignment

 **Best operator**

Opportunities

Favourable market conditions and strong internal capital discipline allow us to leverage our balance sheet strength, enabling us to invest in growth opportunities, pay down debt and enhance returns to shareholders. We may convert a greater proportion of our resources to reserves through operational efficiencies, deployment of new technologies or improved understanding of our orebodies. An emerging opportunity is the potential to leverage our strong ESG credentials as the number of ESG-focused investors grows.

Threats

A deteriorating economic and political environment could lead to cost inflation, falling commodity prices (reduced cash flow, limiting profitability), trade actions (increased tariffs, retaliations and sanctions), and governments' exerting more control over their natural resources by changing contractual, regulatory or tax measures. This could impact our key markets, operations or investments.

Failure to secure mining approvals, replenish reserves, capture the benefits of new technologies or a material reduction in commodity price may reduce the volume of existing reserves and the future conversion of resources to reserves in the required timeframe.

Risk oversight

The Financial Risk Management Committee, the Risk Management Committee and the Board.

Management's response

We have:

- Implemented the Safe Production System (SPS), which is helping us transform how we operate our assets, better manage performance and empower our people. SPS will help us consistently deliver outstanding safety and production results, and improve our asset and equipment reliability and maintenance (for example, at our Boyne Smelter and Kitimat).
- Maintained and assured compliance with the Group's Resources and Reserves Standard through our Orebody Knowledge Centre of Excellence, which also monitors KPIs to track variation from expected asset production plans.
- Kept capital discipline in line with a strong investment-grade credit rating, including investment governance processes, and maintained a strong balance sheet and a payout Shareholder Returns Policy that adjusts returns through the cycle. In addition, we are diversifying funding sources in different capital markets and shelf programmes, and we continue to maintain and renew the revolving credit facility.

6. Withstanding impacts of geopolitics on our trade or investments

Geopolitics has the potential to increase trade tensions and undermine rule-based trading systems and possible trade actions (increased tariffs, retaliation, sanctions) that impact our key markets, operations or investments. It may limit any benefits of being a multinational company with a global footprint and may expose us further to these risks. Any presence in politically unstable countries exacerbates this risk.

Strategic alignment

 **Best operator**

Opportunities

By working closely with governments on balanced domestic policy proposals that bring long-term economic and social benefits for the country, we can also support growth and investments for our business. In addition, global geopolitical re-alignments include the creation of new strategic alliances between countries that could create partnership and growth opportunities, such as the security of critical minerals supply.

Threats

A deteriorating economic and political environment could lead to falling commodity prices (reduced cash flow, limiting profitability), trade actions (increased tariffs, retaliations and sanctions), and governments' exerting more control over their natural resources by changing contractual, regulatory or tax measures. This could impact our key markets, operations or investments.

Key exposures

A highly uncertain and unstable global macro environment, including Indo-Pacific tensions and the indirect impacts of the war in Ukraine, can impact our business. Rising energy costs across Europe could potentially affect demand in the region, which in turn would impact our aluminium and minerals markets in Europe.

Risk oversight

The Financial Risk Management Committee, the Risk Management Committee and the Board.

Management's response

We have:

- Continued to diversify our portfolio of commodities (focusing on green alternatives and minerals), markets and jurisdictions to reduce exposure to specific geopolitical events. Some recent examples include our acquisition of the Rincon Lithium Project in Argentina and development of the Simandou high-grade iron ore project in Guinea.
- Established a fully resourced External Affairs function to closely monitor the political and geopolitical environment to identify possible opportunities for the Group through engagement with governments, civil society organisations, industry associations and international bodies.
- Implemented the updated new country entry Group procedure and focused on cross-functional, real-time engagement.
- Implemented the new sanctions standard and export control procedure to mitigate against potential breaches of economic sanctions and trade controls. We monitor the political environments where we operate and engage with the government in those areas.
- Secured a capability to settle and receive renminbi (RMB), including management of central bank digital currency (CBDC) transactions to mitigate the potential impact of trade tensions on key Chinese customers' access to credit and USD.

7. Attracting, developing and retaining people with the requisite skills

Our ability to achieve our business strategy depends on attracting, developing and retaining a wide range of internal and external skilled and experienced people.

Strategic alignment

● Best operator

Opportunities

Investing in critical skills and supporting internal career pathways will result in enhanced productivity, innovation and business resilience. Increasing investment in local employment will also support our social licence to operate. And developing partnerships, including with joint ventures, can also help us access future talent.

Threats

Lacking the right capability may result in our business experiencing delays or underperformance. Tight labour markets and entry into new countries result in heightened competition for critical skills; for example, in climate change, energy, decarbonisation, technical mining and processing skills, and community relations. Changing societal expectations place pressure on our brand as an employer, and require us to become better at communicating who we are and what we stand for.

Key exposures

Since the pandemic, talent is less inclined to relocate, and our reliance on local or national recruitment is therefore increasing, which significantly reduces the market size for sourcing talent.

Risk oversight

The Board.

Management's response

We have:

- Focused on critical roles and expertise in decarbonisation.
- Continued to monitor the global talent market, and developments and trends, including talent mobility.
- Focused on talent management and planning across our global assets and looked for critical technical capabilities.
- Undertaken our bi-annual People Surveys to track engagement, and updated our engagement strategy and retention modelling.
- Developed Group-wide employee value propositions tailored by labour market and talent segment to help us retain and attract talent.
- Launched a talent acquisition strategy, targeting multiple labour markets and a diverse range of skills.
- Continued to focus on local trainee programmes, our global graduate programme, and strategic partnerships with universities and other future skills development partnerships.

8. Building trusted relationships with Indigenous peoples

Our partnerships with Indigenous peoples play a material role in our ability to operate. A breakdown in these relationships could impact our business and our reputation. By building respectful and enduring relationships with Indigenous partners and communities, we remain committed to finding better ways to move forward with the communities that host us.

Strategic alignment

● Social licence

Opportunities

We have the opportunity to work closely with Indigenous peoples to realise long-term socioeconomic, cultural and environmental benefits. Our capacity to deliver value to host communities and Indigenous peoples of the lands and waters on which we operate supports our current and future growth plans; for example, in the Pilbara, in the Saguenay–Lac-Saint-Jean region, and with our existing partnerships at the Iron Ore Company of Canada and at BC Works.

Threats

Mining activities could strain relationships with Indigenous peoples, particularly where actual or perceived damage of significant cultural values (cumulative or acute) occurs without consultation and consent. This could result in a loss of trust and could impact our social licence to operate. This was evident after the destruction of two ancient rock shelters at Juukan Gorge in the Pilbara region in 2020 and the impact it had on the Puutu Kunti Kurrama and Pinikura people.

Key exposures

Our Resolution Copper project and the modernisation of agreements in the Pilbara.

Risk oversight

The Ethics and Compliance Committee and the Sustainability Committee.

Management's response

We have:

- Demonstrated our commitment to building long-term trusted relationships, such as establishing the Juukan Gorge Legacy Foundation with the Puutu Kunti Kurrama and Pinikura Aboriginal Corporation, and co-designing an approach to protect significant social and cultural heritage values as part of our proposed development of the Western Range iron ore project in the Pilbara region of Western Australia.
- Implemented an integrated cultural heritage management system and embedded social considerations in approvals and decision-making processes at all levels of the organisation.
- Built cultural responsiveness and competence (including for cultural heritage) across our leadership teams and workforce.
- Strengthened consultation, meaningful engagement, and free, prior and informed consent (FPIC) processes.
- Set clear guidance on how we should conduct our business, no matter where we work or where we are from, through our updated Code of Conduct – The Way We Work (launched in early 2023), communities and social performance standard, and Human Rights Policy.

Detailed updates on our progress on the commitments we made after the destruction of the rock shelters at Juukan Gorge are outlined on page 55 and in the *2022 Communities and Social Performance Disclosure Report*.

9. Building trusted relationships with communities

Our relationships with the communities where we operate and broader society can affect our social licence to operate.

If communities and host countries do not see us as a trusted partner, it could negatively impact our performance, future prospects and reputation. We develop long-lasting relationships with the communities where we operate and ensure they share in our success.

Strategic alignment

● Social licence

Opportunities

Strong relationships with the communities in which we operate provide stable operating environments. Positive engagement with communities, governments and other stakeholders can support access to new resources, create predictable investment, strengthen human rights, and help shape mutually beneficial economic, social and environmental outcomes.

Threats

Access to land and resources could be impacted if we are not considered a trusted partner that respects people's rights, manages adverse social and environmental impacts, and sustainably improves the social and economic outcomes in host communities where we operate or plan to operate. A loss of trust could also result in operational disruption, security incidents, expropriation, export or foreign investment restrictions, increased government regulation and delays in approvals, which could threaten our prospects and reputation.

Key exposures

Richards Bay Minerals, Resolution Copper, QIT Madagascar Minerals, Oyu Tolgoi, Jadar and Simandou.

Risk oversight

The Sustainability Committee.

Management's response

We have:

- Strengthened community engagement through appropriately resourced and skilled Communities and Social Performance (CSP) teams, and clear accountability for relationships with host communities residing with the asset leader.
- Delivered sustainable, long-term outcomes through strategic social investment for impact, regional economic development and mutually beneficial partnerships.
- Implemented our revised Human Rights Policy and communities and social performance standard.
- Set local procurement policies and targets, including local content commitments for major capital projects.
- Implemented human rights due diligence to improve our understanding of potential harms and to mitigate their occurrence wherever possible.
- Deployed specialist technical resources, where required, to support business units in managing more complex issues and risks.

10. Conducting our business with integrity, while complying with all laws, regulations and obligations

Our determination to be the best operator and have impeccable ESG credentials is underpinned by our zero tolerance for non-compliance with our operational procedures, laws and obligations. These expectations are outlined in our Group policies, standards and procedures, published on our website at riotinto.com/policies.

Strategic alignment

● Impeccable ESG

Opportunities

Good corporate citizens that operate to high ethical standards are known to contribute to a healthy workplace culture, outperform peers and attract better talent, leading to greater success in securing access to resources and investment opportunities.

Threats

If our operations or value chain experienced a serious breach in anti-corruption legislation and sanctions, human rights, anti-trust rules or inappropriate business conduct, this could cause serious harm to people and significant reputational and financial damage.

Risk oversight

The Ethics and Compliance Committee and the Board.

Management's response

We have:

- Maintained an effective risk-informed Business Integrity Compliance Programme across the Group.
- Integrated our commitments to core business and human rights standards, including the UN Guiding Principles on Business and Human Rights, into our business plans and actions.
- Dedicated legal and compliance teams to help us identify, understand and comply with current and emerging regulatory obligations.
- Developed a Litigation and Regulatory team and Areas of Expertise for anti-bribery, corruption and competition.
- Overseen principal risk areas and assessed cultural indicators via the Board and the Group Ethics and Compliance Committee, which includes Executive Committee members and is chaired by the Chief Ethics and Compliance Officer.
- Maintained management oversight and reporting through risk, assurance and compliance forums with operational and functional teams, supported by ethics and compliance risk management review forums.
- Assured compliance with our policies, standards and procedures, including the business integrity standard and procedure, the third party due diligence procedure and human rights due diligence in the supply chain. We have implemented the Voluntary Principles on Security and Human Rights and a strong security management framework.
- Investigated all concerns raised in a prompt and confidential manner, and kept reporters safe from any retaliation. Our whistleblowing programme is managed by our Business Conduct Office.

11. Preventing fatalities, permanent disablements, and illness from a major hazard or safety event

Nothing is more important than the safety and wellbeing of our employees, contractors and communities. The mining industry is inherently hazardous, with the potential to cause illness or injury, damage to the environment and disruption to communities. Our objective is first and foremost to have zero fatalities. We believe all incidents and injuries are preventable, so our focus is on identifying, managing and, where possible, eliminating risks.

Strategic alignment

 **Best operator**

Opportunities

Demonstrating that we can meet or exceed our commitments in safety and hazard management supports our ability to attract and retain talent and helps us achieve our objective of impeccable ESG credentials.

Threats

Major hazards include process safety, underground mining, slope geotechnical and tailings management. Failure to manage our major hazards could result in a catastrophic event or other long-term damage. Loss of technical capability at complex end-of-life underground mines poses a significant risk.

While not considered major hazards, significant risks at our sites are falling objects, fall from height, and vehicles and driving, the top three causes of potentially fatal incidents (PFIs), which could result in multiple fatalities across the Group.

Key exposures


Our underground operations such as Diavik, Oyu Tolgoi and Kennecott. Process safety at our refineries, smelters, and tailings and water storage facilities, where we are currently implementing the Global Industry Standard on Tailings Management (GISTM).

Risk oversight

The Major Hazards Steering Committee, the Risk Management Committee and the Sustainability Committee.

Management's response

We have:

- Conducted quarterly Major Hazard Steering Committee meetings at each product group, overseen by the Sustainability Committee and supported by the Group's Risk Management Committee. Regular updates on Major Hazards are provided to the Sustainability Committee.
- Established the Centre of Excellence for key technical capability in hazard and asset management and developed (and assured against) the Group standards and procedures.
- Implemented technical and safety standards and procedures for slope geotechnical, tailings management, underground mining and process safety. We revised underground standards in the fourth quarter of 2021 and the first quarter of 2022, and launched an associated control library in the Risk Management Information System (Archer).
- Focused on fatality elimination through our critical risk management.
- Reported, investigated and shared learnings from Health, Safety, Environment and Security (HSES) incidents, such as PFIs, across the Group. We monitor HSES performance at the Group level monthly and discuss trends and actions at the quarterly Safety and Operations Committee.
- Included safety targets in personal performance metrics to incentivise safe behaviours and effective risk management (as outlined in the Remuneration report on page 121 .

12. Minimise our impact on the environments we work in and build physical resilience to changes in those environments, including climate change and natural disasters

By producing the materials the world needs, we have an effect on the environment. Our operations and projects are inherently hazardous, requiring proactive management to minimise potential impact on water resources or biodiversity in existing operations, new asset developments and closures.

Strategic alignment

 **Impeccable ESG**

Opportunities

By understanding specific exposures across our portfolio, our capital programmes can incorporate measures to minimise environmental impact and improve resilience in the event of a natural disaster or extreme climatic event.

Additionally, the development of a carbon-credit business, in collaboration with governments and host communities, could generate carbon and biodiversity credits for the Group. This could be achieved while remediating disturbed lands, protecting existing pristine areas and supporting the development of associated socioeconomic opportunities independent of mining (and therefore addressing dependencies).

Threats

A number of our operations and future development opportunities exist within, or close to, sensitive biodiverse regions. To strengthen our licence to operate, we must demonstrate our capability to protect ecosystems through improved practices and technological solutions. Natural disasters or extreme weather events can also endanger our employees and communities, damage our assets or cause significant operational interruption. Given the inherent uncertainty in future climate projections, longer-term exposures to chronic changes in climate are not yet well understood.

Key exposures

Our operations in the Pilbara and the Saguenay–Lac–Saint–Jean region, QIT Madagascar Minerals, Simandou and Richards Bay Minerals.

Risk oversight

The Sustainability Committee.

Management's response

We have:

- Mapped our exposure at each asset through initiatives such as our critical risk assessment (CRA) programme, asset integrity assurance, and climate change physical impact assessments. These programmes have helped us identify vulnerabilities across our portfolio, as disclosed in our Task Force on Climate-related Financial Disclosures (TCFD) reporting.
- Engaged with international civil society organisations, governments and environment departments to support protective legislation.
- Applied protective principles at all our operations rather than adopting a compliance-driven approach.
- Actively supported and reported our practices against the commitments outlined in the International Council on Mining and Metals' position statement on water stewardship, being to apply strong and transparent water governance; manage water at operations effectively; and collaborate to achieve responsible and sustainable water use.
- Developed business resilience plans, emergency response plans, training and annual exercises to prepare for a natural disaster and developed plans to communicate and coordinate with local, regional and state agencies.
- Developed key natural disaster resilience projects in the Pilbara, including the Cape Lambert Jetty and Wharf upgrades.

13. Leaving a positive legacy for future generations, by embedding closure considerations throughout the lifespan of our assets

We aspire to leave a positive legacy for future generations. We do this in partnership with our stakeholders, by embedding closure considerations throughout the entire lifespan of our assets – in the way we design, build, run, close and transition them.

Strategic alignment

 Social licence

Opportunities

Together with our stakeholders, we actively assess opportunities to repurpose and reuse sites for future economic or social benefit. For existing operations, where possible, we have early engagement with our stakeholders and communities and aim to rehabilitate land progressively throughout the life of the operations.

Threats

Plans and financial obligations for closure, reclamation and rehabilitation may be insufficient due to changes in stakeholders' and communities' sentiments and expectations, legislation, standards, technical understanding and techniques. In addition to significant health, safety and environmental consequences, the manifestation of a major closure risk could impact the Group's reputation and our licence to operate globally. The legacy portfolio continues to retain a level of uncertainty due to the lack of historical information and ongoing studies to determine options for future management.

Key exposures

Our Pilbara near-term closures (including Channar), Argyle, Gove and Energy Resources of Australia, as well as other legacy sites.

Risk oversight

The Closure Steering Committee and the Sustainability Committee.

Management's response

We have:

- Continued to develop asset closure strategies (ACS) for each operating asset to identify the key closure risks and opportunities and ensure alignment between business, operational and closure-planning processes. Our aim is to mitigate liabilities and deliver efficient and effective outcomes. We are required to update the ACS, closure plan and closure cost estimate at least every five years over the life of the asset.
- Established the Iron Ore Rehabilitation and Closure Committee, which focuses on prioritising resources and ensuring a holistic approach to closures in the Pilbara.
- Formed a dedicated Communities and Social Performance team within our Closure division to proactively support stakeholder engagement.

14. Preventing material business disruption and data breaches due to cyber events

Cyber-security events could disrupt our operations by interrupting our employees' work, breaching our data privacy or jeopardising sensitive information relating to our customers, contractors or suppliers. Therefore, we take cyber security seriously and continuously manage risks to safeguard our business.

Strategic alignment

 Best operator

Opportunities

Demonstrating robust cyber security supports our commitment towards impeccable ESG credentials, amid an increasing number of publicised cyber-security events and privacy breaches.

Threats

Cyber breaches can arise from malicious external or internal attacks, but also inadvertently through human error or inconsistently applying controls that are not managed by our Information Systems and Technology (IS&T) team. Although the extent and frequency of cyber-security threats remain in line with growth expectations, new attacks are often more destructive in nature. An emerging area of exposure is the ongoing digitalisation and transformation of operational technology environments, which require data integration and could impact our control mechanism, such as segregation of our technology environments.

Key exposures

While internal and external factors pose risks, our greatest exposures continue to be through third parties.

Risk oversight

The Cyber Security Steering Committee and the Board.

Management's response

We have:

- Continued to operate a persistent cyber security function and programme of work to ensure our controls remain relevant in a threat environment that is constantly evolving and adapting. This informs the Group business resilience and recovery plans for cyber breaches across critical sites and assets.
- Established a Cyber Security Steering Committee to increase IS&T capability in line with best practices in digital transformation. We have developed and enhanced our industrial and operational technology environments and asset management, and reduced easily compromised hardware across more than 1.5 million technology assets.
- Continued to focus on managing third-party risk through contractual inclusions, proactive compliance assessments and supporting our first-line cyber-security defence by helping our suppliers to manage their own cyber-security risk.
- Continued ongoing inspection and assurance capabilities in line with the three lines of defence model. Our ability to inspect and test the security of our environment, and to an extent the environment of our suppliers, is key to addressing control weaknesses before they are exploited.
- Strengthened our core cyber-security capabilities, specifically our threat-intelligence team that maintains relationships with government, industry, professional bodies and educational institutions to ensure we remain aware and vigilant of the threat landscape. As the pace of change increases, this control becomes more critical.

Five-year review

Selected financial data

The selected consolidated financial information below has been derived from the historical audited consolidated financial statements of the Rio Tinto Group. The selected consolidated financial data should be read in conjunction with, and qualified in their entirety by reference to, the 2022 financial statements and notes thereto. The financial statements as included on pages 148–242 ⁴⁸ have been prepared in accordance with International Financial Reporting Standard (IFRS) as defined in “The basis of preparation” section to the financial statements on page 148 ⁴⁹.

Rio Tinto Group

Income statement data

For the years ending 31 December Amounts in accordance with IFRS	2022 \$m	2021 \$m	2020 \$m	2019 \$m	2018 \$m
Consolidated sales revenue	55,554	63,495	44,611	43,165	40,522
Group operating profit ¹	19,933	29,817	16,829	11,466	17,687
Profit for the year	13,076	22,575	10,400	6,972	13,925
Basic earnings for the year per share (US cents)	766.8	1,303.4	604.0	491.4	793.2
Diluted earnings for the year per share (US cents)	762.1	1,295.0	599.8	487.8	787.6

Dividends per share

Dividends declared during the year					
US cents					
– interim	267.0	376.0	155.0	151.0	127.0
– interim special	–	185.0	–	61.0	–
– final	225	417.0	309.0	231.0	180.0
– special	–	62.0	93.0	–	243.0
UK pence					
– interim	221.63	270.84	119.74	123.32	96.82
– interim special	–	133.26	–	49.82	–
– final	185.35	306.72	221.86	177.47	135.96
– special	–	45.60	66.77	–	183.55
Australian cents					
– interim	383.70	509.42	216.47	219.08	–
– interim special	–	250.64	–	88.50	170.84
– final	326.49	577.04	397.48	349.74	250.89
– special	–	85.80	119.63	–	338.70
Dividends paid during the year (US cents)					
– ordinary	684.0	685.0	386.0	331.0	307.0
– special	62.0	278.0	–	304.0	–
Weighted average number of shares basic (millions)	1,619.8	1,618.4	1,617.4	1,630.1	1,719.3
Weighted average number of shares diluted (millions)	1,629.6	1,628.9	1,628.6	1,642.1	1,731.7
Share buy-back (\$ million)	–	–	208	1,552	5,386


Balance sheet data

Total assets	96,744	102,896	97,390	87,802	90,949
Share capital/premium	7,859	8,097	8,302	7,968	8,000
Total equity/net assets	52,274	56,590	51,903	45,242	49,823
Equity attributable to owners of Rio Tinto	50,175	51,432	47,054	40,532	43,686

1. Group operating profit or loss includes the effects of charges and reversals resulting from impairments (other than impairments of equity accounted units) and profit and loss on disposals of interests in businesses. Group operating profit or loss amounts shown above exclude equity accounted operations, finance items, tax and discontinued operations.

Directors' approval statement

This Strategic report is delivered in accordance with a resolution of the Board, and has been signed on behalf of the Board by:



Dominic Barton
Chair

22 February 2023



Independent Assurance Report

of KPMG (KPMG Australia) to the Directors of Rio Tinto plc and Rio Tinto Limited (Rio Tinto)

CONCLUSION

a) Sustainability Information Subject to Assurance – Limited assurance

Based on the evidence we obtained from the procedures performed, we are not aware of any material misstatements in the Sustainability Information Subject to Assurance presented in the Sustainability sections of the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022 for the year ended 31 December 2022, which has been prepared by Rio Tinto plc and Rio Tinto Limited (together Rio Tinto) in accordance with the Reporting Criteria.

b) GHG Emissions – Reasonable assurance

In our opinion, in all material respects, Rio Tinto's total Greenhouse Gas (GHG) emissions (equity basis) of 30.3 MtCO₂-e (Scope 1 and 2) (GHG Emissions) presented in the Sustainability sections of the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022 for the year ended 31 December 2022, has been prepared by Rio Tinto in accordance with the Reporting Criteria.

Sustainability Information Subject to Assurance and GHG Emissions

The Sustainability Information Subject to Assurance is summarised below:

- Rio Tinto's assertion that it has incorporated the requirements of the International Council on Mining and Metals (ICMM) 10 Principles for sustainable development, and the mandatory requirements set out in the ICMM Position Statements, into its own policies, strategies and standards.
- Rio Tinto's assertions regarding the approach it has adopted to identify and prioritise its material sustainable development risks and opportunities set out in the Sustainability sections of the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022.
- Rio Tinto's assertions regarding the existence and status of implementation of systems and approaches used to manage the following selected sustainable development risk areas:
 - Health, safety and wellbeing
 - Transparent and responsible business
 - Climate change
 - Communities
 - Water
 - Cultural heritage
- The following Rio Tinto performance data related to the selected sustainable development risk areas:

<ul style="list-style-type: none"> - Number of fatalities - All injury frequency rate (AIFR) - Lost time injury frequency rate (LTIFR) - Number of lost time injuries (LTIs) - New cases of occupational illness - Number of cases reported to the Business Conduct Office - ICMM Performance Expectations prioritisation process 	<ul style="list-style-type: none"> - GHG emissions intensity (equity basis) - Total energy use (100% managed basis) - Scope 3 emissions (equity basis) - Community contributions - Cultural heritage disclosures - Tier 1 Water Target performance data and assertions
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The GHG Emissions are Rio Tinto's total GHG emissions (equity basis) disclosed in the Sustainability sections of the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022.

Our assurance does not extend to information in respect of earlier periods or to any other information included in the Sustainability sections of the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022 for the year ended 31 December 2022.

Reporting Criteria

The Reporting Criteria used for the reporting of the Sustainability Information Subject to Assurance are the ICMM Sustainable Development Framework: ICMM Principles (Revised 2015) and the definitions and approaches within the basis of reporting glossary presented on Rio Tinto's website at riotinto.com/reports.

For the GHG Emissions, the Reporting Criteria is the World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD)'s *GHG Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) (2015)*, and the Basis of Preparation as described and presented within the Scope 1, 2 and 3 Emissions Calculation Methodology 2022.

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Independent Assurance Report

of KPMG (KPMG Australia) to the Directors of Rio Tinto plc and Rio Tinto Limited (Rio Tinto)

Basis for Conclusion

We conducted our work in accordance with International Standard on Assurance Engagements ISAE 3000 and in respect of greenhouse gas emissions, International Standard on Assurance Engagements ISAE 3410 (the Standards). In accordance with the Standards we have:

- used our professional judgement to plan and perform the engagement to obtain limited assurance that we are not aware of any material misstatements in the Sustainability Information Subject to Assurance, whether due to fraud or error;
- used our professional judgement to assess the risk of material misstatement and plan and perform the engagement to obtain reasonable assurance that the GHG Emissions is free from material misstatement, whether due to fraud or error;
- considered relevant internal controls when designing our assurance procedures, however we do not express a conclusion on their effectiveness; and
- ensured that the engagement team possess the appropriate knowledge, skills and professional competencies.

Summary of Procedures Performed

In gathering evidence for our conclusions, our assurance procedures comprised:

- enquiries with relevant Rio Tinto personnel to understand and evaluate the design and implementation of the key systems, processes and internal controls to capture, collate, calculate and report the Sustainability Information Subject to Assurance and GHG Emissions;
- assessment of the suitability and application of the Reporting Criteria in respect of the Sustainability Information Subject to Assurance and GHG Emissions;
- analytical procedures over the Sustainability Information Subject to Assurance and GHG Emissions;
- risk analysis to validate the completeness of Rio Tinto's materiality assessment;
- substantively tested performance data within the Sustainability Information Subject to Assurance, on a sample basis at corporate and operational level, which included testing a selection of 6 operations being Weipa, Winu, West Angelas, Kitimat, Iron Ore Company of Canada and Borates – RTM California Operations;
- substantively tested the GHG Emissions, on a sample basis at corporate and operational level, which included testing a selection of 15 operations being Weipa, Winu, Gladstone Power Station, Pilbara Rail Operations, Brockman, Yandicoogina, Marandoo, Boyne Smelters Limited, Tomago, Alouette, IOC Processing Plant, Queensland Alumina Limited, RTFT Smelting, Yarwun and Sohar, and how this information is reported and captured at corporate level;
- interviews and walkthroughs with site personnel at each of the 15 operations listed above to assess the key systems, processes and internal controls to capture, collate, calculate and report GHG Emissions at an operational level, and how this information is reported and captured at corporate level;
- testing the mathematical accuracy of a sample of calculations underlying the GHG Emissions;
- assessing the appropriateness of a sample of emissions factors applied in calculating the GHG Emissions;
- evaluating the design and effectiveness of controls implemented by the Rio Tinto Health, Safety and Environment (HSE) Services reporting function over the Sustainability Information Subject to Assurance and GHG Emissions;
- assessing Rio Tinto's incorporation of the requirements of the ICMM 10 Principles for sustainable development, and the mandatory requirements set out in the ICMM Position Statements, into its own policies, strategies and standards; and
- reviewing the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022 in their entirety to ensure they are consistent with our overall knowledge of Rio Tinto.

How the Standard Defines Limited Assurance, Reasonable Assurance and Material Misstatement

The procedures performed in a limited assurance engagement vary in nature and timing from, and are less in extent than for a reasonable assurance engagement. Consequently, the level of assurance obtained in a limited assurance engagement is substantially lower than the assurance that would have been obtained had a reasonable assurance engagement been performed.

Reasonable assurance is a high level of assurance, but is not a guarantee that it will always detect a material misstatement when it exists.

Misstatements, including omissions, are considered material if, individually or in the aggregate, they could reasonably be expected to influence relevant decisions of the Directors of Rio Tinto.

Use of this Assurance Report

This report has been prepared for the Directors of Rio Tinto for the purpose of providing assurance conclusions on the Sustainability Information Subject to Assurance and GHG Emissions and may not be suitable for another purpose. We disclaim any assumption of responsibility for any reliance on this report, to any person other than the Directors of Rio Tinto, or for any other purpose than that for which it was prepared.



Independent Assurance Report

of KPMG (KPMG Australia) to the Directors of Rio Tinto plc and Rio Tinto Limited (Rio Tinto)

Management's responsibility

Management are responsible for:

- determining that the Reporting Criteria is appropriate to meet their needs;
- preparing and presenting the Sustainability Information Subject to Assurance and GHG Emissions in accordance with the Reporting Criteria;
- establishing internal controls that enable the preparation and presentation of the Sustainability Information Subject to Assurance and GHG Emissions that is free from material misstatement, whether due to fraud or error;
- ensuring the basis of preparation in accordance with which the Sustainability Information Subject to Assurance and GHG Emissions has been determined and compiled is clearly and unambiguously set out in the Rio Tinto Annual Report 2022, the Rio Tinto Strategic Report 2022 and the Rio Tinto Sustainability Fact Book 2022;
- telling us of any known and/or contentious issues relating to the Sustainability Information Subject to Assurance and GHG Emissions; and
- Maintaining integrity of the website.

A stylized, handwritten-style KPMG logo in blue.

KPMG

22 February 2023

Our Responsibility

Our responsibility is to perform a limited assurance engagement in relation to the Sustainability Information Subject to Assurance and a reasonable assurance engagement in respect of the GHG Emissions for the year ended 31 December 2022, and to issue an assurance report that includes our conclusions.

Our Independence and Quality Control

We have complied with our independence and other relevant ethical requirements of the *Code of Ethics for Professional Accountants (including Independence Standards)* issued by the IFAC Ethical Standards Board, and complied with the applicable requirements of International Standard on Quality Control 1 to maintain a comprehensive system of quality control.

A handwritten signature in blue ink that reads 'Adrian V. King'.

Adrian King

Partner
Melbourne, Australia

Summary Remuneration report

43%

Group STIP business outcome out of 100%

100%

Vesting for 2018 PSA in February 2023

Annual statement by the People & Remuneration Committee Chair

The Committee's overarching purpose is to ensure the people and remuneration policies, frameworks and practices are aligned with the Group's strategy, objectives and values.

Dear shareholders,

On behalf of the Board, I present our 2022 Directors' Remuneration report.

I am pleased to write that Rio Tinto's performance in 2022 has been underpinned by another fatality-free year, combined with dependable operations and continued demand for our commodities in an uncertain world.

This operational performance has been accompanied by progress in delivering on our strategy through the advancement against our objectives: becoming the best operator, having impeccable ESG credentials, excelling in development, and strengthening the Group's social licence.

Rio Tinto's ambition is to be the best operator, a business with people at the centre and where we create a lasting, competitive advantage that will allow us to invest through market cycles and build long-term value. The deployment of the Safe Production System (SPS) continues at pace to build on our progress in improving efficiencies and effectiveness.

The organisation has made meaningful headway in its culture transformation and has taken considerable actions to rebuild trust. The recommendations of the *Everyday Respect Report* are being implemented and our second progress report on our Communities and Social Performance has been published with greater participation and increased feedback from Traditional Owner groups.

Rio Tinto continues to deliver its strategy with low carbon transition at its centre. In 2022, we announced a partnership with the Government of Canada to invest up to \$537 million (C\$737 million) over eight years to decarbonise our Rio Tinto Iron and Titanium Quebec Operations and to position the business as a centre of excellence for critical minerals processing. We joined low-carbon partnerships, including with Ford, Volvo, Nano One and Corona Canada. In Australia, we installed a 34MW solar farm at Gudai-Darri and are planning to invest \$600 million in a further 230MW of solar power in the Pilbara.

Rio Tinto progressed its excel in development agenda to underpin growth. This has included commissioning major projects and advancing the next tranche of Pilbara mines with the Western Range and Rhodes Ridge developments. Beyond the Pilbara, Rio Tinto has also advanced the Simandou development in Guinea, an underground mining project at Kennecott, early works funding of the Rincon Lithium Project and continued progress at Oyu Tolgoi.

The company acquired the remaining shares in Turquoise Hill Resources Ltd (TRQ) thereby increasing our direct interest in the Oyu Tolgoi project to 66%.

These 2022 results were achieved despite a challenging and volatile landscape, particularly in the areas of labour and supply chain constraints, further exacerbated by exceptional levels of global inflation.

Incentives review to accelerate strategy and culture change

Our current incentive plans have served us well and we believe that the general plan structure remains appropriate. However, as our strategy has evolved, so has the need for the incentive framework to support it. A thorough review of our incentives was undertaken in 2022 to ensure they reinforce our strategy and the culture change necessary to build sustainable performance.

For 2023, we have prioritised changes to the Group short-term incentive plan (STIP) and our performance framework. At its core is collective Rio Tinto success – doing things that deliver our four objectives in the right way. The design maintains the existing weighting on financial metrics with no changes to our current financial measures of underlying earnings and STIP free cash flow. The focus on best operator will be through the flexed component, as well as elements focused on safety, carbon reduction, diversity and inclusion. For 2023, we are also introducing measures to capture progress on excel in development and strengthen our licence to operate. The design is simplified, based upon one Group scorecard that will apply consistently to approximately 24,000 employees including the Executive Committee.

While the changes to our STIP design are accommodated within the parameters of our existing Policy, I have engaged with shareholders and proxy advisers to explain the rationale for the design decisions made. The final design was adapted to reflect points raised during the consultation process. I would like to thank our shareholders and proxy advisers for making the time and providing valuable input to our discussions. More details of our new STIP design can be found on page 112 ¹⁵.

With regards to the long-term incentive plan (LTIP), the current measure of relative total shareholder return (TSR) has been unchanged for many years. TSR is an important measure of success that aligns executives to the shareholder experience and against which we continue to track well. We will not be making any changes to the 2023 LTIP awards due to be granted in March but intend to return to it as part of the triennial policy review.

Overview of performance and strategic progress in 2022

Short-term incentive plan (STIP)

The STIP rewards employees for the past year's performance. In 2022, the STIP scorecard included ESG (including safety) and financial measures.

ESG (including safety) performance

The ESG component of STIP includes ambitious targets relating to safety, climate and decarbonisation, improving female representation, implementation of actions from the *Everyday Respect Report*, the Juukan Gorge Senate Inquiry Report, the 2020 Board Report, as well as the critical elements of the Global Industry Standard on Tailings Management (GISTM).

Safety is our number one priority, and we achieved our fourth consecutive fatality-free year in 2022. We have also maintained our all-injury frequency rate (AIFR) performance and enhanced our safety maturity model (SMM) assessment approach as our safety culture has evolved and matured.

There are elements of the ESG component where we delivered above-target outcomes, whereas in others, while results were encouraging, we fell short of target. The overall performance outcome of this component is 63.4% of maximum. More information about our ESG performance can be found on page 122 [AR](#).

Financial performance

In 2022, we saw significant movement in commodity prices amidst growing recession fears and a decline in consumer confidence. We remained focused on cost control throughout the year, but experienced cost pressures over and above general inflation from higher market-linked prices for raw materials, along with the impact of the Russia and Ukraine war causing energy market disruptions that resulted in higher energy prices. Operationally, we achieved slightly lower than expected production, mainly in the first half of 2022 including disruptions associated with COVID-19, resulting in labour supply constraints and delays in replacement projects in the Pilbara.

As a result, our reported 2022 financial results of underlying earnings of \$13.3 billion and free cash flow of \$9.0 billion were below plan. Free cash flow reflected underspend on development capital by \$0.9 billion that is excluded from the free cash flow STIP measure. The under performance against financial targets is reflected in the outcome of Group financial performance at 29% of maximum. Further details on our financial performance can be found on page 121 [AR](#).

Long-term incentive plan (LTIP)

The performance period of the 2018 Performance Share Award (PSA) concluded in December 2022 and vests on 23 February 2023. The vesting outcome of the 2018 PSA is 100%. The Committee considered the vesting outcome in the round of underlying business performance as well as within the context of the consequence management framework which was introduced in 2021, and was satisfied that the outcome was fair and representative of the shareholder experience and that no discretion should be applied.

2023 remuneration decisions

Against the backdrop of ongoing high inflation and macroeconomic uncertainty, the Committee is more cognisant than ever of the need to strike an appropriate and careful balance between fairness and competitiveness when making decisions about pay.

In recognition of the extraordinary inflationary pressures experienced globally in 2022, we provided a one-off mid-year salary adjustment to approximately 30,000 employees which ranged from 2% to 5% in our major countries. The Executive Committee did not receive this adjustment. Effective 1 March 2023, the Executive Committee will receive salary increases in line with the broader employee populations in their jurisdictions. In addition, Bold Baatar and Simon Trott will receive an additional increase in recognition of market positioning within the limits of the Policy.

People & Remuneration Committee

Since 1 January 2023, the Committee is known as the People & Remuneration Committee. With the increasing importance of developing the talent, capability and diversity of the organisation in support of the culture change, the Board unanimously agreed that this Committee's scope will now formally include these areas in addition to remuneration. The expanded scope of the Committee reinforces the Board and organisation's commitment towards an inclusive and people-centred culture, a key enabler of our strategic ambitions. Further details of the Committee are set out on page 119 [AR](#).

Broader employee context

The Board continued to engage with employees throughout the year, as detailed on page 95 [AR](#). These engagements enable the Board to hear directly our people's views on pay. The disruptive impact brought about by increased living costs was a regular topic of engagement in 2022 and we responded by making meaningful and significant investments to ease the strain on employees via the one-off mid-year salary adjustment.

The median Chief Executive pay ratio of 52:1 is higher than in 2021, primarily due to the vesting of the first LTIP award granted to Jakob Stausholm when he joined the company in 2018.

Our focus on pay equity is evident in our gender pay metrics, in which we continue to make progress. Pay equity is a key pillar of our annual remuneration approach. Gender diversity in senior management roles also remains a key aspect of our broader agenda on diversity and inclusion. Further details on equal pay and gender pay gap, together with a wider discussion on diversity and inclusion, are provided in the Sustainability section of this report on page 59.

Looking ahead

As I have mentioned earlier, I met with several shareholders and institutions in 2022 in relation to the redesign of our STIP. In preparation for our upcoming triennial Remuneration Policy review, I also took this opportunity to explore initial views on what role alternative measures, for example decarbonisation and culture, might play in our LTIP moving forward. The Committee is mindful of the need to ensure there is focus on the Group's key strategic priorities, balanced against ongoing focus on shareholder returns, when measuring the outcomes of our long-term incentives for our executive team. These initial discussions were both positive and constructive, and I look forward to continuing this dialogue in preparation for our updated Policy that will be put forward for approval at the 2024 AGMs.

As always, I welcome shareholder feedback on our 2022 Directors' Remuneration report.

Yours sincerely,



Sam Laidlaw

People & Remuneration Committee Chair

22 February 2023

2023 short-term incentive plan redesign

In 2022, we undertook a review of our incentives and performance management framework grounded in a belief that to deliver our ambitious strategy, we need to change the way we work. We believe there is an opportunity for incentives to be aligned to our strategic priorities that focuses as much on “how” we deliver as well as “what” we deliver, and to be more engaging so that they are better understood by participants.

We are moving to a much simpler design, where the STIP for approximately 24,000 employees will be based upon one Group scorecard rather than the diversified scorecards previously operated across the business – this aligns the goals of all STIP participants which will aid the business in its pursuit of financial success driven by our four objectives.

The new STIP design maintains the existing weighting and measures on our Group financials while aligning with our four objectives – achieving impeccable ESG, excel in development, best operator and social licence – as well as people and culture.

The STIP redesign is underpinned by the following **core principles**:

- Alignment with strategy
- Reinforcing our values
- Simplification
- Collective achievement
- Transparency of targets, progress and outcomes

Alignment to strategy

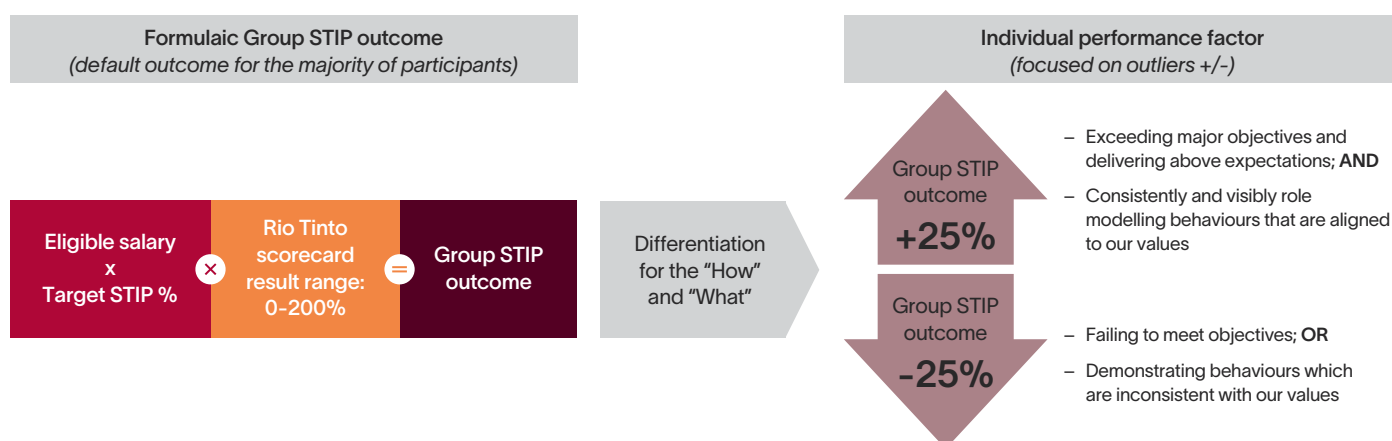
The metrics in the STIP design are chosen to drive the implementation of our strategy and are based around our areas of focus: our four objectives together with the delivery of strong financial performance and accelerating our culture change.

Strategic priority	Reflection in scorecard
People and culture	Focuses on “how” we do things as well as “what” we achieve as a critical lever of accelerating our culture change and building an inclusive workplace environment.
Excel in development	Measures progress in relation to exploration, studies and project execution.
Impeccable ESG	Safety in all its aspects remains a key priority alongside progressing the work on our decarbonisation pathways towards achieving our 2030 ambition.
Social licence	Measures our progress in building trust and meaningful relationships with our community of stakeholders.
Best operator – Flexed financials	Focuses on achievement of financial plan commitments.
Unflexed financials	Aligned to market conditions for our commodities.

Group STIP outcome

Our Group STIP is based on one scorecard for all eligible employees, focused on working together and how we deliver on our strategic priorities.

Individual performance will be assessed based on both the achievement of individual objectives (“what”) and living our values and behaviours (“how”). The individual performance assessment may result in the Group STIP outcome being adjusted by +/- 25%. The multiplier is intended to be used sparingly to address clear cases of out and under performance.



We have evolved our STIP to a model that focuses every employee’s efforts on delivering and executing on our strategic priorities and rewards behaviours that uphold our values. The design is simple and intended to remove barriers to collaboration and encourages longer-term thinking. It also places new emphasis on “how” we achieve – which is as important as “what” we achieve.

If we are focused on the right things and working together to achieve them, Rio Tinto will perform better, benefiting all our stakeholders.

Group scorecard

Our Group scorecard will be the same for all eligible employees and will track our progress against achieving our four objectives, our Group financial performance and acceleration of our culture change. It is weighted equally between our financial performance and strategic priorities.



Fatality deduction

Safety is our number one priority and in the event of a fatality there will be deductions applied to the scorecard outcome.

Single total figure of remuneration (£'000)

Executive Director (£'000)	Year	Base salary	Benefits	Pension	Total fixed	Bonus – STIP payment		Value of LTIP awards vesting ¹		Total variable	Single total figure
						Cash	Deferred shares	Face value	Share price appreciation		
Jakob Stausholm (Chief Executive)	2022	1,177	130	165	1,472	575	576	1,418	767	3,336	4,808
Jakob Stausholm (Chief Executive)	2021	1,150	67	161	1,378	705	705	–	–	1,410	2,788
Peter Cunningham (Chief Financial Officer) ²	2022	700	39	98	837	320	320	348	188	1,176	2,013
Peter Cunningham (Chief Financial Officer) ²	2021	377	33	53	463	216	217	421	583	1,437	1,900

1. Dividend equivalent shares are valued at the grant price for the LTIP award and included in the face value figure, with the impact of share price change included under share price appreciation.

2. The details for Peter Cunningham reflect remuneration from his appointment as Chief Financial Officer and Executive Director on 17 June 2021 to 31 December 2021. The LTIPs granted in 2017 and 2018 were in relation to his previous role.

At the end of the performance period, LTIP values are based on estimates of both the number of shares that will ultimately vest and the share price. These estimates are restated in the following year, once actual values are known. Refer to page 125 ^{AR} for further detail.

Table 1b – Non-Executive Directors' remuneration

Stated in US\$'000 ¹		Fees and allowances ²	Non-monetary benefits ³	Post-employment benefits	Single total figure of remuneration ⁴	Currency of actual payment
Chair						
Simon Thompson ⁵	2022	315	6	–	321	£
	2021	1,010	9	–	1,019	£
Dominic Barton ⁶	2022	600	192	–	792	£
Non-Executive Directors						
Megan Clark	2022	221	2	23	246	A\$
	2021	211	2	21	234	A\$
Hinda Gharbi ⁷	2022	50	10	–	60	£
	2021	204	15	–	219	£
Simon Henry	2022	202	4	–	206	£
	2021	225	8	–	233	£
Sam Laidlaw	2022	263	5	–	268	£
	2021	280	2	–	282	£
Simon McKeon	2022	275	3	–	278	A\$
	2021	276	2	4	282	A\$
Jennifer Nason	2022	196	4	–	200	£
	2021	204	15	–	219	£
Ngairé Woods	2022	188	9	–	197	£
	2021	197	4	–	201	£
Ben Wyatt	2022	203	4	4	211	A\$
	2021	56	1	6	63	A\$

1. The remuneration is reported in US\$. The amounts have been converted using the relevant 2022 average exchange rates of £1 = US\$1.23715 and A\$1 = US\$0.69493 (1 January to 31 December 2022 average).

2. "Fees and allowances" comprises the total fees for the Chair and all Non-Executive Directors, and travel allowances for the Non-Executive Directors (other than the Chair). The payment of statutory minimum superannuation contributions for Australian Non-Executive Directors is required by Australian superannuation law. These contributions are included in the "Fees and allowances" amount disclosed for Australian Non-Executive Directors.

3. "Non-monetary benefits" include, as in previous years, amounts which are deemed by the UK tax authorities to be benefits in kind relating largely to the costs of Non-Executive Directors' expenses in attending Board meetings held at the company's UK registered office (including associated hotel and subsistence expenses) and professional tax compliance services/advice. Given these expenses are incurred by directors in the fulfilment of their duties, the company pays the tax on them.

4. Represents disclosure of the single total figure of remuneration under Schedule 8 of the Large- and Medium-sized Companies and Groups (Accounts and Reports) Regulations 2008 (as amended) and total remuneration under the *Australian Corporations Act 2001* and applicable accounting standards.

5. The amounts reported for Simon Thompson reflect the period he was Chair from 1 January 2022 to 5 May 2022.

6. The amounts reported for Dominic Barton reflect the period of active Board memberships from 4 April 2022 to 5 May 2022 and Chair fees from 6 May 2022 to 31 December 2022.

7. The amounts reported for Hinda Gharbi reflect the period of active Board memberships from 1 January 2022 to 8 April 2022.

Further details in relation to aggregate compensation for executives, including directors, are included in note 29 ^{AR} (Directors' and key management remuneration).

Summary shareholder information

Financial calendar

2023

16	January	Fourth quarter 2022 operations review
22	February	Announcement of results for 2022
9	March	Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs quoted "ex-dividend" for the 2022 final dividend
10	March	Record date for the 2022 final dividend for Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs
28	March	Final date for elections under the Rio Tinto plc and Rio Tinto Limited dividend reinvestment plans and under facilities for dividends to be paid in alternative currency for the 2022 final dividend*
6	April	Annual general meeting for Rio Tinto plc, UK
13	April	Dividend currency conversion date (Rio Tinto plc holders electing to receive Australian dollars and Rio Tinto Limited holders electing to receive pounds sterling)
20	April	First quarter 2023 operations review
20	April	Payment date for the 2022 final dividend to holders of ordinary shares and ADRs
4	May	Annual general meeting for Rio Tinto Limited, Australia
18	July	Second quarter operations review 2023
26	July	Announcement of half-year results for 2023
10	August	Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs quoted "ex-dividend" for the 2023 interim dividend
11	August	Record date for the 2023 interim dividend for Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs
31	August	Final date for elections under the Rio Tinto plc and Rio Tinto Limited dividend reinvestment plans and under facilities for dividends to be paid in alternative currency for the 2023 interim dividend
14	September	Dividend currency conversion date (Rio Tinto plc holders electing to receive Australian dollars and Rio Tinto Limited holders electing to receive pounds sterling)
21	September	Payment date for the 2023 interim dividend to holders of ordinary shares and ADRs
17	October	Third quarter 2023 operations review

Cautionary statement about forward-looking statements

This report includes "forward-looking statements" within the meaning of the *Private Securities Litigation Reform Act of 1995*. All statements other than statements of historical facts included in this report, including, without limitation, those regarding Rio Tinto's financial position, business strategy, plans and objectives of management for future operations (including development plans and objectives relating to Rio Tinto's products, production forecasts, and reserve and resource positions), are forward-looking statements. The words "intend", "aim", "project", "anticipate", "estimate", "plan", "believes", "expects", "may", "should", "will", "target", "set to" or similar expressions, commonly identify such forward-looking statements.

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Nothing in this report should be interpreted to mean that future earnings per share of Rio Tinto plc or Rio Tinto Limited will necessarily match or exceed its historical published earnings per share.

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