RioTinto

Strategic Report 2023

Contents

Strategic report

2023 year in review	1
At a glance	2
Chair's statement	4
From the Chief Executive	6
Creating value by living our purpose	8
Finding better ways™ in 2023	10
Our stakeholders	12
Strategic context	14
Our strategy	16
Progressing our strategy	17
Progressing our four objectives	18
Key performance indicators	20
Chief Financial Officer's statement	23
Financial review	24
Portfolio management	30
Iron Ore	32
Aluminium	34
Copper	36
Minerals	38
Our approach to ESG	40
Environmental performance	44
Social performance	66
Governance performance	76
Our approach to risk	78
Our approach to risk management	79
Principal risks and uncertainties	81
Five-year review	89

Supplementary information

Independent limited assurance report	i
Summary Remuneration report	iv
Summary shareholder information	vii
Contact details	viii

Navigating through our Strategic Report

As required by UK company law, we include a strategic report in our full *2023 Annual Report*. In addition, we produce this *Strategic Report* as a separate document to provide investors with the option of receiving it as a standalone document.

The first 89 pages of Rio Tinto's *2023 Annual Report* constitute its *2023 Strategic Report*. References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Copies of Rio Tinto's shareholder documents – the *2023 Annual Report* and *Strategic Report* – are available to view at riotinto.com. Shareholders may obtain a hard copy of these documents free of charge by contacting Rio Tinto's registrars, whose details are set out at the back of this document.

Please visit riotinto.com to learn more about the Group's performance in 2023.

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

21 February 2024

The Group's *2023 Strategic Report* complies with Australian and UK reporting requirements.

The auditors' report on the Group's 2023 annual accounts was 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, were also unqualified.

A copy of the auditors' report on the Group's *2023 Annual report* is contained on pages 267 to 285 of that document.

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

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, and 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 the communities where we live and work.

Cover | The BlueSmelting™ project in Sorel-Tracy, Canada. BlueSmelting™ involves a completely new ilmenite reduction technology that could generate 95% less greenhouse gas emissions than the current reduction process, enabling the production of titanium dioxide, steel and metal powders with a significantly lower-carbon footprint.

2023 year in review

We are finding better ways™ to provide the materials the world needs. In 2023, our teams around the world sought opportunities to reduce our carbon footprint, to partner to develop technologies to decarbonise steel and aluminium production, to find more efficient ways to supply copper and critical minerals essential for the energy transition, and to create new products from waste. We explore, we mine, we process, and our ambition continues to be a business with a commodity mix 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 solutions with lower societal and environmental impact. The approach applies as much to large-scale, transformational innovation as it does to incremental everyday progress, such as our safety and operational performance.

All-injury frequency rate

0.37

(2022: 0.40)

Women in our workforce

24.3%

(2022: 22.9%)

Scope 1 and 2 greenhouse gas emissions

32.6Mt

(equity CO_2e)
(2022: 32.7Mt)[2]

Increase in spend with Indigenous businesses in Australia

28%

(2023 A$725 million increased from A$565 million in 2022)

Completion rate of "Building Everyday Respect" employee learning module

83.5%

(2022 comparative dataset is not available due to new program)

For more information about our environmental, social and governance (ESG) performance see page 43.

Consolidated sales revenue

$54.0bn

(2022: $55.6bn)

Profit after tax attributable to owners of Rio Tinto

$10.1bn

(net earnings)
(2022: $12.4bn)[1]

Net cash generated from operating activities

$15.2bn

(2022: $16.1bn)

Underlying EBITDA[3]

$23.9bn

(2022: $26.3bn)

Total dividend per share

435 cents

(2022: 492 cents)

For more information about our financial review see page 24.

1. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 "Income Taxes". Refer to page 166 for details.
2. In 2023, we improved our carbon emissions reporting and now use the market-based method as our primary measure for assessing performance against our targets. We have restated prior year numbers and our 2018 baseline accordingly. We exclude reductions achieved by divesting assets and increases associated with acquisitions from our target and so also adjust our 2018 baseline to take this into account. For comparison purposes, we have disclosed our 2022 emissions on the same basis. Our adjusted 2022 figures are 32.7Mt CO_2e and our actual 2022 emissions (unadjusted for acquisitions) are 32.3Mt CO_2e.
3. Underlying EBITDA is a non-IFRS measure. A definition of underlying EBITDA and a reconciliation to its closest IFRS measure is presented in note 1 (pages 174-175).

Our 2023 reporting suite

Our *Annual Report* is part of our broader 2023 reporting suite. You can find this report and others, including our *2023 Climate Change Report, Sustainability Fact Book*, *2023 Addendum - Scope 1, 2 and 3 Emissions Calculation Methodology* and *Industry Association Disclosure*, on our website. Some of our reports are published on our website later in the year, including our *2023 Taxes Paid Report*, *Country-by-Country Report*, *Modern Slavery Statement*, and our *Voluntary Principles on Security and Human Rights* report.

To view and download these documents see riotinto.com/reports.

2023 Annual Report

2023 Climate Change Report

2023 Sustainability Fact Book

2023 Addendum - Scope 1, 2 and 3 Emissions Calculation Methodology

2023 Industry Association Disclosure

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

At a glance

Our business

We operate in 35[1] countries where our 57,000 employees[2] are working to find better ways to provide the materials the world needs. Our portfolio includes iron ore, copper, aluminium and a range of other minerals and materials needed for people, communities and nations to grow and prosper, and for the world to cut carbon emissions to net zero. We continuously search for new projects that can support the energy transition, currently exploring for eight commodities in 18 countries.

We have more than 150 years of mining and processing experience guiding our work. 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
$32.2bn
(2022: $30.9bn)

Underlying EBITDA
$20.0bn
(2022: $18.6bn)

Production (100% basis)
331.5Mt
Pilbara iron ore
(2022: 324.1Mt)

Employees[2]
16,000
(2022: 15,000)

Aluminium

Segmental revenue
$12.3bn
(2022: $14.1bn)

Underlying EBITDA
$2.3bn
(2022: $3.7bn)

Production (our share)
54.6Mt
bauxite
(2022: 54.6Mt)

3,272kt
aluminium
(2022: 3,009kt)

Employees[2]
15,000
(2022: 15,000)

Our products

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

For more information see pages 32–39.

Operations and projects[3]

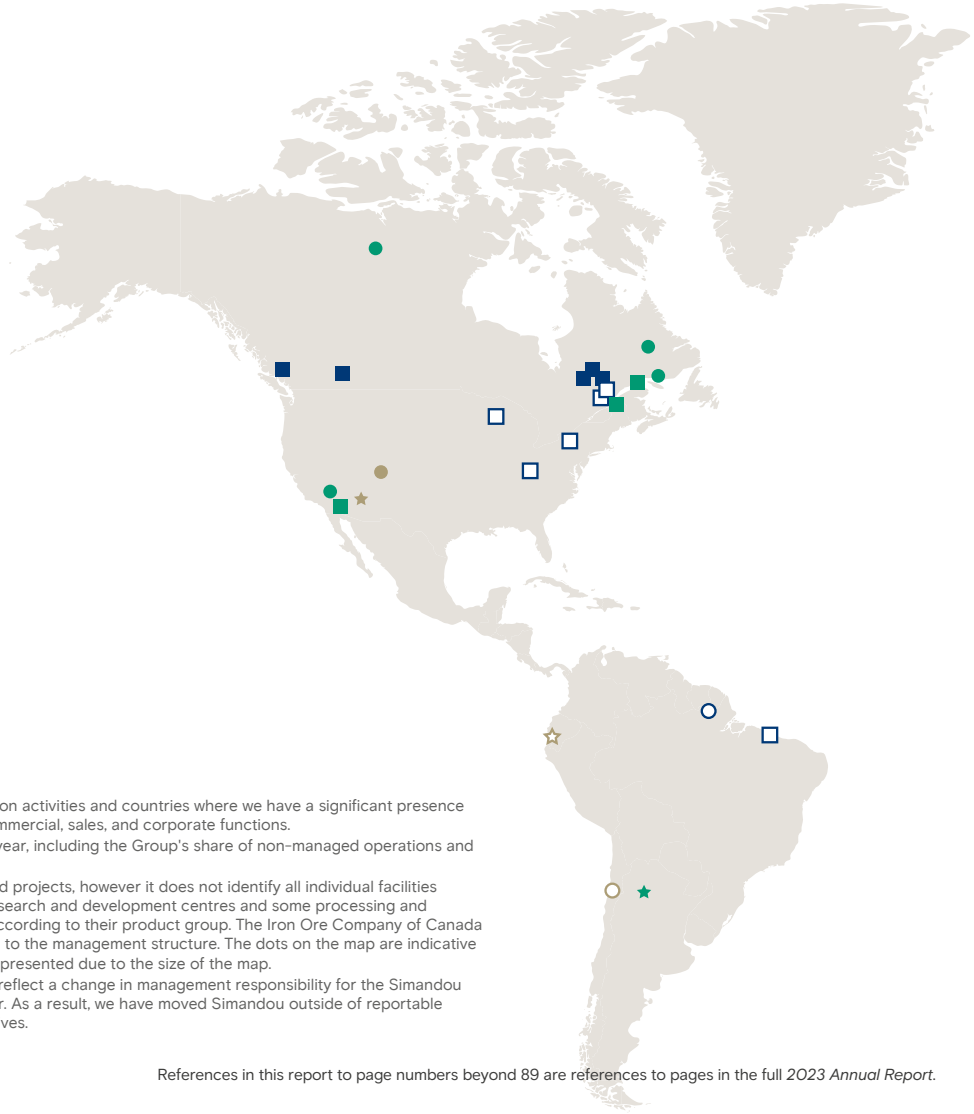
Iron Ore

Aluminium

Copper

Minerals

- Mines
- Projects
- Smelters, refineries, processing plants and power and shipping facilities remote from mine
- Non-managed operations



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 represents the average number of employees for the year, including the Group's share of non-managed operations and joint ventures. Refer to page 215 for more information.
3. The map indicates the location of our global operations and projects, however it does not identify all individual facilities included in an operation. It does not include our offices, research and development centres and some processing and shipping facilities. Operations and projects are indicated according to their product group. 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.
4. 2022 underlying EBITDA for Copper has been adjusted to reflect a change in management responsibility for the Simandou iron ore project from Copper to the Chief Technical Officer. As a result, we have moved Simandou outside of reportable segments and accordingly adjusted prior period comparatives.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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
(2022: $6.7bn)

Underlying EBITDA
$1.9bn
(2022: $2.6bn)[4]

Production (consolidated basis)
620kt
mined copper
(2022: 607kt)

Employees[2]
8,000
(2022: 8,000)

Minerals

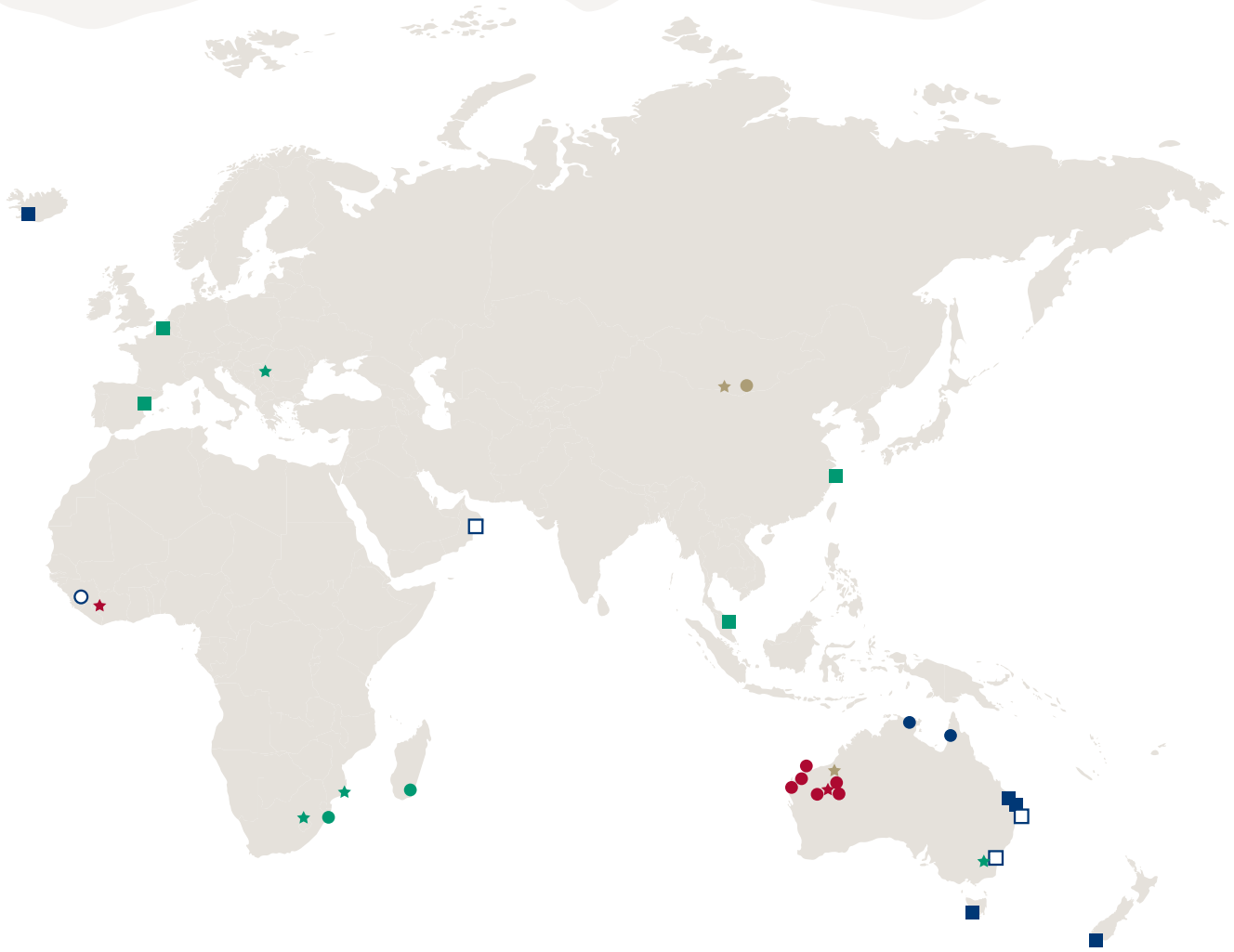
Segmental revenue
$5.9bn
(2022: $6.8bn)

Underlying EBITDA
$1.4bn
(2022: $2.4bn)

Production (our share)
1,111kt
titanium dioxide slag
(2022: 1,200kt)

9.7Mt
iron ore pellets and concentrate
(2022: 10.3Mt)

Employees[2]
10,000
(2022: 9,500)



Chair's statement

Very sadly, I must begin by acknowledging the tragic deaths of our four Diavik colleagues and two airline crew members in a plane crash near Fort Smith, in the Northwest Territories, Canada, on 23 January 2024. They will all be dearly missed, and our thoughts are very much with their loved ones, everyone in Fort Smith, and our team at Diavik.

Our focus in 2023, and as we move into 2024, has been on embedding an empowering culture and on delivering consistent operational performance to progress our four key strategic objectives.

We recognise that creating and maintaining a culture where everyone can be at their best requires constant effort but, two years since we started learning from the findings of the *Everyday Respect Report*, there is positive momentum. Our executive team is driving this change, with the full support of the Board, reinforcing the importance of mindsets and behaviours that ensure everyone, everywhere in our operations feels safe, valued and empowered.

The Group has also made progress on our four key objectives of becoming best operator, excelling in development, having impeccable environmental, social and governance (ESG) credentials and strengthening Rio Tinto's social licence. There have been real improvements in our Pilbara iron ore operations; we are ramping up underground copper production at Oyu Tolgoi; we are significantly closer to unlocking the Simandou project; and we have made strategic and exciting investments in our aluminium business, such as the Matalco recycling joint venture.

Our strong results in 2023 demonstrate our continued progress towards our four objectives, with a continued focus on financial discipline. This discipline has enabled us to invest in the future health of our business while at the same time delivering attractive returns to investors, with the Board recommending a final dividend of 258 US cents, taking total dividends declared to $7.1 billion.

Growing and deepening connections

We are committed to deepening connections with our stakeholders to earn trust, resolve conflicts, and strengthen our social licence. This is constant work in progress, but there were many bright spots in the way our relationships with governments, communities and Indigenous Peoples evolved in 2023.

Our partnership with the Mongolian Government highlights the mutual benefits when we get this right. We are now deepening our connection to Mongolia, most recently forming a partnership with UNESCO to support its sustainable development. In Canada, we are growing our aluminium business, including expanding the use of AP60 low-carbon smelting technology, with the continued support of the national and local governments.

More broadly, we are embedding and replicating the learnings from a shift to co-management and co-development at our operations, such as working closely with the Nyiyaparli and Ngarlawangga people as we progress the Rhodes Ridge project in the Pilbara. As we get closer to unlocking Simandou in Guinea, we are doing so in close partnership with communities, in a way that will support further economic development beyond the mine.

This commitment to ESG and a stronger social licence does not end with the life of a mine. At Le Thoronet in south-east France, a rehabilitated former bauxite mine we have handed back to the French authorities, I saw evidence of how we are thinking about the full lifecycle of our assets, beyond our time as their custodians.

An important part of our engagement is with non-governmental organisations (NGOs). Taking part in our civil society roundtables in the US, UK and Australia provided opportunities to listen to the concerns of leading civil society voices, what we can learn to do better, and understand how we can better work with these groups. They encouraged us to forge ahead on establishing nature and biodiversity targets and helped me understand further how we can better engage with our communities.

Since becoming Chair almost two years ago, I have been fortunate to spend a lot of time with our talented people across the organisation. In our 150th anniversary year, we reflected together on how we can reinvigorate the core parts of our DNA and be successful in the 150 years to come. With every person I meet and every site I visit, I grow in confidence that we are heading in the right direction. This was clearly illustrated when the Board saw our four objectives in action at Oyu Tolgoi. We were deeply impressed by the productivity, the use of cutting-edge technology and the connection to the community; a blueprint for what we can achieve everywhere.

Meetings with stakeholders have also reinforced the important societal role we have to play. As a Board, we spent time in China with our customers, partners, and government to better understand how combining our knowledge and technology can create win-win opportunities and help address the climate challenge. Similarly, in conversations with officials in Washington D.C., Canberra, Ottawa, London, Brussels, Ulaanbaatar and more, we have discussed the critical role of mining for energy security, in addition to providing the basis for resurgent manufacturing.

What is very clear to me, is Rio Tinto's strategic importance in helping societies resolve their most urgent challenges. Rio Tinto can be fundamental to the energy transition. Our industry has been and will continue to be relied upon to provide the vast quantities of metals and minerals needed to build the infrastructure for the generation, transmission, and storage of renewable power. The need to repower our own assets with renewable power can also support investment in renewables – our Gladstone aluminium operations being a recent example of this.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Innovation and growth

Innovation and technology are key to driving our progress, while helping us to simplify and automate for safer and more efficient operations. There is real momentum in our project pipeline and our Chief Scientist's office is steering us towards more breakthroughs in sustainable mining and processing, including BlueSmelting™, ELYSIS™ and BioIron™.

We are also working towards our ambitious targets of a 50% reduction in Scope 1 and 2 emissions by 2030 and achieving net zero by 2050. This is a physically challenging task that will require great imagination, collaboration, and technological advances that do not yet exist. However, we have now progressed to a disciplined and detailed roll-out program, providing greater definition to what an economical pathway to decarbonisation looks like. At the same time, we are exploring more ways to help our customers accelerate their own decarbonisation to tackle our Scope 3 emissions.

We are also seeking to further embed these targets by introducing a decarbonisation scorecard into our long-term incentive plan as part of our 2024 Remuneration Policy proposals. More detail on these proposals is set out on page 135.

Our partnerships are key to how we are developing the technologies to grow and reduce emissions. Highlights include working with China Baowu to explore projects to decarbonise the steel value chain, a multi-year supply agreement between Iron Ore Company of Canada and H2 Green Steel in Sweden, and teaming up with Sumitomo at our Aluminium Pacific Operations to build a first-of-a-kind hydrogen plant in Gladstone to trial lower-carbon alumina refining, with support from the Australian Government.

Board changes

In the summer of 2022, we evaluated the mix of skills and experience on the Board and concluded that we needed 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. We also needed to prepare for future transitions in our Audit and Risk Committee. I am pleased that we have made significant progress in this, with the announcement of six new Non-Executive Directors.

Dean Dalla Valle, who joined the Board in June, has vast operational and technical expertise, and wide experience developing complex mining projects. Susan Lloyd-Hurwitz, who also joined in June, is a highly respected leader and brings deep CEO experience across large projects, cultural change, diversity and inclusion, and sustainability. Joc O'Rourke joined the Board in October and brings 25 years of mining industry experience and a passion for improving operational performance. In December, we announced the appointments of Martina Merz, who joined the Board on 1 February 2024, and Sharon Thorne, who will join the Board in July 2024. Both are exceptional leaders, Martina with deep CEO experience in handling cyclical businesses, research and development and decarbonisation initiatives, and Sharon with deep industry knowledge gained over 30 years of auditing and advising multinational companies.

As part of that phased transition, Simon McKeon has agreed to step down as a Director at the conclusion of our annual general meetings in 2024, and will not therefore seek re-election by shareholders. I am extremely grateful to Simon for his invaluable contribution. Having regard for his roles as Rio Tinto Limited's Senior Independent Director and the Designated Director for workforce engagement, Simon has taken a particular interest in Rio Tinto's revitalised approach to engagement with the broader Australian community as well as the company's cultural reset. On behalf of the Board, I wish him well for the future.

In December, we also said goodbye to a colleague who will be greatly missed. Dr Megan Clark stepped down after 9 years on the Board. Her experience and wise counsel were invaluable, and we wish her well for the future.

I am excited to lead a Board with such depth and breadth of insight, who I know share a commitment to help Rio Tinto capture opportunities and achieve its full potential. For more information on the Board, please see the Directors' report on pages 90 to 145.

Looking ahead

There is no doubt we are living through turbulent times. Politics is becoming increasingly polarised, the geopolitical landscape has become more complex and volatile, and the economic backdrop remains challenging.

Nevertheless, our purpose, "Finding better ways to provide the materials the world needs", drives everything your company does.

I look to the future with optimism – there has never been greater demand for what we do, and the capability of our people, and the quality of our partnerships, assets, technology, and innovation give me great confidence we can deliver for all of our stakeholders.

Once again, I want to thank the leadership team and the thousands of employees, contractors and partners around the world who are bringing Rio Tinto's purpose and values to life.

Dominic Barton
Chair

21 February 2024

From the Chief Executive

Q&A with Jakob Stausholm

2023 highlights

0.37

All-injury frequency rate
(2022: 0.40)

$15.2bn

net cash generated from operating activities
(2022: $16.1bn)

$10.1bn

profit after tax attributable to owners of Rio Tinto
(2022: $12.4bn)

$7.1bn

total dividend declared
(2022: $8bn)

What are your reflections on 2023?

We approached the year with confidence in our strategy, a deep commitment to safety and financial discipline, and a continuous improvement mindset. By continuing to focus on our four objectives, we have put Rio Tinto in a stronger position to capture traditional and emerging opportunities. In 2023, we returned to investing in profitable growth with an eye to the future. Of course, we have a lot more to do. But that is the best part; there is so much ahead of us.

While we had zero fatalities at our managed operations in 2023, four team members from our Diavik Diamond Mine in the Northwest Territories in Canada and two crew members lost their lives when a charter flight crashed on its way to the mine in January 2024.

We are devastated by this tragic incident and are working with the authorities to understand the full facts of what happened. Nothing is more important than the safety of our employees, contractors and communities and we remain committed to evolving our culture and processes to ensure everyone goes home safely every day.

We made encouraging progress improving our operations, including the Pilbara, where we achieved guidance for iron ore shipments. We also hit project milestones including first underground copper production at Oyu Tolgoi in Mongolia. Despite continued uncertainty in the operating environment, we delivered another set of robust financial results. We generated underlying earnings of $11.8 billion (2022: $13.4 billion) and net cash generated from operating activities of $15.2 billion (2022: $16.1 billion). Profit after tax attributable to owners of Rio Tinto was $10.1 billion (2022: $12.4 billion) and our balance sheet remains strong with net debt of $4.2 billion (2022: net debt of $4.2 billion). As a result, the Board has recommended a final ordinary dividend of 258 US cents per share, resulting in total shareholder returns declared this year of $7.1 billion. This represents a pay-out ratio of 60%, in line with our policy.

2023 was another year of extreme weather and broken temperature records. In December, I attended the UN climate summit (COP28) and came away concerned the world is not on track with the Paris Agreement goal to limit warming to 1.5°C by 2100. National targets are not in line with the overall goal, and current climate policies in many countries are not yet aligned with their stated ambitions.

Many 1.5°C scenarios now overshoot the long term temperature goal and rely on significant deployment of carbon dioxide removals to get to net zero that may not be plausible. No single company or country can halt the course of climate change alone, so partnering to reduce emissions is vital. This is why we put the low-carbon transition at the heart of our business strategy and are working with governments, customers, communities and others to decarbonise our operations and value chains.

Rio celebrated its 150th anniversary in 2023. What did reaching this milestone mean to you?

Rio Tinto's strength is built upon its rich history, and it has been important to explore our past in our anniversary year to inform our future. Our story is full of achievements and failures we must learn from, but there is one consistent theme: the spirit of innovation and continuous improvement. This is what our purpose – finding better ways to provide the materials the world needs – is all about. Our people have been doing this from the beginning, and reaching this milestone has reinvigorated our commitment to our purpose. It has also been a reminder that we are a long-term business. We are laying the groundwork to ensure Rio Tinto is successful not just today but for another 150 years.

We remained focused on our four objectives in 2023. How are we doing on our journey to best operator?

We need to be in the best shape possible to capture the opportunities ahead of us, which is why we are investing in the long-term health of our people, assets, and ore bodies. By prioritising these areas, we are creating the conditions for consistent operational and financial performance.

Evolving our culture is fundamental to how we unlock performance. We have continued to implement the 26 recommendations of the *Everyday Respect Report*, and we are embedding best practices and empowering our people by deepening the rollout of the Safe Production System (SPS). This is a multi-year process, but it is already having a profound impact. SPS has delivered real improvements in our Pilbara iron ore operations, realising a 5 million tonne production uplift in 2023 and on target to deliver another 5 million tonnes in 2024. At the same time, Oyu Tolgoi is an example of what becoming best operator looks like. Less than a year since we started underground production, we are well on track to ramp up to 500,000 tonnes of copper per annum, from 2028 to 2036 from this world-class operation.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

"Nothing is more important than the safety of our employees, contractors and communities. We remain committed to evolving our culture and processes to ensure everyone goes home safely every day."

Our Chief Operating Officer Arnaud Soirat was instrumental to the success of SPS and Oyu Tolgoi. Arnaud stepped down at the end of January 2024 ahead of his retirement, and I want to thank him for his incredible contribution and dedication to Rio Tinto for more than a decade.

How is striving for impeccable ESG helping us meet customer expectations?

Our customers increasingly tell us they want sustainable, traceable, and transparent low-carbon materials, as well as help decarbonising their own value chains. Our strategy and commitment to the highest environmental, societal and governance standards positions us to meet these aims.

Our Boron operation became the first open pit mine to fully transition its heavy machinery to renewable diesel, and we had breakthroughs including piloting our BlueSmelting™ technology, which reduces emissions from processing ilmenite into titanium dioxide.

More broadly, our approach to environmental, social and governance (ESG) is informing our decision-making as we develop projects including Oyu Tolgoi and Simandou. We are working closely with communities in areas such as biodiversity and water management, and to help realise the full opportunities for economic development at a national and local level. By working to the highest ESG standards and utilising our START™ blockchain technology, we are providing customers with the sustainable and traceable products they expect.

How is progress on excelling in development positioning the business for the future?

Excelling in development is all about shaping our portfolio for the future. We have an attractive pipeline and considerable momentum to grow in the materials essential for the energy transition. We are further strengthening our Iron Ore business with key projects in the Pilbara, and in Guinea we hit major milestones to help us unlock Simandou, the world's largest known untapped source of high-grade iron ore. I visited Guinea in October and was impressed by how quickly early works are progressing as we move closer to full sanction.

In our Aluminium business, we announced an investment of $1.1 billion to expand our state-of-the-art AP60 smelter, replacing the Arvida smelter. We also launched into the rapidly growing North American market for recycled aluminium with Matalco, a joint venture that develops our position further along the value chain. We remain on track to deliver 1 million tonnes of copper per annum by the end of the decade, with considerable progress at Oyu Tolgoi underground, expansion pathways at Kennecott, the continued development of Resolution, and further options with La Granja and Winu. Further down the pipeline, we have finalised Nuevo Cobre, a joint venture with Codelco, to actively explore for copper in Chile.

Critical minerals are vital to achieving a net zero future, and we continue to explore opportunities in this area. Highlights from 2023 include steadily advancing the Rincon lithium project in Argentina, and the acquisition of the Burra™ Scandium Project in New South Wales, Australia, a high-grade scalable resource that could produce up to 40 tonnes per annum of scandium oxide.

How have we strengthened our social licence this year?

Our social licence underpins all our objectives – we cannot function as a business without it and our understanding of this is deepening across our teams. My conversations with stakeholders this year suggest we have come a long way to rebuild trust. However, this is an ongoing journey, and it is ultimately up to others to judge how we are performing. We need to continue to listen to voices from the communities where we operate and engage with civil society organisations to understand what we can do better.

Part of this development is having greater transparency. In March we published an independent report based on an audit of our Cultural Heritage Management performance. The report helped us identify target areas for improvement, such as a sustained focus on community engagement throughout the life of our operations. We have started taking a more community-led approach, with co-management and co-development of sites becoming an embedded part of our process from the beginning.

We continued to work closely with Indigenous Peoples this year to ensure better outcomes for all stakeholders. This has involved partnering for economic prosperity, such as increasing opportunities for Pilbara Aboriginal Businesses as construction progresses at Western Range. Other highlights include working with the Yindjibarndi Energy Corporation to explore opportunities for renewable energy projects and signing the Aganow agreement to enable greater participation by the Naskapi Nation of Kawawachikamach in Iron Ore Company of Canada activities.

What are your main focus areas for 2024?

Rio Tinto is at the heart of the energy transition and facing an opportunity-rich world. At the same time, we are still seeing powerful traditional drivers of demand and our core markets are growing. Global trends such as re-industrialisation and a renewed emphasis on supply-chain security are presenting even more opportunities. As both a mining company and a processing company with a global footprint and a portfolio built for the future, we are well-positioned to capture these over the long-term.

Our focus will remain on securing the enduring health and success of the business, with an emphasis on disciplined growth, improving operational performance, exploring options along the value chain, and investing in the technologies that will allow us to reach our decarbonisation targets.

We'll continue our journey of culture change, building an environment of trust where everyone feels safe, respected and empowered to deliver results. This is what will drive our performance and enable us to keep delivering for all our stakeholders in 2024.

Jakob Stausholm
Chief Executive

21 February 2024

Creating value by living our purpose

Our purpose is at the core of everything we do. It inspires our efforts and guides our decisions.

Finding better ways™ to provide the materials the world needs.

Our strategy will move our business, customers, partners and the world forward.

Grow in materials essential for the energy transition

Aim to grow in commodities such as copper, aluminium, high-grade iron ore, lithium and other critical minerals.

Accelerate the decarbonisation of our assets

Switch to renewable power, electrifying processing and running electric mobile fleets.

Develop products and technologies that help our customers decarbonise

Partner with customers and suppliers and invest in R&D to reduce emissions across our value chains.

Our objectives guide our everyday work to achieve our strategy and drive progress.

Become the best operator

Expand our capabilities and empower our people to improve our operational performance.

Excel in development

Grow and develop our pipeline of opportunities, and build our capabilities and partnerships for capital-efficient delivery.

Achieve impeccable ESG

Align our priorities with community expectations and consider sustainability in all decisions.

Strengthen our social licence

Earn trust by building meaningful relationships and partnerships, continuing to listen and learn.

Our people, culture and values create an environment where everyone feels safe, respected and empowered, so we can continue to find better ways together.

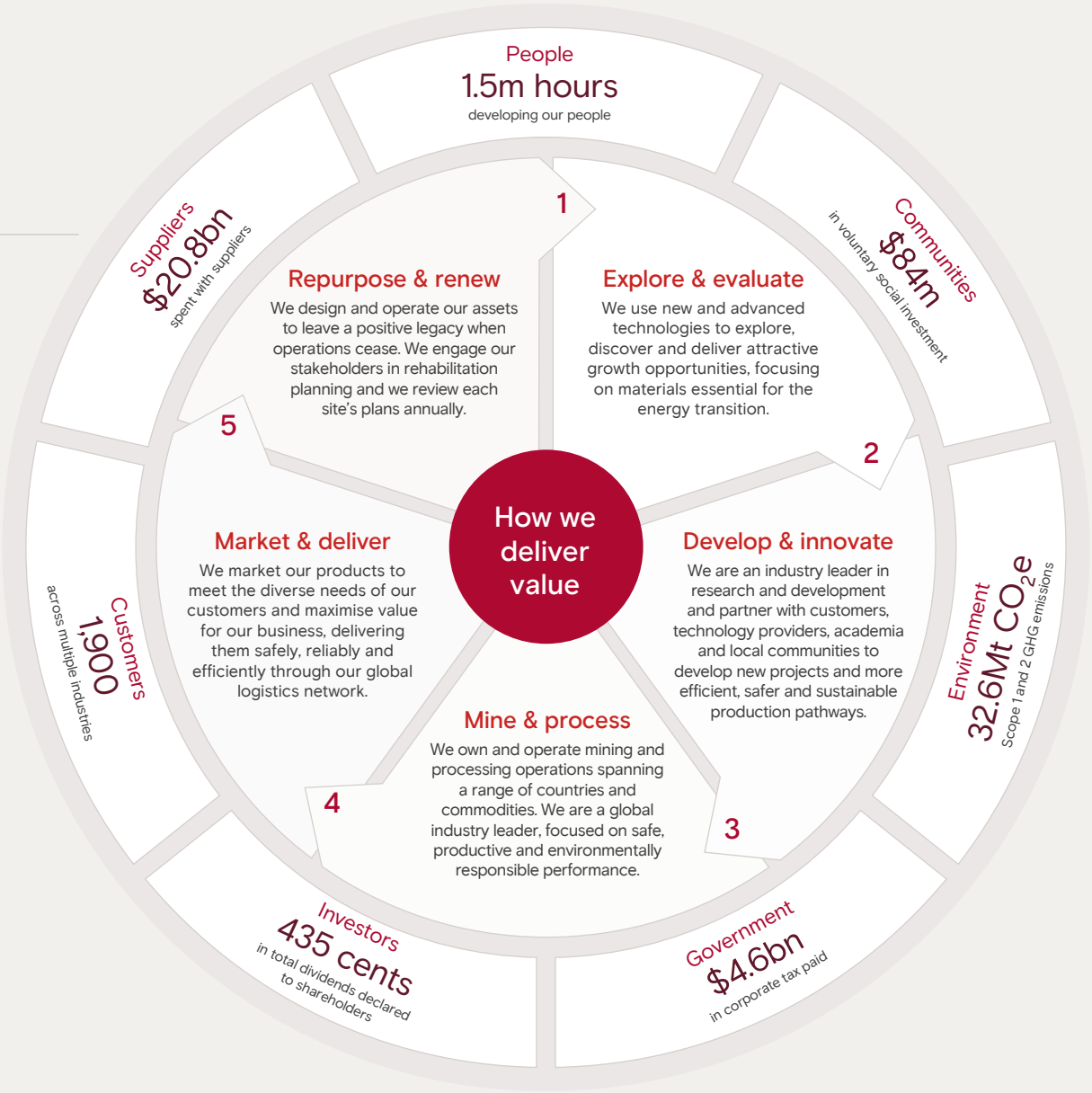
Care about the safety of ourselves and others, creating an environment of trust, and the impact we have on our colleagues and others, communities and the environment.

Courage to show vulnerability, speak up and challenge when we can do better, and take ownership of our actions and outcomes to drive performance.

Curiosity to learn and grow in our fields of expertise, look for opportunities to solve problems with everyday innovation, and be open to different perspectives.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Our business model helps us deliver value that matters to our stakeholders.



Most importantly, effective and responsive corporate governance manages our performance.

Tracked and measured

We measure our strategic progress through a mix of financial and non-financial key performance indicators (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 greenhouse gas (GHG) emissions.

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 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.

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 our business model see riotinto.com/ourbusiness.

Finding better ways™ in 2023

Our purpose in action

Continuous improvement and innovation are part of our DNA. Right across the business, we are finding better ways to provide the materials the world needs while reducing our carbon footprint, developing technologies needed to make net zero a reality, and continuing to support our people and the communities where we live and work.

For more highlights from 2023
see our end-of-year video at riotinto.com/annualreport.

BioIron™ – pioneering breakthrough technologies

In 2023, we continued developing BioIron™, which has the potential to reduce CO_2 emissions by more than 95% during steelmaking.

BioIron™ uses raw biomass produced from agricultural by-products (instead of metallurgical coal) and microwave energy, to convert Pilbara iron ore to metallic iron during steel making. It also uses approximately 65% less electricity during steel making when compared to other green hydrogen[1] technologies.

We have proved BioIron™ works on a small scale through a successful collaboration with the University of Nottingham and Metso Corporation. Now we have secured a site to continue testing on a larger scale, and are progressing regulatory approvals for the BioIron™ Continuous Pilot Plant which will have the capacity of one tonne per hour.

1. Green hydrogen is produced using renewable energy.

For more information
about BioIron™ see riotinto.com/bioiron.

Connecting with Country

In 2023, we commenced cultural immersion secondments with Jawun™, a non-profit partnership program with Indigenous organisations and communities across Australia.

Every year, 24 of our people will contribute their skills to support Aboriginal economic development as part of the program, while also learning about Aboriginal culture and history. This two-way learning opportunity has already deepened our cultural understanding and contributes to a more culturally aware workplace.

"You have an opportunity to provide back to an Indigenous organisation, and in return you get to explore this beautiful Country and learn a lot of things from the local Indigenous Peoples." Travis Creed, Superintendent Capability Development.

Accelerating innovation: bringing the outside world in

In 2023, we established an Innovation Advisory Committee, bringing together experts in innovation and research and development.

The Committee is helping us accelerate our innovation portfolio and offers guidance on emerging technologies in areas such as health and safety, environmental, social and governance, growth, carbon abatement and productivity.

To help us find innovative ways to provide the materials the world needs for the energy transition, we have also committed $150 million over ten years to create a Centre for Future Materials led by Imperial College London.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Becoming best operator with our Safe Production System

We are implementing lessons from our own pockets of excellence. We continue to see improved production efficiency, safety and engagement at the sites where we have deployed our Safe Production System (SPS).

Global

25%

improvement in AIFR[1] in the second half of 2023 at SPS sites, when compared to the first half

Iron Ore

5Mt

year-on-year production uplift at Pilbara iron ore sites, attributable to SPS

Copper

90%

record performance of concentrator effective utilisation at Kennecott across Q3 and Q4

Aluminium

8%

year-on-year increase in casting operating time at Grande Baie (excluding shutdowns)

Iron Ore

34%

decreased variability in processing operating time year-on-year at Hope Downs

Minerals

32%

year-on-year improvement in AIFR[1] at Iron Ore Company of Canada

1. All-injury frequency rate.

For more information about SPS see riotinto.com/innovation.

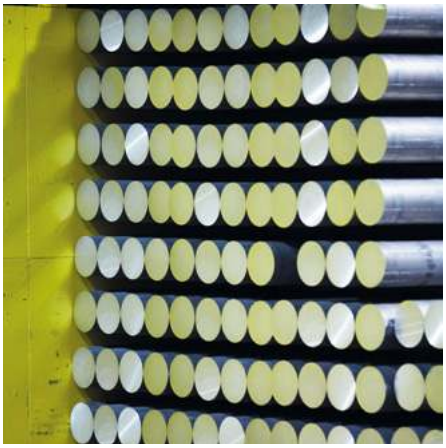
First open pit mine in the world to move to renewable diesel

Our Boron operation in California has fully transitioned their heavy machinery from fossil diesel to renewable diesel.

We expect this to reduce our CO_2 equivalent by up to 45,000 tonnes per year, similar to eliminating the emissions of 9,600 cars.

In the first quarter of 2024, we will begin to replace our entire fossil diesel consumption with renewable diesel at our Kennecott copper operation in Utah. It will reduce emissions by around 495,000 tonnes of CO_2 equivalent per year, similar to eliminating the emissions of more than 107,000 cars.

Note: emissions-to-cars conversion source - *Greenhouse Gas Equivalencies Calculator | US EPA.*



Investing in recycled aluminium

We have formed a joint venture with Giampaolo Group to purchase a 50% stake in Matalco.

Aluminium is an essential metal needed to decarbonise, but its production requires vast amounts of electricity and accounts for about 3% of the world's CO_2.

The partnership will help us provide a broader range of high-quality and low-carbon, primary, recycled, and blended aluminium products, at a time when customers are looking for solutions to lower their carbon footprint.

This move follows other recent investments in our aluminium business in North America, including $1.1 billion to expand AP60 smelter equipped with low-carbon technology at Complexe Jonquière in Canada, and $107 million to install a new alumina conveyor at Kitimat.

Our stakeholders

Through partnerships and collaboration, we gain the benefit from the expertise and insight of others. Our stakeholders give us a competitive edge and encourage us to work more thoughtfully and responsibly. By engaging with them and listening to their views, we can make a more meaningful contribution to society while becoming a more sustainable company.

Section 172(1) statement

This stakeholder section, together with our stakeholder pages in the Governance section (pages 96-100), explains how the Board takes account of stakeholder interests. These comprise our "Section 172(1) statement".

Workforce

We are creating an environment of trust, where our people feel safe, respected and empowered to be their best, to help us attract, retain and grow great talent and deliver results. In 2023, we focused on initiatives to help our people better align with our strategy and culture journey; we updated our incentive and performance management framework, refreshed our Code of Conduct and continued to develop our leaders.

Our people survey is one of the tools that helps us understand how our employees experience working for us. In our most recent survey conducted in October 2023, our employee satisfaction rating (eSAT) increased by 1 point (73 to 74).

55,000[1]

Employees across six continents
(2022: 52,000)

74

Employee satisfaction score (eSAT)
(2022: 73)

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 strive to partner 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. We are targeting for all sites to co-manage cultural heritage with communities and the knowledge holders, by 2026.

$84.0m

Voluntary social investment in 2023
(2022: $62.6m)

A$725m

Spent with Indigenous businesses in Australia in 2023
(2022: A$565m)

Civil society organisations

One way we can help address the world's many complex environmental, social and governance challenges, such as climate change, human rights violations, bribery and corruption, is 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.

28

Organisations participated in our 2023 CSO roundtable discussions in person

3

Roundtables held in Washington D.C., London and Sydney in 2023. A wide range of topics was discussed, including nature targets; free, prior and informed consent (FPIC); community support; our operations in Madagascar; and Resolution Copper.

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. 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.

$76bn

Paid in taxes and royalties globally over the past ten years

$4.6bn[2]

Corporate tax paid in 2023
(2022: $6.9bn)

$4.1bn[2]

Corporate tax paid in Australia in 2023
(2022: $6.1bn)

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 2023 rounded to nearest 1,000.
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 $8.5 billion (2022: $10.8 billion), including around $6.5 billion paid in Australia (2022: $8.5 billion).

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Investors

Our investors include pension funds, global fund managers, bondholders, and tens of thousands of individuals around the world, including approximately 34,000 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 our 2023 Investor Seminar in Sydney, where our Executive Committee provided an update on our progress against our strategy, our Simandou project and how we are advancing our decarbonisation program.

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 we deliver products that meet their specific requirements. Periodically, 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 2023 we significantly expanded our low-carbon portfolio by forming the Matalco joint venture to produce and market recycled aluminium in North America.

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 periodically ask our suppliers to share their feedback in a 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 Neste and Rolls-Royce that resulted in our Boron site in California becoming the first open pit mine to operate heavy machinery running entirely on renewable diesel.

$7.1bn

Total dividends declared to shareholders
(2022: $8.0bn)

34,000

Rio Tinto employees own shares in the company[1]
(2022: 30,000)

1,900

Customers across multiple industries and countries

$54.0bn

Consolidated sales revenue in 2023
(2022: $55.6bn)

543Mt CO_2e

Scope 3 emissions from the processing of our products
(2022: 549Mt CO_2e)

$20.8bn

Spent with suppliers globally in 2023
(2022: $22.5bn)

26Mt CO_2e

Scope 3 emissions from all procurement
(2022: 26Mt CO_2e)

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

Western Range spends A$1 billion with WA businesses

We spend billions of dollars with local suppliers across Western Australia and the Pilbara every year, helping support thriving communities across the State by providing local jobs for local people.

Western Australian businesses have so far been awarded contracts totalling A$1 billion as construction progresses at our Western Range mine in the Pilbara, a joint venture together with China Baowu Steel Group.

Construction at Western Range, which will help sustain production from our existing Paraburdoo mining hub, started in 2023 and is expected to support around 1,600 jobs.

For more information
about our local procurement strategy see riotinto.com/sustainableprocurement.

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 while building partnerships and capabilities that enable us to grow profitably.

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 forces: the speed of global economic growth and the trajectory of climate action, each heavily influenced by global geopolitics and governance.

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 the "Impact of climate change on the Group" section to the financial statements on pages 162-165.

We use additional scenarios (including our Aspirational Leadership scenario, which provides our view of a pathway aligned with 1.5°C by 2100) 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 stronger climate action, particularly after 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 pages 47-48.

New industrial policies and regional competition

In the last two years, we have entered a new era of industrial policies characterised by increasing government intervention in the market and unprecedented levels of subsidies and policy support, specifically tailored towards de-risking supply chains and supporting the energy transition.

Faced with inflationary pressures and macroeconomic uncertainty, regional and national governments are attempting to balance different societal choices, from accelerating decarbonisation to strengthening local manufacturing and enhancing supply security. This has created an increasingly fragmented and competitive industrial and climate policy landscape.

Industrial policies are becoming an increasingly important determinant of commodity prices, regional premiums and project economics.

Policies designed to accelerate the energy transition are bolstering demand growth for essential materials such as aluminium, copper and lithium. To mitigate supply bottleneck risks and support reindustrialisation, governments are also promoting the development of new mining and processing (smelting and refining) projects via financing or regulatory support. While this is creating new growth opportunities for existing producers, it is also incentivising competition and could result in increasing risks, such as tighter trade barriers and resource nationalisation, as value chains reconfigure.

Oyu Tolgoi copper-gold mine, Mongolia.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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 reach net zero emissions by 2050, to limit the global temperature rise to 1.5°C above pre-industrial levels.

In response, new government policies and initiatives, such as the US's *Inflation Reduction Act* (IRA), the EU's *Carbon Border Adjustment Mechanism* (CBAM) and Australia's *Safeguard Mechanism*, have been implemented to support decarbonisation and tackle climate change.

While these policies are helping accelerate regional deployment of renewables and fossil fuel alternatives, several industries still face significant technology and capital constraints. This is particularly apparent for continuous, energy-intensive processes requiring both large-scale renewables and grid-scale firming solutions.

As the energy transition progresses, long-standing materials supply chains will be reconfigured, creating opportunities and risks for metals and mining participants. Given current technology and regulatory hurdles, processes requiring firm power, such as aluminium and steel production, will prize access to hydroelectricity or continue to rely on nuclear or fossil fuel-based electricity to offset variability in wind and solar energy. Existing operations with access to hydropower could see significant cost advantages, particularly if carbon penalties increase. By contrast, industries that can use intermittent power or green hydrogen[1] will have an advantage in areas rich in solar and wind resources.

ESG priorities and evolving customer needs

Consumers are becoming more ESG-conscious in their purchasing behaviours, taking into consideration a range of themes beyond carbon, including biodiversity, water, supplier ethics and integrity, transparency and impacts of operations and broader value chains on local communities and society.

With the technology challenges and long development timelines associated with decarbonising large-scale processes, customers in developed markets are increasingly focusing on securing recycled materials as they look to reduce their value chain emissions as well as their environmental and social footprints.

This trend is being further supported by new industrial policies that have set recycled content targets and ESG performance hurdles to access government support.

While recycling presents a direct risk to primary metal demand growth, it also offers unique growth and commercial opportunities for mining companies that have downstream processing capabilities. These companies can meet customers' diverse needs by providing both high-quality primary products (essential for some applications) and recycled products with reduced footprints.

1. Green hydrogen is produced using renewable energy.

Community engagement, Simandou, Guinea.

Our strategy

Climate change and the low-carbon transition are at the heart of our strategy. We aim to strengthen our resilience to the physical effects of climate change and secure new opportunities and partnerships created by changing market fundamentals. Our strategy is designed to deliver strong returns and growth options while reducing the environmental and social impacts of our business and broader value chains.

Our strategy has three pillars

Grow in materials essential for the energy transition

The energy transition will create significant additional demand for copper, aluminium, lithium and a range of other critical minerals. We aim to grow in these commodities as well as in the supply of high-grade, high-quality iron ore, essential for low-carbon steel production.

Accelerate the decarbonisation of our assets

Due to the scale of our mining and processing activities, we have significant Scope 1 and 2 emissions (32.6Mt CO_2e). We are working with stakeholders to find commercial and technological solutions to reduce these by 50% (relative to 2018 levels) by 2030. We anticipate a total capital spend on decarbonisation of $5-6 billion by 2030[1].

Develop products and technologies that help our customers decarbonise

Our Scope 3 emissions were 578Mt CO_2e in 2023, over 94% of which was from the downstream processing of our products. We are partnering with our customers and suppliers and investing in research and development to decarbonise our broader value chains and bring forward their targets, to achieve net zero processing emissions by 2050.

1. Excluding the purchase of offsets.

Our four objectives

Our strategy is centred around our four objectives: 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 guides us on the journey to best operator, makes us a better partner and helps us solve problems as we work towards net zero.

By building an environment of trust where everyone feels safe, respected and empowered, 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

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 will build meaningful and enduring relationships and partnerships with our stakeholders by listening, learning and respecting diverse perspectives.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Progressing our strategy

Grow in materials essential for the energy transition

High-grade iron ore

- Progressed the Simandou high-grade iron ore project in Guinea with our partners. We announced plans to invest $6.2 billion[1] (Rio Tinto share) on mine, port and rail infrastructure development. Production is expected to ramp up over 30 months from 2025 to a capacity of 60 million dry tonnes[2] annually (27 million dry tonnes Rio Tinto share).
- Approved $77 million for a pre-feasibility study to progress the development of the Rhodes Ridge project in the East Pilbara in Western Australia, one of the world's most attractive undeveloped iron ore deposits.

Aluminium

- Acquired a 50% equity stake in Matalco from Giampaolo Group for $738 million. The Matalco joint venture combines the strengths of North America's largest primary and secondary aluminium producers to meet growing demand for low-carbon products.
- Announced we will invest $1.1 billion to expand our AP60 aluminium smelter equipped with low-carbon technology at the Complexe Jonquière with financial support from the Quebec government.

Copper

- Started production from the Oyu Tolgoi underground mine in Mongolia, which will make Oyu Tolgoi one of the most important producers of copper in the world.
- Approved investment to significantly increase production from underground mining at Kennecott. Production is expected to deliver around 250 thousand tonnes[3] of additional mined copper over the next ten years (2023-2033).
- Formed a joint venture with First Quantum Minerals to unlock the development of the La Granja project in Peru, one of the largest undeveloped copper deposits in the world.

Minerals

- Progressed development of a three thousand tonne per annum lithium carbonate starter plant at the Rincon lithium project with production expected by the end of 2024.
- Acquired the high-grade Burra™ Scandium Project in New South Wales, Australia. The project could produce up to 40 tonnes of scandium oxide per year.

Accelerate the decarbonisation of our assets

Decarbonisation spend

- Spent a total of $425 million on decarbonisation in 2023 (2022: $299 million). We estimate a total capital spend of $5-6 billion over the period 2022-2030, including $1.5 billion cumulative spend over the period 2024-2026.

Pacific Operations repowering

- Signed a power purchase agreement (PPA) to buy 1.1GW of renewable energy from the Upper Calliope Solar Farm project which could provide part of a solution to repower our three Gladstone production assets.

Renewable energy

- Constructed a 5MW solar plant pilot project at Kennecott Copper.
- Approved, subject to regulatory approvals, a 12.4MW solar photovoltaic system and a 2.1Mwh battery storage system via long-term PPA for Amrun operations.
- Signed a memorandum of understanding (MoU) with the Yindjibarndi Energy Corporation (YEC) to explore opportunities to collaborate on renewable energy projects on Yindjibarndi Country in the Pilbara.

Diesel transition

- Advanced our diesel transition at Boron and Kennecott. Boron became the world's first open-cut mine to fully transition 100% of its heavy machinery to renewable diesel.

Alumina processing

- Approved the Yarwun Hydrogen Calcination Pilot Demonstration Program.
- Progressed a double digestion pre-feasibility study at Queensland Alumina Limited (QAL).

Minerals processing

- Commissioned the BlueSmelting™ demonstration plant at Rio Tinto Iron and Titanium Quebec Operations, with the first tonne of pre-reduced ore produced. The project is part of a partnership with the Government of Canada.

Nature-based solutions

- Continued to develop pilot projects in Madagascar and progressed pre-feasibility and feasibility work for opportunities in South Africa, Guinea, US and Argentina.

Develop products and technologies that help our customers decarbonise

Steel value chain decarbonisation

- Progressed partnerships on various low-carbon pathways, including our collaboration with the world's largest steel producer – Baowu.
- Completed a feasibility study for the BioIron™ Continuous Pilot Plant and secured a location, completed an Electric Smelting Furnace concept study with BlueScope, and progressed design of the Baowu Meishan microwave lump drying pilot plant.

Shipping decarbonisation

- Lowered shipping emissions intensity by 37% (relative to 2008 baseline) and introduced five liquified natural gas vessels into the fleet in 2023.
- Completed a 12-month biofuel trial.

Aluminium value chain decarbonisation

- ELYSIS started commissioning activities following completion of construction work and expects to start the first 450kA cell in 2024.
- Defined potential areas of collaboration to help decarbonise alumina refining with customers, representing 47% of global bauxite sales.

Procurement

- Completed a study to understand the sources of our procurement-related emissions.

1. Subject to the remaining conditions being met including receipt of regulatory approvals.
2. The estimated annualised capacity of approximately 60 million dry tonnes per annum iron ore for the Simandou life of mine schedule was previously reported in a release to the Australian Securities Exchange (ASX) dated 6 December 2023 titled "Investor Seminar 2023". Rio Tinto confirms that all material assumptions underpinning that production target continue to apply and have not materially changed.
3. The production target of around 250 thousand tonnes of additional mined copper over the next ten years (2023 to 2033) at Kennecott was previously reported in a release to the Australian Securities Exchange (ASX) dated 20 June 2023 titled "Rio Tinto invests to strengthen copper supply in US". Rio Tinto confirms that all material assumptions underpinning that production target continue to apply and have not materially changed.

For more information
about our projects see the Portfolio management section on pages 30-31.

Progressing our four objectives

Best operator

Focus

Safety and operational performance.

Progress in 2023

Safety

Safety is our top priority. Our focus is on eliminating fatalities, preventing catastrophic events and reducing injuries. While we had zero fatalities at our managed operations in 2023, tragically four colleagues died in a plane crash while travelling to our Diavik mine in January 2024. Our all-injury frequency rate (AIFR) was 0.37 in 2023 (compared to 0.40 in 2022). We are strengthening our safety maturity model (SMM) by including health and environment risks, and we are gaining greater insight into the culture at each site so we can take actions to improve.

Operational performance

We continued rolling out the Safe Production System (SPS) across our assets, engaging our people to identify issues and improvement opportunities and develop and share best practices across the Group.

We have deployed SPS at ~60% of our sites to date, with implementation at various stages of maturity. Key performance highlights include a 5 million tonne uplift in iron ore production and a 25% improvement in AIFR globally in the second half of 2023 (when compared to the first half), at sites where SPS has been deployed.

In 2023, we announced plans to increase annual iron ore capacity at Gudai-Darri in Australia by seven million tonnes to 50 million tonnes at a cost of $70 million through incremental productivity gains.

We also initiated a number of projects designed to improve the Group's asset management performance. These included building up capabilities in our Asset Management Centre of Excellence, improving critical risk maintenance plans and spare parts programs and bolstering shutdown support.

Future priorities

Safety

In 2024, we will strengthen the way we manage our critical risks, our primary fatality elimination tool which helps ensure that controls are in place and working where there is a fatal risk. We will continue to enhance the understanding and impact of critical risk management by focusing on quality conversations and verifications at our global operations.

We have strong standards and processes to approve air operators, including regular audits and engagements to make sure aviation safety systems match our expectations of safety and care for our people. In 2024, we will continue to work with all our sites to actively review compliance with aviation safety tools and controls to provide further assurance on top of our existing processes.

We will also evolve SMM and evaluate its impact on individuals' mindsets, rather than simply verifying safety systems and processes. This will be strengthened through assessor training, and how we perform SMM assessments at our sites.

Operational performance

The rollout of the SPS will continue in 2024. Our focus will be on working with our product groups to double down on impacts at existing high-value sites, rather than new deployment launches. We will also work on significant maturity uplift of best practices, specifically problem solving, and completion of site-wide deployment and end-to-end systems. We will continue to work with asset management to integrate efforts to rapidly bring assets back to health so they can deliver industry-best performance.

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

Impeccable ESG

Focus

Decarbonisation, nature, water and waste management, closure, communities, workforce diversity, culture and leadership.

Progress in 2023

Environment

We continued to progress our six large carbon abatement programs focused on repowering our Pacific Aluminium operations, renewables, ELYSIS™, alumina process heat, minerals processing and diesel transition. We also formed new partnerships with our customers to reduce value chain emissions.

We also identified several opportunities for investment in large-scale nature-based solutions with the potential to halt and reverse nature loss, support positive, sustainable change for communities and address climate change.

In 2023, we progressed a number of innovative projects designed to reduce our environmental footprint and create new revenue streams through the adoption of more circular practices. These spanned the extraction of by-products, recycling and finding new life for our closure sites.

Social

Our work in 2023 focused on delivering our new communities and social performance strategy, underpinned by updated standards, targets and vision for the business. We continued to work on improving our approach to engage and partner with our host communities and better manage cultural heritage. In 2023, we completed an independent Cultural Heritage Audit, providing a systematic review of all the heritage sites that we manage worldwide.

Governance

In 2023, we continued to drive leadership, management and ethics and compliance improvements, with a focus on building a thriving culture, implementing the learnings from the *Everyday Respect Report*, and improving our transparency and practices.

In 2023, the Business Conduct Office (BCO) launched Care Hub, an independent care unit providing support, care and resolution options to anyone affected by harmful behaviours. Care Hub currently supports matters reported through myVoice.

72% of senior leaders have now completed Voyager, our senior leadership program. We also increased the offering of the Leading Sustainable Corporations and Leader as Coach programs to further support development and our cultural journey.

Future priorities

Environment

We will define our next round of climate and nature targets in 2024, drawing on knowledge and experience from across the business and from our external partners, to develop more holistic commitments across these key areas.

We will continue to progress our emissions reduction targets to build upon those currently in place, considering learnings from the approach we have taken with our water targets.

Social

Guided by our 2026 Communities and Social Performance Targets, a core 2024 focus is for our people in high human rights risk roles to complete job-specific and general human rights training. We will also continue to work together with communities to manage and protect heritage and find ways to deepen the impact of our social investment through strategic, outcomes-focused partnerships.

Governance

We will continue our cultural journey towards an inclusive and diverse workplace led by our values of care, courage and curiosity focusing in particular on safety, leadership and employee listening. In 2024, we will be working to clarify our measures to demonstrate progress.

For more information about our ESG progress see pages 40-77.

Relevant KPIs
All-injury frequency rate
Total shareholder return
Scope 1 and 2 greenhouse gas emissions
Gender diversity

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Excel in development

Focus

Project development, future options (pipeline projects, exploration and M&A), technology development and deployment.

Progress in 2023

Project development

We have continued to advance a number of projects across the business (see page 17), including making significant progress at the Simandou iron ore project in Guinea in collaboration with our joint venture partners.

In our iron ore business, Gudai-Darri reached nameplate capacity in the second quarter with the current wave of replacement mines like Robe Valley in production and Western Range commencing construction.

In our aluminium business, we announced investment in a significant AP60 expansion. We also acquired a 50% equity stake in Matalco from Giampaolo Group for $738 million to become a leader in recycled aluminium supply in North America.

In our copper business, we achieved first sustainable production from the Oyu Tolgoi underground mine with associated infrastructure ramping up on schedule. Work has also progressed to expand underground operations at Kennecott.

Pipeline projects

We advanced studies and permitting at a range of greenfield projects including Resolution and Winu, and formed a joint venture with First Quantum to help unlock the La Granja copper project.

Exploration

We also continued to fill and progress our pipeline of exploration opportunities. We entered a joint venture (Nuevo Cobre) with Corporación Nacional del Cobre de Chile (Codelco) to explore and potentially develop copper assets in Chile's prospective Atacama region.

Technology

We continued to progress our technology roadmap while building our technical capabilities and partnership networks. In 2023, we progressed 130 priority research and development projects, including 32 growth-focused projects on discovering new ore bodies, reducing capital intensity and unlocking new revenue streams.

Future priorities

We will continue to explore new approaches, technologies and partnership opportunities to discover, progress and develop projects to support future growth in close consultation with communities.

We will manage our pipeline of opportunities to deliver high-quality growth options, with a strong focus on materials needed in a decarbonising world.

Future priorities include development of the mine, rail and port infrastructure for Simandou in Guinea in collaboration with our partners, construction of the Rincon lithium starter plant in Argentina, management of key closure projects at Argyle and Gove and optimisation of the next tranche of replacement mines in the Pilbara.

We will continue to explore and evaluate new mining, processing, technology and renewable energy opportunities to ensure we maintain a high-quality portfolio of short-, medium- and long-term growth options that can deliver strong and resilient cash flows throughout the cycle.

For more information about our capital projects and future options see pages 30-31.

Relevant KPIs
Total shareholder return
Underlying return on capital employed
Free cash flow
Net (debt)/cash
Scope 1 and 2 greenhouse gas emissions

Social licence

Focus

Adopting a multi-stakeholder approach for external engagements to deepen connections and build mutually beneficial partnerships. Building cultural capability and competency across the Group to ensure we fully understand, value and partner with our host communities.

Progress in 2023

Communities and partners

In 2023, we piloted a Group-wide approach to community perception monitoring that brings the voices of communities into the business, supporting deeper, more effective and data-driven social performance.

We also signed an MoU with the YEC to explore opportunities to collaborate on renewable energy projects on Yindjibarndi Country in the Pilbara region of Western Australia.

The Iron Ore Company of Canada (IOC) and the Naskapi Nation of Kawawachikamach signed an agreement to establish a mutually beneficial relationship based on dialogue, collaboration and trust over the coming decades. This socio-economic agreement aims to create opportunities for greater participation by the Naskapi People in IOC's activities through training and development, employment, collaboration on environmental projects, and procurement.

Future priorities

Communities and partners

Our future priorities are informed by our 2026 Communities and Social Performance (CSP) targets which help us monitor progress toward the core objectives of our CSP strategy. Our targets guide progress across the business as well as for individual assets, which will continue to maintain local targets and metrics, developed in consultation with local communities.

In 2024, a core focus is on ensuring all employees in high human rights risk roles complete job-specific and general human rights training. We will also continue to progress longer term targets including by 2026 for:

- all sites to co-manage cultural heritage with communities and knowledge holders
- 70% of total community investment to be through strategic, outcomes-focused partnerships.

Understanding and acting on the perceptions of communities who host our operations is essential. We will roll out our new community perception monitoring program that we piloted in 2023 to all our assets throughout 2024 and 2025.

We continue to find better ways to work with communities and Indigenous Peoples, particularly in how we protect heritage. Our approach aims to enhance our understanding and appreciation of cultural heritage and ensure the voices of communities inform our planning and decision making.

For more information about our community engagement see pages 66-70.

Relevant KPIs
Total shareholder return
Scope 1 and 2 greenhouse gas emissions
Gender diversity

Key performance indicators

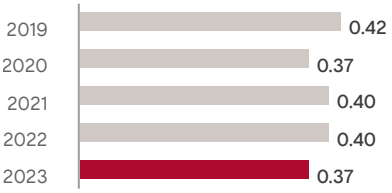
We use a range of financial and non-financial metrics to measure Group performance against our four objectives: to be best operator; to achieve impeccable environmental, social and governance (ESG) credentials; to excel in development; and to strengthen our social licence.

Alignment to our four objectives and associated risks key

● Best operator ● Impeccable ESG ● Excel in development ● Social licence

All-injury frequency rate (AIFR)

per 200,000 hours worked



Alignment to our four objectives and associated risks

●●

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.

We are committed to having a safe work environment and our focus is on eliminating fatalities, preventing catastrophic events and reducing injuries. We continue to implement our safety maturity model (SMM). By implementing our systems, including SMM, critical risk management (CRM) and the Safe Production System (SPS), we are ensuring we advance our safety culture and foster both physical and psychological safety.

We continue to share learnings and strengthen our partnerships with industry and associated committees (such as 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 (STIP) (see page 130-133).

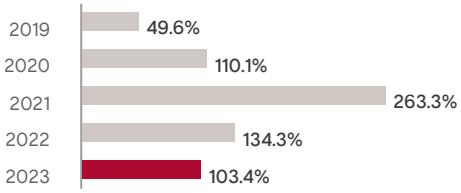
Our performance in 2023 and forward plan

Our AIFR was 0.37 in 2023, an improvement from 2022 (2022: 0.40). While we had no fatalities at managed operations in 2023, tragically four colleagues died in a plane crash travelling to our Diavik mine in January 2024.

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

Total shareholder return (TSR)[1]

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



Alignment to our four objectives and associated risks

●●●●

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 (LTIP), measured equally against a mining based index (the EMIX Global Mining Index historically and from 1 August 2023 the S&P Global Mining Index) and a broader-based index of large global corporates (the MSCI World Index) (see page 134-135).

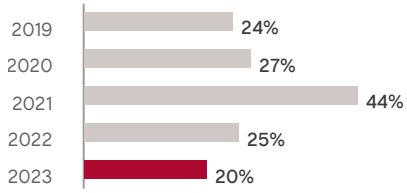
Our performance in 2023 and forward plan

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.

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 return on capital employed (ROCE)

%



Alignment to our four objectives and associated risks

●●

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 289-294).

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 STIP. In the longer term, underlying ROCE also influences TSR, which is included in the LTIP (see pages 134-135).

Our performance in 2023 and forward plan

Underlying ROCE decreased five percentage points to 20% in 2023, reflecting the decrease in underlying earnings driven by lower commodity prices, and an increase in capital employed due to capital expenditure and acquisitions.

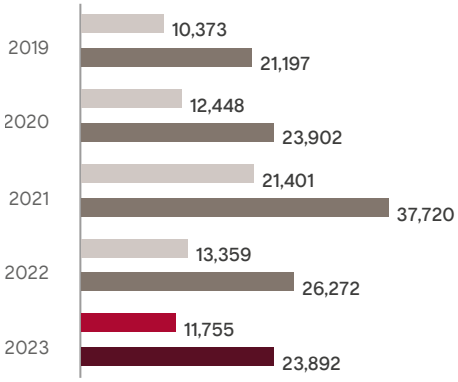
We will continue to focus on maximising returns from our assets over the short, medium and long term. We will invest with discipline to strengthen our operations while delivering growth in a decarbonising world.

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.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Underlying earnings[1] and underlying EBITDA

$ millions



Underlying earnings

Underlying EBITDA

Alignment to our four objectives and associated risks

●

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 289-294).

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.

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 STIP. In the longer term, both measures influence TSR, which is the primary measure for the LTIP (see pages 134-135).

Our performance in 2023 and forward plan

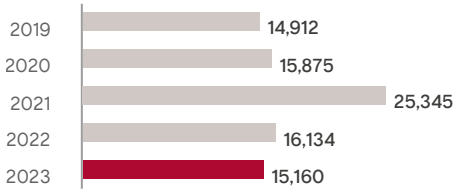
Underlying earnings of $11.8 billion were $1.6 billion lower than in 2022. Underlying EBITDA of $23.9 billion was $2.4 billion lower than in 2022. The 9% decrease in underlying EBITDA resulted from lower commodity prices and higher operating unit costs partially offset by improvements in sales volumes across our portfolio.

We remain focused on cost control, in particular maintaining discipline over fixed costs to drive attractive margins and returns across our portfolio.

1. Comparative information for year 2021 and 2022 has been restated to reflect the adoption of narrow scope amendments to IAS12 "Income Taxes"; refer to page 166 for details.

Net cash generated from operating activities

$ millions



Alignment to our four objectives and associated risks

●

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 STIP. In the longer term, the measure influences TSR, which is included in the LTIP (see pages 134-135).

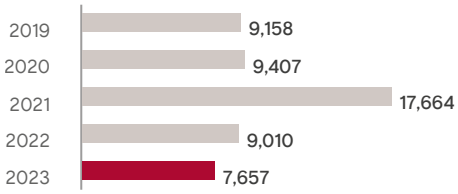
Our performance in 2023 and forward plan

Net cash generated from operating activities of $15.2 billion was 6% lower than 2022. This was primarily driven by price movements for our major commodities and a modest rise in working capital.

We continue to focus on effectively delivering strong and stable cash flows while optimising the health and performance of our assets.

Free cash flow

$ millions



Alignment to our four objectives and associated risks

●●

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 289-294).

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 STIP. In the longer term, the measure influences TSR, which is included in the LTIP (see pages 134-135).

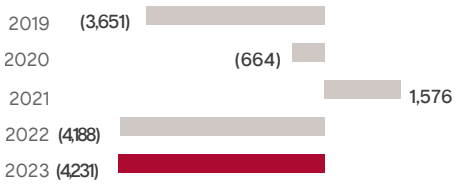
Our performance in 2023 and forward plan

Free cash flow decreased by $1.3 billion to $7.7 billion in 2023, primarily due to the decrease in net cash generated from operating activities and increases in sustaining and growth capital expenditure.

We continue to focus on effectively delivering strong and stable cash flows while optimising the health and performance of our assets.

Net (debt)/cash

$ millions



Alignment to our four objectives and associated risks

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 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 289-294).

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 (debt)/cash is, in part, an outcome of free cash flow, which itself is reflected in the STIP. In the longer term, net (debt)/cash influences TSR, which is reflected in the LTIP (see pages 134-135).

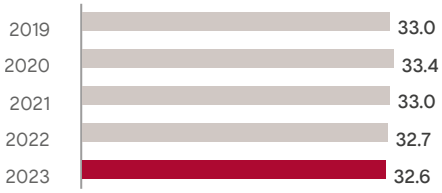
Our performance in 2023 and forward plan

Net debt remained stable at $4.2 billion. This included free cash flow of $7.7 billion, offset by dividends of $6.5 billion and the $0.7 billion acquisition of Matalco[1].

We continue to focus on effectively delivering strong and stable cash flows while optimising the health and performance of our assets.

Scope 1 and 2[2] greenhouse gas emissions

(equity Mt CO_2e)



Alignment to our four objectives and associated risks

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 10% of the STIP (see page 130). The carbon abatement target set for 2023 was 10Mt CO_2e. A total of 29 projects progressed though a development stage during the year, leading to an above target performance of 12Mt CO_2e abatement expected by 2030. We have put forward proposals to incorporate decarbonisation related performance measures into our LTIP as part of our 2024 Remuneration Policy. See page 134-135 for further information.

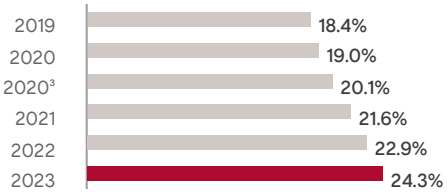
Our performance in 2023 and forward plan

Our Scope 1 and 2 emissions were 32.6Mt CO_2e in 2023. This is 6% below our adjusted 2018 baseline of 34.5Mt CO_2e and slightly below our 2022 adjusted emissions of 32.7Mt CO_2e (adjusted for acquisitions). Abatement delivered by our projects in 2023 exceeded emissions growth from higher production giving a slight reduction in emissions on a like for like basis. Our 2023 emissions were slightly higher than our actual 2022 emissions total of 32.3Mt CO_2e due to the recent acquisitions of additional equity in OT and MRN. By 2025, we expect to have made financial commitments to abatement projects that will achieve more than 15% of Group emissions. However, it is expected our actual emissions abatement will lag this.

A summary of our Climate Action Plan can be found on pages 52-55 of this *Annual Report* as well as in our *2023 Climate Change Report*.

Gender diversity

representation of women within our workforce



Alignment to our four objectives and associated risks

Definition

Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures)[4].

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 2023, our aspiration was to increase the proportion of women in our workforce by two percentage points. This aspiration was included in our strategic scorecard for executive remuneration, with a 5% weighting of the STIP. For more information see pages 130-131.

Our performance in 2023 and forward plan

In this first year of the target, our representation of women at Rio Tinto increased from 22.9% to 24.3%, a 1.4 percentage point increase. We saw improvements across all levels of the organisation with senior leaders increasing from 28.3% to 30.1%, and operations and general support increasing from 16.2% to 17.7%.

Our target to increase the proportion of women in our workforce year-on-year creates an important focus.

We are focused on implementing the recommendations from the *Everyday Respect Report* 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 see riotinto.com/everydayrespect.

1. Subject to usual closing adjustments.
2. In 2023, we improved our carbon emissions reporting and now use the market-based method as our primary measure for assessing performance against our emissions targets. Further detail on this change in reporting and the implications for our emissions baseline is available in our *2023 Addendum - Scope 1, 2 and 3 Emissions Calculation Methodology*. Our adjusted scope 1 and 2 emissions (adjusted for acquisitions) have been disclosed for 2022.
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. Baseline reset with definition for 2020 to 2023 gender diversity.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Chief Financial Officer's statement

"In 2023, our financial results were resilient, driven by an improvement in our operational performance. As we shape our portfolio for the future, we will continue to allocate capital with discipline."

Uplift in operational performance drives resilient financial results

In 2023, the Group's total copper equivalent production increased by just over 3% from 2022. This reflected the Gudai-Darri mine in the Pilbara reaching its nameplate capacity and deployment of our Safe Production System. In addition, we benefited from our increased ownership in Oyu Tolgoi as the underground ramps up and the Kitimat aluminium smelter returned to full capacity. In a year in which average commodity prices declined compared to the prior period, we maintained our discipline on cost and capital, leading to net cash generated from operating activities of $15.2 billion, underlying earnings of $11.8 billion and profit after tax attributable to owners of Rio Tinto of $10.1 billion.

We maintained our financial strength, ending the year with net debt of $4.2 billion, just 1% higher than the position at the start of the year. Our balance sheet strength enables us to run our business consistently and maintain investment, regardless of where we are in the cycle. We have chosen not to have a net debt target, but have a principles-based approach to anchor the balance sheet around a single A credit rating.

Consistent capital allocation, balancing essential capex with shareholder returns and growth

We will continue to allocate the capital generated by our operations with discipline and remain committed to attractive shareholder returns. We have consistently applied our financial framework, which has been in place for more than a decade. It is straightforward and serves us well, underpinned by our three priorities. Essential capex remains the first priority - sustaining capex to ensure the integrity of our assets, high-returning replacement projects and investment for decarbonisation. The second priority is the ordinary dividend within our well-established returns policy, where we now have an eight-year track record of paying out at 60% of underlying earnings. The third involves testing investment in compelling growth against debt management and further cash returns to shareholders.

In 2023, capital expenditure rose by 5% to $7.1 billion, reflecting the impact of inflation, in particular on our sustaining capital. We foresee a disciplined increase in capital expenditure over the coming years as our growth projects accelerate and decarbonisation advances. This is critical to ensure we have the right portfolio to keep creating value for decades to come, so we can benefit from increased demand from both traditional sources and from the energy transition. And we have more to come: exploration and evaluation spend increased to $1.2 billion, with greenfield spend mainly focused on copper and lithium, while evaluation prioritised projects with near-term investment decisions, including the Simandou iron ore project in Guinea. We expect Simandou to become our largest capital project over the coming years. It will be constructed and funded by a co-development partnership that will share the risk and deliver higher returns than our cost of capital. We believe that Simandou's high grade, high quality product will position us well for the decarbonisation of the steel industry.

Our financial strength means that we can reinvest for growth, accelerate our decarbonisation and continue to pay attractive dividends through the cycle. For 2023, we are returning 60% of underlying earnings to shareholders, which equates to a full-year ordinary dividend of 435 US cents per share, or $7.1 billion.

Outlook underpins a strong Rio Tinto for the long term

We are well positioned in an opportunity-rich world where there has never been greater demand for what we do, from mining to processing. The work we are doing today is creating a stronger Rio Tinto for years to come.

Net cash generated from operating activities

$15.2 billion

(2022: $16.1 billion)

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

$10.1 billion

(2022: $12.4 billion)

Underlying earnings

$11.8 billion

(2022: $13.4 billion)

This is why our strategy is about growing in the materials the world needs. A strategy that will ensure Rio Tinto remains strong in the short, medium and long term with the ability to invest while always paying attractive returns.

Peter Cunningham
Chief Financial Officer

21 February 2024

Financial review

Key financial highlights

At year end	2023	2022	Change
Net cash generated from operating activities (US$ millions)	**15,160**	16,134	(6)%
Purchases of property, plant and equipment and intangible assets (US$ millions)	**7,086**	6,750	5 %
Free cash flow[1] (US$ millions)	**7,657**	9,010	(15)%
Consolidated sales revenue (US$ millions)	**54,041**	55,554	(3)%
Underlying EBITDA[1] (US$ millions)	**23,892**	26,272	(9)%
Profit after tax attributable to owners of Rio Tinto (net earnings)[2] (US$ millions)	**10,058**	12,392	(19)%
Underlying earnings per share (EPS)[1, 2] (US cents)	**725.0**	824.7	(12)%
Ordinary dividend per share (US cents)	**435.0**	492.0	(12)%
Underlying return on capital employed (ROCE)[1, 2]	**20%**	25%	
Net debt[1] (US$ millions)	**4,231**	4,188	1 %

1. This financial performance indicator is a non-IFRS (as defined below) measure which is reconciled to directly comparable IFRS financial measures (non-IFRS measures). 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. For more information on our use of non-IFRS financial measures in this report, see the section entitled "Alternative performance measures" (APMs) and the detailed reconciliations on pages 289 to 294. Our financial results are prepared in accordance with IFRS — see page 158 for further information.
2. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.

Financial performance

Income Statement

Underlying EBITDA

To provide additional insight into the performance of our business, we report underlying EBITDA and underlying earnings. Underlying EBITDA and underlying earnings are non-IFRS measures. For definitions and a detailed reconciliation of underlying EBITDA and underlying earnings to the nearest IFRS measures, see pages 289 to 291, respectively.

The principal factors explaining the movements in underlying EBITDA are set out in this table.

	US$bn
2022 underlying EBITDA	26.3
Prices	(1.5)
Exchange rates	0.6
Volumes and mix	0.4
General inflation	(0.4)
Energy	0.4
Operating cash unit costs	(1.4)
Higher exploration and evaluation expenditure (net of profit from disposal of interests in undeveloped projects)	(0.3)
Non-cash costs/other	(0.2)
Change in underlying EBITDA	**(2.4)**
2023 underlying EBITDA	**23.9**

Resilient financial results, primarily impacted by commodity price movements

In general, we saw lower prices for our commodities, as supply improved, outpacing modest demand growth.

Movements in commodity prices resulted in a $1.5 billion decline in underlying EBITDA overall compared with 2022. This was primarily from lower pricing for our Aluminium business, driven by London Metal Exchange (LME) prices, lower premiums and lower alumina pricing. Higher realised pricing in our Iron Ore business was offset by lower pricing for copper, diamonds and industrial minerals.

The monthly average Platts index for 62% iron fines converted to a Free on Board (FOB) basis was 0.5% higher, on average, compared with 2022.

The average LME price for copper was 3% lower, the average LME aluminium price was 17% lower while the gold price was 8% higher compared with 2022.

The Midwest premium duty paid for aluminium in the US averaged $512 per tonne, 22% lower than in 2022.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Benefit from weaker local currencies in 2023

Compared with 2022, on average, the US dollar strengthened by 4% against the Australian dollar and by 4% against the Canadian dollar. Currency movements increased underlying EBITDA by $0.6 billion relative to 2022.

Improvement in sales volumes but weaker mix

Higher sales volumes across the portfolio increased underlying EBITDA by $0.7 billion compared to 2022. This was mostly attributable to a 3% increase in Pilbara iron ore shipments, with the Gudai-Darri mine reaching full capacity, partly offset by lower portside sales volumes (down 4%). Higher copper sales were driven by the ramp-up of the Oyu Tolgoi underground mine. This was partly offset by lower margins achieved due to our product mix (-$0.3 billion) mainly associated with a reduced proportion of Aluminium VAP sales and following high quality diamond sales in 2022.

Impact of inflation offset by lower energy prices

We saw a $0.4 billion benefit to underlying EBITDA on the easing of energy prices compared to 2022, mainly related to lower diesel prices at our Pilbara iron ore operations, lower energy prices at our alumina refineries and aluminium smelters, along with lower fuel prices in our Marine business. General price inflation across our global operations resulted in a net $0.4 billion reduction in underlying EBITDA, which includes a $0.2 billion year-on-year benefit from the impact of inflation on closure provisions.

Unit cost pressures persist due to temporary operational factors and weaker markets: some easing of market-linked raw material prices in second half

We remain focused on cost control, in particular maintaining discipline on fixed costs, which are expected to be broadly flat in 2024. While inflation has eased, we continued to see lag effects in its impact on our third party costs, such as contractor rates, consumables and some raw materials; we expect this to stabilise in 2024.

In the second half of 2023, we started to see some easing of market-linked prices for key raw materials such as caustic, coke and pitch: these benefited underlying EBITDA by $0.2 billion.

Temporary operational issues reduced underlying EBITDA by $0.6 billion. We saw a 20% rise in Copper C1 unit costs, primarily driven by lower refined volumes at Kennecott following the planned rebuild of the smelter and refinery. In Minerals, fixed unit cash costs increased at Iron Ore Company of Canada (IOC), driven by lower production following the wildfires in Northern Quebec in June as well as extended plant downtime and conveyor belt failures in the third quarter.

Other cost pressures and weaker market demand lowered underlying EBITDA by $1.0 billion. In Minerals, we experienced market weakness for many of our products, in particular for TiO_2 feedstock, which gave rise to lower volumes and resulting higher unit costs. In the Pilbara, a higher mine work index and investment in mine maintenance and system health were in part offset by cost efficiencies on delivering increased volumes. In Aluminium, we invested in improving the integrity across our integrated operations.

Overall, we continue to experience tightness in our key labour markets, in Western Australia, Quebec and Utah, which raised costs above general inflation. We also entered into a new collective bargaining agreement at IOC and applied the new labour law in Mongolia.

We have also increased our investment in decarbonisation, research & development, technology, along with communities and social investment to deliver on our four objectives.

Increasing our global exploration and evaluation activity

Our ongoing exploration and evaluation expenditure in 2023 was $0.9 billion, compared with guidance of $1.0 billion and $0.7 billion in 2022. The increase was mainly attributable to increased activity at the Rincon lithium project in Argentina and across the other product group projects. We also expensed costs associated with the Simandou iron ore project in Guinea (included in underlying EBITDA on a 100% basis): these increased from $0.2 billion to $0.5 billion, with qualifying Simandou costs being capitalised from the fourth quarter of 2023. These expenditures were partly offset by a $0.2 billion gain on disposal of 55% of our interest in the La Granja copper project in Peru to First Quantum Minerals in 2023, leading to a net charge to the Income Statement of $1.2 billion (2022: $0.9 billion).

Net earnings

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

	US$bn
2022 net earnings	**12.4**
Changes in underlying EBITDA (see above)	**(2.4)**
Increase in depreciation and amortisation (pre-tax) in underlying earnings	(0.1)
Decrease in interest and finance items (pre-tax) in underlying earnings	0.2
Increase in tax on underlying earnings	(0.2)
Decrease in underlying earnings attributable to outside interests	0.8
Total changes in underlying earnings	**(1.6)**
Changes in items excluded from underlying earnings (see below)	(0.7)
2023 net earnings	**10.1**

Financial figures are rounded to the nearest million, hence small differences may result in the totals. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.

Increase in tax on underlying earnings

The effective tax rate on underlying earnings in 2023 was 30% compared with 26% in 2022. Consequently the tax on underlying earnings increased by $0.2 billion despite a decrease in underlying EBITDA. The rate in 2023 was in line with guidance, whereas the 2022 rate was lower due to the recognition of additional deferred tax assets in respect of Oyu Tolgoi and adjustments in respect of prior periods.

Decrease in underlying earnings attributable to outside interests

We completed the acquisition of Turquoise Hill Resources' non-controlling interests in December 2022, which resulted in a reduction of Oyu Tolgoi's earnings being attributable to outside interests and therefore a higher share of income being attributable to Rio Tinto. The ramp-up of exploration and evaluation spend at Simandou resulted in greater charges attributable to outside interests given our 45.05% effective interest in the project.

Items excluded from underlying earnings

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

Year ended 31 December	2023 US$bn	2022 US$bn
Underlying earnings	**11.8**	13.4
Items excluded from underlying earnings		
Net impairment charges	**(0.7)**	(0.1)
Change in closure estimates (non-operating and fully impaired sites)	**(1.1)**	(0.2)
Foreign exchange and derivative gains on net debt and intragroup balances and derivatives not qualifying for hedge accounting	**(0.3)**	(0.1)
Deferred tax arising on internal sale of assets in Canadian operations	**0.4**	–
Gains recognised by Kitimat relating to LNG Canada's project	**–**	0.1
Loss on disposal of interest in subsidiary	**–**	(0.1)
Gain on sale of Cortez royalty	**–**	0.3
Write-off of Federal deferred tax assets in the United States	**–**	(0.9)
Total items excluded from underlying earnings	**(1.7)**	(1.0)
Net earnings	**10.1**	12.4

Financial figures are rounded to the nearest million, hence small differences may result in the totals. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.

On pages 290 to 291 there is a detailed reconciliation from net earnings to underlying 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 175.

We recognised net impairment charges of $0.7 billion (after tax), mainly related to our alumina refineries in Queensland, taken in the first half of 2023. This was triggered by the challenging market conditions facing these assets, together with our improved understanding of the capital requirements for decarbonisation and the recently legislated cost escalation for carbon emissions. For a detailed explanation of the impairment process, refer to note 4 to the Financial Statements in the 2023 Annual Report. The signing of key agreements with the Government of Guinea and other joint venture partners for co-development of the infrastructure for the Simandou iron ore project gave rise to an impairment reversal trigger, for amounts which had been fully impaired in 2015. Previously capitalised exploration and evaluation costs associated with the mine and retained items of property, plant and equipment totalling $0.2 billion (after tax and outside interests) have therefore been reversed.

We excluded $1.1 billion of closure cost charges from underlying earnings, of which $850 million related to the closure update announced by Energy Resources of Australia (ERA) on 12 December 2023. This was considered material and was therefore aggregated with other closure study updates in the second half of 2023 which were similar in nature. These other updates were at legacy sites and at the Yarwun alumina refinery, which was expensed due to the impairment earlier in the year.

We recognised an exchange and derivative loss of $0.3 billion (2022: loss of $0.1 billion). The exchange losses are largely offset by currency translation gains recognised in equity. The quantum of US dollar debt is largely unaffected and we will repay it from US dollar sales receipts.

Our Canadian aluminium business completed an internal sale of assets. This resulted in the utilisation of previously unrecognised capital losses and an uplift in the tax depreciable value of assets on which a deferred tax asset of $0.4 billion has been recognised.

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 2023 was $10.1 billion (2022: $12.4 billion). We recorded a profit after tax in 2023 of $10.0 billion (2022: $13.0 billion) of which a loss of $0.1 billion was attributable to non-controlling interests (2022 profit: $0.7 billion).

Underlying EBITDA and underlying earnings by product group

	Underlying EBITDA			Underlying earnings		
Year ended 31 December	2023 US$bn	2022 US$bn	Change %	2023 US$bn	2022 US$bn	Change %
Iron Ore	**20.0**	18.6	7 %	**11.9**	11.2	6 %
Aluminium	**2.3**	3.7	(38)%	**0.5**	1.5	(64)%
Copper	**1.9**	2.6	(26)%	**0.1**	0.7	(81)%
Minerals	**1.4**	2.4	(42)%	**0.3**	0.9	(63)%
Reportable segment total	**25.6**	27.3	(6)%	**12.9**	14.3	(10)%
Simandou iron ore project	**(0.5)**	(0.2)	185 %	**(0.2)**	(0.1)	10 %
Other operations	**–**	–	— %	**(0.3)**	(0.3)	(28)%
Central pension costs, share-based payments, insurance and derivatives	**0.2**	0.4	(55)%	**–**	0.4	(87)%
Restructuring, project and one-off costs	**(0.2)**	(0.2)	10 %	**(0.1)**	(0.1)	32 %
Other central costs	**(1.0)**	(0.8)	29 %	**(0.9)**	(0.7)	29 %
Central exploration and evaluation	**(0.1)**	(0.3)	(60)%	**(0.1)**	(0.2)	(71)%
Net interest				**0.3**	0.1	130 %
Total	**23.9**	26.3	(9)%	**11.8**	13.4	(12)%

Financial figures are rounded to the nearest million, hence small differences may result in the totals and period-on-period change. Underlying EBITDA and underlying earnings are non-IFRS measures used by management to assess the performance of the business and provide additional information which investors may find useful. For more information on our use of non-IFRS financial measures in this report, see the section entitled "Alternative performance measures" (APMs) and the detailed reconciliations on pages 289 to 294.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Simandou iron ore project

Costs attributable to the Simandou project in Guinea increased from $0.2 billion to $0.5 billion (100% basis at underlying EBITDA level) on ramp-up of project activity in 2023. We commenced capitalising qualifying spend on Simandou from the fourth quarter of 2023, with $0.3 billion included in capital expenditure (100% basis).

Central and other costs

Pre-tax central pension costs, share-based payments, insurance and derivatives were a $0.2 billion credit compared with a $0.4 billion credit in 2022, reflecting movement on derivatives in the two years.

On a pre-tax basis, restructuring, project and one-off central costs were mainly associated with corporate projects and were comparable to 2022.

Other central costs of $1.0 billion were 29% higher than 2022, reflecting increased investment in decarbonisation, research & development and technology. Our core central costs increased in line with inflation.

On an underlying earnings basis, net interest was a credit of $0.3 billion (2022: credit of $0.1 billion), reflecting Rio Tinto's increased interest in Oyu Tolgoi and the related financing items following the acquisition of Turquoise Hill minorities in 2022.

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 eight commodities. This is reflected in our pre-tax central spend of $0.3 billion. The bulk of this expenditure in 2023 focused on copper in Australia, Chile, Colombia, Namibia, the United States and Zambia; diamonds in Canada; nickel in Brazil, Canada and Peru; heavy mineral sands in South Africa; and potash in Canada. We recently partnered with Codelco on the Nuevo Cobre copper project in the prospective Atacama region in Chile and with Charger Metals on the Lake Johnston lithium project in the Yilgarn, Western Australia. This spend is offset by the gain recognised on disposal of 55% of our interest in the La Granja copper project ($0.2 billion, pre-tax).

Cash flow

Year ended 31 December	2023 US$bn	2022 US$bn
Net cash generated from operating activities	**15.2**	16.1
Purchases of property, plant and equipment and intangible assets	**(7.1)**	(6.8)
Lease principal payments	**(0.4)**	(0.4)
Free cash flow[1]	**7.7**	9.0
Dividends paid to equity shareholders	**(6.5)**	(11.7)
Acquisitions	**(0.8)**	(0.9)
Purchase of the minority interest in Turquoise Hill Resources Ltd	**–**	(3.0)
Disposals	**–**	0.1
Cash receipt from sale of Cortez royalty	**–**	0.5
Other	**(0.4)**	0.2
Movement in net debt/cash[1]	**–**	(5.8)

Financial figures are rounded to the nearest million, hence small differences may result in the totals.

1. This financial performance indicator is a non-IFRS (as defined below) measure which is reconciled to directly comparable IFRS financial measures (non-IFRS measures). 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. For more information on our use of non-IFRS financial measures in this report, see the section entitled "Alternative performance measures" (APMs) and the detailed reconciliations on pages 289 to 294. Our financial results are prepared in accordance with IFRS — see page 158 for further information.

- $15.2 billion in net cash generated from operating activities, 6% lower than 2022, primarily driven by price movements for our major commodities and a $0.9 billion rise in working capital, partly offset by lower taxes paid. The cash outflow from the working capital increase was driven by healthy stocks in the Pilbara, still elevated in-process inventory at Kennecott following the extended smelter rebuild and higher working capital at Iron & Titanium, reflective of weaker market conditions. Receivables also reflected a 20% higher iron ore price at 2023 year end (vs 2022) that will be monetised in 2024. Operating cash flow was also impacted by lower dividends, primarily from Escondida ($0.6 billion in 2023; $0.9 billion in 2022).
- Taking into account the timing of payments in Australia, taxes paid of $4.6 billion in 2023 were at a similar level to 2022, which included around $1.5 billion of payments related to prior years.
- Our capital expenditure of $7.1 billion was comprised of $1.0 billion of growth ($0.9 billion on a Rio Tinto share basis), $1.6 billion of replacement, $4.3 billion of sustaining and $0.2 billion of decarbonisation capital (in addition to $0.2 billion of decarbonisation spend in operating costs). We expect to spend around $4.0 billion each year on sustaining capital; spend in 2023 included the smelter and refinery rebuild at Kennecott ($0.3 billion) and targeted investment in asset health in Iron Ore and Aluminium. We funded our capital expenditure from operating activities and generally expect to continue funding our capital program from internal sources.
- $6.5 billion of dividends paid in 2023, being the 2022 final ordinary and the 2023 interim ordinary dividends.
- $0.8 billion of acquisitions related to the Matalco recycling joint venture and the Nuevo Cobre exploration joint venture with Codelco.
- The above movements, together with $0.4 billion of other movements, resulted in net debt[1] remaining stable year-on-year at $4.2 billion at 31 December 2023.

Balance sheet

Net debt[1] of $4.2 billion was unchanged at 31 December 2023 compared to the prior year end.

Our net gearing ratio[1] (net debt/(cash) to total capital) was 7% at 31 December 2023 (31 December 2022: 7%). See page 294.

Our total financing liabilities excluding net debt derivatives at 31 December 2023 (see page 205) were $14.4 billion (31 December 2022: $12.3 billion) and the weighted average maturity was around 12 years. At 31 December 2023, approximately 68% of these liabilities were at floating interest rates (75% excluding leases). The maximum amount within non-current borrowings maturing in any one calendar year is $1.65 billion, which matures in 2033.

On 7 March 2023, we priced $650 million of 10-year fixed rate SEC-registered debt securities and $1.1 billion of 30-year fixed rate SEC-registered debt securities. The 10-year notes will pay a coupon of 5.000 per cent and will mature 9 March 2033 and the 30-year notes will pay a coupon of 5.125 per cent and will mature 9 March 2053.

We had $10.5 billion in cash and cash equivalents plus other short-term cash investments at 31 December 2023 (31 December 2022: $8.8 billion).

Provision for closure costs

At 31 December 2023, provisions for close-down and restoration costs and environmental clean-up obligations were $17.2 billion (31 December 2022: $15.8 billion). The increase was largely due to revised closure estimates following new studies at certain operations and legacy sites, including ERA, together with the amortisation of discount ($1.0 billion), which includes the effect of elevated inflation for the year. This was partly offset by a revision of the closure discount rate to 2.0% (from 1.5%), reflecting expectations of higher yields from long-dated bonds, which resulted in a $1.1 billion decrease in the provision. $0.8 billion of the provision was also utilised through spend in 2023.

1. This financial performance indicator is a non-IFRS (as defined below) measure which is reconciled to directly comparable IFRS financial measures (non-IFRS measures). 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. For more information on our use of non-IFRS financial measures in this report, see the section entitled "Alternative performance measures" (APMs) and the detailed reconciliations on pages 289 to 294.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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 delivers an eight-year track record

	2023 US$bn	2022 US$bn
Ordinary dividend		
Interim[1]	**2.9**	4.3
Final[1]	**4.2**	3.7
Full-year ordinary dividend	**7.1**	8.0
Payout ratio on ordinary dividend	**60%**	60%

1. 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 2023 final dividend has been converted at exchange rates applicable on 20 February 2024 (the latest practicable date before the dividend was declared). American Depositary Receipt (ADR) holders receive dividends at the declared rate in US dollars.

Ordinary dividend per share declared	**2023**	2022
Rio Tinto Group		
Interim (US cents)	**177.00**	267.00
Final (US cents)	**258.00**	225.00
Full-year (US cents)	**435.00**	492.00
Rio Tinto plc		
Interim (UK pence)	**137.67**	221.63
Final (UK pence)	**203.77**	185.35
Full-year (UK pence)	**341.44**	406.98
Rio Tinto Limited		
Interim (Australian cents)	**260.89**	383.70
Final (Australian cents)	**392.78**	326.49
Full-year (Australian cents)	**653.67**	710.19

The 2023 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 18 April 2024, we will pay the 2023 final ordinary dividend to holders of ordinary shares and holders of ADRs on the register at the close of business on 8 March 2024 (record date). The ex-dividend date is 7 March 2024.

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 26 March 2024.

We will operate our Dividend Reinvestment Plans for the 2023 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 26 March 2024. 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.

Portfolio management

Capital projects

Project (Rio Tinto 100% owned unless otherwise stated)	Total capital cost (100% unless otherwise stated)	Status/Milestones
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. First production is anticipated in 2025.	$1.3bn (Rio Tinto share)[1]	Approved in September 2022, the mine will have a 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. Construction is currently on schedule with civil work well advanced, while we continue to progress primary crusher works, bulk earthworks and mine pre-strip.
Investment in the Simandou iron ore project in Guinea in partnership with CIOH, a Chinalco-led consortium (the Simfer joint venture) and co-development of the rail and port infrastructure with Winning Consortium Simandou[2] (WCS), Baowu and the Republic of Guinea (the partners). Overall, the co-developed infrastructure represents more than 600 kilometres of new multi-user (including passenger and general freight services) rail together with port facilities to be co-developed by the partners to allow the export of up to 120 million tonnes per year of iron ore mined by Simfer's and WCS's respective mining concessions.[3]	$6.2bn[4] (estimated Rio Tinto share)	Announced in December 2023, the Simfer joint venture[5] will develop, own and operate a 60 million tonne per year[6] mine in blocks 3 & 4. First production at the mine is expected in 2025, ramping up over 30 months to an annualised capacity of 60 million tonnes per year (27 million tonnes Rio Tinto share). WCS will construct the project's ~536 kilometre dual track main line as well as the WCS barge port, while Simfer will construct the ~70 kilometre spur line, connecting its mining concession to the main rail line. Pending completion and commissioning of its 60 million tonne per year transhipment vessel port, Simfer will be able to export its ore using WCS's barge port. The Rio Tinto Board has approved the project, subject to the remaining conditions being met, including joint venture partner approvals and regulatory approvals[7] from China and Guinea.
Aluminium		
Investment to expand the low-carbon AP60 aluminium smelter at the Complexe Jonquière in Quebec. The investment includes up to $113 million of financial support from the Quebec government.	$1.1bn	Approved in June 2023, the investment will add 96 AP60 pots, representing 160,000 tonnes of primary aluminium per year, replacing the Arvida smelter which is set to gradually close from 2024. We continued early works for the expansion of the AP60 smelter. Commissioning is expected in the first half of 2026, with the smelter fully ramped up by the end of that year. Once completed, it is expected to be in the first quartile of the industry operating cost curve.
Copper		
Phase two of the south wall pushback to extend mine life at Kennecott in Utah by a further six years.	$1.8bn	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. In March 2023, a further $0.3 billion was approved to primarily mitigate the risk of failure in an area of geotechnical instability known as Revere, necessary to both protect open pit value and enable underground development.
Investment in the Kennecott underground development of the North Rim Skarn (NRS) area.	$0.5bn	Approved in June 2023, production from NRS[8] will commence in the first quarter of 2025 (previously 2024) and is expected to ramp up over two years, to deliver around 250,000 tonnes of additional mined copper over the next 10 years[9] alongside open cut operations.
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[10] of copper per year from 2028 to 2036.	$7.06bn	We delivered first sustainable underground production from Panel 0 in March 2023. The commissioning of infrastructure for ramp-up to full capacity remains on target: we expect shafts 3 and 4 and the conveyor to surface in the second half of 2024, while the concentrator conversion is expected to be progressively completed from the fourth quarter of 2024 through to the second quarter of 2025. Construction of primary crusher 2 commenced in December 2023 and is due to be complete by the end of 2025.

1. Rio Tinto share of the Western Range capital cost includes 100% of funding costs for Paraburdoo plant upgrades.
2. WCS is currently a consortium of Singaporean company, Winning International Group (50%), Weiqiao Aluminium (part of the China Hongqiao Group) (50%) and United Mining Supply Group (nominal shareholding). WCS is the holder of Simandou North Blocks 1 & 2 (with the Government of Guinea holding a 15% interest in the mining vehicle and WCS holding 85%) and associated infrastructure. Baowu Resources has entered into an agreement to acquire a 49% share of WCS mine and infrastructure projects through a Baowu-led consortium, subject to conditions including regulatory approvals. In the case of the mine, Baowu has an option to increase to 51% during operations.
3. WCS holds the mining concession for Blocks 1 and 2, while Simfer SA holds the mining concession for blocks 3 and 4. Simfer and WCS will independently develop their mines.
4. Estimated numbers, subject to approval by the Simfer board and government authorities. Spend incurred on the project in 2023 was $0.9 billion of which $539 million was charged to the Income Statement and $330 million was capitalised ($266 million on a cash basis). All qualifying costs are being capitalised from the fourth quarter of 2023.
5. Simfer Jersey Limited is a joint venture between the Rio Tinto Group (53%) and Chalco Iron Ore Holdings Ltd (CIOH) (47%),a Chinalco-led joint venture of leading Chinese SOEs (Chinalco (75%), Baowu (20%), China Rail Construction Corporation (2.5%) and China Harbour Engineering Company (2.5%)). Simfer S.A. is the holder of the mining concession covering Simandou Blocks 3 & 4, and is owned by the Guinean State (15%) and Simfer Jersey Limited (85%). Simfer Infraco Guinée S.A.U. will deliver Simfer's scope of the co-developed rail and port infrastructure, and is, on the date of this notice, a wholly-owned subsidiary of Simfer Jersey Limited, but will be co-owned by the Guinean State (15%) after closing of the co-development arrangements.
6. The estimated annualised capacity of approximately 60 million dry tonnes per annum iron ore for the Simandou life of mine schedule was previously reported in a release to the Australian Securities Exchange (ASX) dated 6 December 2023 titled "Investor Seminar 2023". Rio Tinto confirms that all material assumptions underpinning that production target continue to apply and have not materially changed.
7. Co-development of the rail and port infrastructure remains subject to a number of conditions, including regulatory approvals in Guinea and China, the entry into a number of legal agreements, ratification of the investment framework for co-development by the Republic of Guinea, and agreement between Simfer, WCS and the Republic of Guinea regarding the budget for the rail and port infrastructure.
8. The NRS Mineral Resources and Ore Reserves, together with the Lower Commercial Skarn (LCS) Mineral Resources and Ore Reserves, form the Underground Skarns Mineral Resources and Ore Reserves.
9. The 250 thousand tonne copper production target for the Kennecott underground mines over the years 2023 to 2033 was previously reported in a release to the Australian Securities Exchange (ASX) dated 20 June 2023 "Rio Tinto invests to strengthen copper supply in US". All material assumptions underpinning that production target continue to apply and have not materially changed.
10. The 500 thousand tonne per year copper production target (stated as recoverable metal) for the Oyu Tolgoi underground and open pit mines for the years 2028 to 2036 was previously reported in a release to the Australian Securities Exchange (ASX) dated 11 July 2023 "Investor site visit to Oyu Tolgoi copper mine, Mongolia". All material assumptions underpinning that production target continue to apply and have not materially changed.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Future options

	Status
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 over the next five years.	In addition to Western Range (Greater Paraburdoo), which is under construction, we continue to progress studies for Hope Downs 1 (Hope Downs 2 and Bedded Hilltop), Brockman 4 (Brockman Syncline 1), Greater Nammuldi and West Angelas. We continue to work closely with local communities, Traditional Owners and governments to progress approvals for these new mining projects.
Iron Ore: Rhodes Ridge	
In October 2022, 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.	A resource-drilling program is currently underway to support future project studies. In December 2023, we announced approval of a $77 million pre-feasibility study (PFS). This follows completion of an Order of Magnitude study that considered development of an operation with initial capacity of up to 40 million tonnes per year, subject to relevant approvals. Completion of the PFS is expected by the end of 2025 and will be followed by a feasibility study, with first ore expected by the end of the decade. Longer term, the resource could support a world-class mining hub with a potential capacity of more than 100 million tonnes of high-quality iron ore a year.
Lithium: Jadar	
Development of the greenfield Jadar lithium-borates project in Serbia will include an underground mine with associated infrastructure and equipment, including electric haul trucks, as well as a beneficiation chemical processing plant.	The Board committed 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.
Lithium: Rincon	
We completed the acquisition of the Rincon Lithium project in Salta province, Argentina in March 2022. Development of a 3,000 tonne per year battery-grade lithium carbonate starter plant is ongoing with first saleable production expected at the end of 2024. Studies are continuing on the full-scale plant, which will have benefits of economies of scale, with the capital intensity, based on current stage of studies, forecast to be in line with regional lithium industry benchmarks.	In July 2022, we approved $140 million of investment and $54 million for early works to support a full-scale operation. To date, the majority of costs have been expensed through exploration and evaluation expenditure. In July 2023, we approved a further $195 million to complete the starter plant: the increase was driven by the project now being fully defined (previously conceptual), scope adjustments to design (including column performance improvements and changes to waste and spent brine disposal facilities), rising capital costs across the lithium industry, particularly for processing equipment and from broad cost escalation in Argentina.
Mineral Sands: Zulti South	
Development of the Zulti South project at Richards Bay Minerals (RBM) in South Africa (Rio Tinto 74%).	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.
Copper: Resolution	
The Resolution Copper project is a proposed underground copper mine in the Copper Triangle, in Arizona, US (Rio Tinto 55%). It has the potential to supply up to 25% of US copper demand.	The United States Forest Service (USFS) 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. We are also monitoring the Apache Stronghold versus USFS case held in the US Ninth Circuit Court of Appeals. While there is significant local support for the project, we respect the views of groups who oppose it and will continue our efforts to address and mitigate these concerns.
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 remains subject to regulatory and other required approvals. In parallel, we continue to explore options aimed at enhancing project value, including further optimisation of the current pathway and alternative development models and partnerships.	In 2023, Project Planning Agreements were executed with the Nyangumarta and Martu groups, the Traditional Owners of the land on which the proposed Winu mine and airstrip will be located. Study activities, drilling and fieldwork progressed sufficiently to commence Winu's formal Western Australian Environmental Protection Authority approval process. The environmental approval deliverables and Project Agreement negotiations with both Traditional Owner groups remain the priority.
Copper: La Granja	
In August 2023, we completed a transaction to form a joint venture with First Quantum Minerals that will work to unlock the development of the La Granja project in Peru, one of the largest undeveloped copper deposits in the world, with potential to be a large, long-life operation.	First Quantum Minerals acquired a 55% stake in the project for $105 million and will invest up to a further $546 million into the joint venture to sole fund capital and operational costs to take the project through a feasibility study and toward development. All subsequent expenditures will be applied on a pro-rata basis in line with shared ownership.
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.	ELYSIS has started commissioning activities following completion of the construction of the first commercial-scale prototype cells. ELYSIS expects to start the first 450kA cell in 2024.

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 1,900 kilometres. Steel remains essential for ongoing urbanisation and will support the global shift to decarbonise.

Snapshot of the year

0.61
AIFR
(2022: 0.68)

69%
Pilbara underlying FOB EBITDA margin
(2022: 68%)

$20.0bn
Underlying EBITDA
(2022: $18.6bn)

$32.2bn
Segmental revenue
(2022: $30.9bn)

$2.6bn
Capital expenditure
(2022: $2.9bn)

$14.0bn
Net cash generated from operating activities
(2022: $14.0bn)

3.2Mt
Scope 1 and 2 GHG emissions (equity Mt CO_2e)
(2022: 3.1Mt)

16,000
Employee numbers[1]
(2022: 15,000)

Safety

The number of potentially fatal incidents (PFIs) in Iron Ore decreased 48% to 13 with falling objects and vehicle collisions/rollovers accounting for the majority of these incidents. Our all-injury frequency rate (AIFR) decreased 10% to 0.61, compared to 0.68 in 2022.

These improvements are the result of consistently using the safety maturity model (SMM) for the past four years across our operations. SMM encourages best practices across our business in leadership, team engagement and learning to improve our safety culture. We also re-engaged our workforce on critical risk management (CRM), a safety program that makes sure frontline workers are focused on the critical safety risks in their work.

We continued our journey to mature our workplace safety culture and create an environment where our people are both physically and psychologically healthy and safe. We completed the first year in our five-year Mentally Healthy Iron Ore Strategy, with a focus on building capability in our leaders to manage psychosocial risks in the workplace.

Our focus remains on creating a safe, respectful and inclusive workplace where our people can bring their whole selves to work.

For more information
about our global health and safety initiatives see pages 71-72.

In April 2023 the Radiological Council, an independent statutory authority, found Rio Tinto did not breach the Radiation Safety Act in relation to the loss of a radioactive capsule while in transit from our Gudai-Darri mine site. We also conducted a thorough review and identified opportunities to further improve the selection of radiation gauges, and how the items are packaged and transported.

Market Insights

Iron ore market fundamentals were well-supported in 2023. Steelmakers in China maintained elevated operating rates as domestic demand rose 1.5% year-on-year. Infrastructure and other government-backed construction surpassed residential property as the largest steel consuming sectors, while manufacturing continued to contribute substantial volumes of demand.

A 47% increase in net steel exports further supported China's crude steel production which exceeded one billion tonnes for the fourth consecutive year. China's steel exports also resulted in higher contestable iron ore demand globally since they in part displaced steel, which would have been produced in other regions using captive iron ore or higher scrap rates. This resulted in a 6.6% year-on-year increase in China's iron ore imports, reaching a record 1.18 billion tonnes, which helped absorb the 5% year-on-year increase in seaborne supply (to 1.5 billion tonnes). At the same time, China's port inventories declined to a three-year low.

Enabling the low-carbon transition

In 2023, our Iron Ore business's absolute greenhouse gas (GHG) emissions were 3.2Mt CO_2e (on an equity basis), an increase of 0.57Mt CO_2e compared to the 2018 emissions baseline (2.64Mt CO_2e). This was driven by an increase in production.

Approximately one-quarter of Iron Ore emissions are from the gas used to generate power. To reduce our reliance on gas we are progressing development of 600 to 700MW of renewable energy capacity and preparing for early fleet electrification from 2030. We continue to progress the potential development of a Pilbara coastal solar farm and are partnering with the Yindjibarndi Energy Corporation to explore opportunities to collaborate on renewable energy projects.

For more information
about our decarbonisation efforts in the Iron Ore product group, see our *2023 Climate Change Report* at riotinto.com/climatereport.

From customer to strategic partner

In 2023, we extended a key climate partnership with our largest customer, China Baowu, to accelerate efforts to decarbonise the steel value chain and reduce our Scope 3 emissions. This is the result of a coordinated approach across our sales, marketing, and research and development teams based on decades of deep relationship building with the world's biggest steelmaker, who is also a joint venture partner in the Western Range and Simandou projects.

For more information
see riotinto.com/baowu.

1. This represents the average number of employees for the year, including the Group's share of non-managed operations and joint ventures. Refer to page 215 for more information.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Iron Ore

Year ended 31 December	2023	2022	Change
Pilbara production (million tonnes — 100%)	**331.5**	324.1	2%
Pilbara shipments (million tonnes — 100%)	**331.8**	321.6	3%
Salt production (million tonnes — Rio Tinto share)[1]	**6.0**	5.8	4%
Segmental revenue (US$ millions)	**32,249**	30,906	4%
Average realised price (US$ per dry metric tonne, FOB basis)	**108.4**	106.1	2%
Underlying EBITDA (US$ millions)	**19,974**	18,612	7%
Pilbara underlying FOB EBITDA margin[2]	**69%**	68%	
Underlying earnings (US$ millions)[3]	**11,882**	11,213	6%
Net cash generated from operating activities (US$ millions)	**14,045**	14,005	–%
Capital expenditure (US$ millions)[4]	**(2,588)**	(2,940)	(12%)
Free cash flow (US$ millions)	**11,374**	11,033	3%
Underlying return on capital employed[3, 5]	**64%**	61%	

Production figures are sometimes more precise than the rounded numbers shown, hence small differences may result in the year on year change.

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 reports to the Chief Technical Officer and is reported outside the Reportable segments.
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. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.
4. 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.
5. Underlying return on capital employed (ROCE) is defined as underlying earnings excluding net interest divided by average capital employed.

Financial performance

Underlying EBITDA of $20.0 billion was 7% higher than 2022, with a 2% improvement in realised prices ($0.8 billion) and higher volumes, following the ramp-up of Gudai-Darri.

Unit costs of $21.5 per tonne were $0.2 per tonne lower than 2022. Cost escalation from inflation was offset by a weaker Australian dollar and gains on derivative contracts. Higher iron ore volumes offset a higher mine work index and mine maintenance costs.

Our Pilbara operations delivered an underlying FOB EBITDA margin of 69%, compared with 68% in 2022, largely due to the iron ore price.

We price the majority of our iron ore sales (79%) by reference to the average index price for the month of shipment. In 2023, 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, on the spot market or other mechanisms. We made approximately 74% of sales including freight and 26% on an FOB basis.

We achieved an average iron ore price of $99.7 per wet metric tonne on an FOB basis (2022: $97.6 per wet metric tonne) across our product suite. This equates to $108.4 per dry metric tonne, assuming 8% moisture (2022: $106.1 per dry metric tonne), which compares with the monthly average Platts index for 62% iron fines converted to an FOB basis of $110.3 per dry metric tonne (2022: $109.8 per dry metric tonne). The 2% lower realised price compared to the Platts index was mainly due to the lower average grades of our portfolio compared to the 62% index.

Segmental revenue for our Pilbara operations included freight revenue of $2.1 billion (2022: $2.2 billion).

Net cash generated from operating activities of $14.0 billion was on a par with 2022. Benefits from higher realised prices and higher volumes offset a build in working capital to ensure healthy stocks across the system and an increased receivables balance due to strong iron ore prices at year end. Free cash flow of $11.4 billion was $0.3 billion higher than 2022, mostly driven by a $0.4 billion reduction in capital expenditure to $2.6 billion due to lower spend on replacement capital.

Review of operations

Pilbara operations produced 331.5 million tonnes (100% basis) of iron ore, 2% higher than 2022. Shipments, on a 100% basis, were 3% higher (+10 million tonnes) than in 2022, making 2023 the second highest shipment year on record. Improved system performance supported by a 5 million tonne uplift from implementation of the Safe Production System, and ramp-up of Gudai-Darri to its 43 million tonne nameplate capacity, offset mine depletion. SP10 volumes accounted for 47.5 million tonnes of 2023 shipments (or 14%).

We continue to see strong demand for our portside product in China, with sales totalling 23.3 million tonnes in 2023 (2022: 24.3 million tonnes). At the end of 2023, inventory levels were 6.4 million tonnes, including 3.9 million tonnes of Pilbara product. In 2023, approximately 86% of our portside sales were either screened or blended in Chinese ports.

In January 2024, Dampier Salt Limited entered into a sales agreement for the Lake MacLeod salt and gypsum operation in Carnarvon, Western Australia with privately-owned salt company Leichhardt Industrials Group for $251 million (A$375 million). Completion of the sale is subject to certain commercial and regulatory conditions being satisfied. The transaction is subject to capital gains tax.

For more information
about our capital projects and future growth options, see pages 30–31.

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 highly recyclable – aluminium is found in diverse products ranging from solar panels and transmission lines to jet engines, electric vehicles and smartphones.

Snapshot of the year

0.33
AIFR
(2022: 0.35)

21%
Underlying EBITDA margin (integrated operations)
(2022: 29%)

$2.3bn
Underlying EBITDA
(2022: $3.7bn)

$12.3bn
Segmental revenue
(2022: $14.1bn)

$1.3bn
Capital expenditure
(2022: $1.4bn)

$2.0bn
Net cash generated from operating activities
(2022: $3.1bn)

24.2Mt
Scope 1 and 2 GHG emissions (equity Mt CO_2e)
(2022: 23.3Mt)

15,000
Employee numbers[1]
(2022: 15,000)

Safety

In 2023, we continued to focus on building resilience within our safety systems and processes. We implemented actions to improve our safety culture for our employees and our contractors, by identifying areas of organisational improvement, strengthening our control environment, and leveraging our safety maturity model to analyse and address the root causes of all our potentially fatal incidents (PFIs).

The improvement in our safety maturity translated into a decrease of almost 6% in our all-injury frequency rate (AIFR) from 0.35 in 2022 to 0.33 in 2023. Increased incident identification and proactive PFI[2] reporting have been key elements in enhancing our safety culture. However, despite this improvement, five workers were injured in PFI incidents in 2023; three of these injuries occurred in vehicle-related incidents. We continue to progress our program to reduce vehicle-pedestrian risks, focusing on fatigue and work scheduling as primary factors contributing to this trend. Ongoing work will be needed in 2024 to help re-emphasise the importance of working together to build and sustain a strong safety culture.

For more information
about our global health and safety initiatives, see pages 71-72.

Market Insights

Aluminium prices came under pressure in 2023, mainly driven by weaker demand outside of China. This impact on operating margins was partly offset by lower operating costs. Supply was volatile, with hydropower-integrated smelters in China only able to fully resume production in the third quarter following low precipitation in the first half, yet production was curtailed once again in the fourth quarter due to the oncoming dry season. Global demand was similarly uneven through the year.

While China's electric vehicle and solar panel manufacturers significantly increased their consumption, the US, Europe and Japan recorded historically low levels of aluminium semi-fabricated orders and shipments. Primary aluminium inventory remained low in China due to strong demand and seasonal disruptions to domestic production, which required high levels of aluminium primary imports, mainly from Russia. Meanwhile, aluminium inventories outside the Chinese market remain below average historical levels.

Enabling the low-carbon transition

In 2023, our Aluminium business's absolute greenhouse gas emissions (24.2Mt CO_2e) were 1.4% lower than the 2018 equity baseline (24.5Mt CO_2e). 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. Following a strike in 2021, the Kitimat smelter resumed its operations and reached full operating capacity in September 2023.

The 2023 emissions intensity of our managed Canadian smelters, powered by hydroelectricity, was 2.28Mt CO_2e per tonne of aluminium. Our Vaudreuil alumina refinery continues to have 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 *2023 Climate Change Report* at riotinto.com/climatereport.

1. This represents the average number of employees for the year, including the Group's share of non-managed operations and joint ventures. Refer to page 215 for more information.
2. A proactive PFI is one where there was neither injury nor property damage. Proactive PFIs are leading indicators of safety performance and offer the opportunity to learn from near miss incidents. They reflect a psychologically safe culture.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Aluminium

Year ended 31 December	2023	2022	Change
Bauxite production ('000 tonnes — Rio Tinto share)	**54,619**	54,618	—%
Alumina production ('000 tonnes — Rio Tinto share)	**7,537**	7,544	—%
Aluminium production ('000 tonnes — Rio Tinto share)	**3,272**	3,009	9%
Segmental revenue (US$ millions)	**12,285**	14,109	(13%)
Average realised aluminium price (US$ per tonne)	**2,738**	3,330	(18%)
Underlying EBITDA (US$ millions)	**2,282**	3,672	(38%)
Underlying EBITDA margin (integrated operations)	**21%**	29%	
Underlying earnings (US$ millions)[1]	**538**	1,504	(64%)
Net cash generated from operating activities (US$ millions)	**1,980**	3,055	(35%)
Capital expenditure — excluding EAUs (US$ millions)[2]	**(1,331)**	(1,377)	(3%)
Free cash flow (US$ millions)	**619**	1,652	(63%)
Underlying return on capital employed[1, 3]	**3%**	10%	

1. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.
2. 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).
3. Underlying return on capital employed (ROCE) is defined as underlying earnings excluding net interest divided by average capital employed.

Financial performance

Although global primary aluminium demand rose by ~1% in 2023, falling costs and an increase in global supply led to a 17% reduction in the LME price and lower market and product premiums. Market-related costs for key materials such as caustic, coke and pitch moderated with some of this benefitting underlying EBITDA in the second half. Operating costs particularly in our mines and refineries increased year on year with a focus on improved operational stability and asset health. Overall there was significant margin compression for our Aluminium business with a 38% decrease in underlying EBITDA to $2.3 billion. Underlying EBITDA margin fell eight percentage points to 21%.

We achieved an average realised aluminium price of $2,738 per tonne, 18% lower than 2022.

Average realised aluminium prices comprise the LME price, a market premium and a value-added product (VAP) premium. The cash LME price averaged $2,250 per tonne, 17% lower than 2022, while in our key US market, the Midwest premium duty paid, which is 57% of our total volumes (2022: 57%), decreased by 22% to $512 per tonne (2022: $655 per tonne). Our VAP sales represented 46% of the primary metal we sold (2022: 50%) and generated product premiums averaging $354 per tonne of VAP sold (2022: $431 per tonne).

Our conversion of underlying EBITDA to cash remained relatively strong, with net cash generated from operating activities of $2.0 billion. Free cash flow of $0.6 billion reflected investment in the business of $1.3 billion.

Review of operations

Bauxite production of 54.6 million tonnes was unchanged from 2022. Operations saw a continued improvement in the fourth quarter, following the challenges of higher-than-average rainfall at Weipa in the first quarter and equipment downtime at both Weipa and Gove in the first half.

We shipped 37.3 million tonnes of bauxite to third parties, 2% lower than 2022. Segmental revenue for bauxite was also unchanged at $2.4 billion. This includes freight revenue of $0.5 billion (2022: $0.6 billion).

Alumina production of 7.5 million tonnes was unchanged from 2022, with the Yarwun and Queensland Alumina Limited (QAL) refineries showing improved operational stability.

For the 2023 calendar year, as the result of QAL's activation of a step-in process following sanction measures enacted by the Australian Government in 2022, we continued to take on 100% of capacity for as long as the step-in continues. We have used 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. On 1 February 2024, the Federal Court of Australia rendered its decision in the litigation initiated by Rusal against Rio Tinto and QAL, dismissing Rusal's case. Rio Tinto and QAL are working to understand the impacts of the decision.

Aluminium production of 3.3 million tonnes was 9% higher than 2022, after we returned to full capacity at the Kitimat smelter and completed cell recovery efforts at Boyne during the third quarter. All other smelters continued to demonstrate stable performance.

For more information about our capital projects and future growth options, see pages 30–31.

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

0.35
AIFR
(2022: 0.22)

42%
Underlying EBITDA margin (product group operations)
(2022: 49%)

$1.9bn
Underlying EBITDA
(2022: $2.6bn)[1]

$6.7bn
Segmental revenue
(2022: $6.7bn)

$2.0bn
Capital expenditure
(2022: $1.6bn)

$0.5bn
Net cash generated from operating activities
(2022: $1.5bn)[1]

1.0Mt
Scope 1 and 2 GHG emissions (equity Mt CO_2e)
(2022: 1.7Mt)

8,000
Employee numbers[2]
(2022: 8,000)

Safety

We experienced an increase in the number of injuries and Potentially Fatal Incidents (PFIs) across our copper assets. There were 22 PFIs in 2023 compared to 18 in the previous year. We had an overall all-injury frequency rate (AIFR) of 0.35 compared to 0.22 in 2022, an increase of 59%, with an employee AIFR of 0.31 and a contractor AIFR of 0.38.

Unfortunately, in 2023, we also experienced two permanent damage injuries at our Simandou project and Kennecott Underground project, and a Process Safety Tier I event at our Kennecott smelter. Extensive action plans are being executed to ensure our people and their safety remains at the centre of everything we do, and through our critical risk management we are focusing on fatality prevention across our sites. Underpinning our strategy, we continue our journey to embed our enhanced safety maturity model to help us improve and sustain exceptional safety performance. Copper assets continue to focus on understanding and reducing their most significant health risks exposures, including heat stress, diesel particulate matter and SO_2 exposure through the Kennecott smelter rebuild. First line assurance for catastrophic risk prevention is well embedded at Oyu Tolgoi and is beginning to develop at our other assets. This will provide greater certainty on our risk control effectiveness for major hazard and process safety risks going forward.

For more information about our global health and safety initiatives, see pages 71-72.

Market Insights

London Metal Exchange copper prices were supported by expectations that China's demand would recover substantially as COVID-19 restrictions were lifted at the beginning of 2023. Disruptions to mine supply in major mining countries further tightened market fundamentals in the first quarter, before loosening later in the year with the commissioning of new mining projects in South America and Africa.

Concerns about the US and China's economic growth towards the middle of the year undermined sentiment. That was followed by a stabilisation in China after pro-growth measures were stepped up in the third quarter. Overall, China's demand was resilient, lending support to copper prices together with inflationary pressure, although price gains were capped by US dollar appreciation. In the final months of 2023, there were several disruptions to mine supply in Latin America that resulted in a notably tighter copper concentrates market.

Enabling the low-carbon transition

In 2023, our Copper business's absolute greenhouse gas emissions (1.0Mt CO_2e) were 65.5% lower than the 2018 equity baseline (3.04Mt CO_2e). The decrease in emissions was mainly driven by decarbonising power and commercial transactions in renewable energy. Rio Tinto Kennecott is fully transitioning to renewable diesel after a successful seven month trial. Kennecott's fleet of 90 haul trucks and all heavy machinery will begin to transition to renewable diesel in the first quarter of 2024, along with consumption from the concentrator, smelter, and refinery. The transition will reduce Kennecott's carbon emissions by approximately 495,000 tonnes of CO_2 equivalent per annum, comparable to eliminating the annual emissions of more than 107,000 cars[3].

Nuton™, our bioleaching technology venture, has the potential to deliver game changing ESG performance. Compared to conventional concentrating and smelting and based on our comparative environmental benchmark study with the University of Technology, Sydney, Nuton™ is projected to have a carbon intensity up to 60% lower than a global average of 5.2 tonnes per tonne of copper. Combined with opportunities for renewable energy that can further reduce emissions from Nuton™, we're excited about the incredible outcome Nuton™ could bring.

For more information about our decarbonisation efforts in the Copper product group, see our *2023 Climate Change Report* at riotinto.com/climatereport.

1. 2022 has been adjusted to reflect a change in management responsibility for the Simandou iron ore project from Copper to the Chief Technical Officer. As a result, we have moved Simandou outside of reportable segments and accordingly adjusted prior period comparatives.
2. This represents the average number of employees for the year, including the Group's share of non-managed operations and joint ventures. Refer to page 215 for more information.
3. Comparison calculation used US EPA Greenhouse gas equivalencies calculator (https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator).

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Copper

Year ended 31 December	2023	2022	Change
Mined copper production ('000 tonnes — consolidated basis)	**620**	607	2%
Refined copper production ('000 tonnes — Rio Tinto share)	**175**	209	(16%)
Segmental revenue (US$ millions)	**6,678**	6,699	–%
Average realised copper price (US cents per pound)[1]	**390**	403	(3%)
Underlying EBITDA (US$ millions)	**1,904**	2,565	(26%)
Underlying EBITDA margin (product group operations)	**42%**	49%	
Underlying earnings (US$ millions)	**133**	687	(81%)
Net cash generated from operating activities (US$ millions)[2]	**545**	1,523	(64%)
Capital expenditure — excluding EAUs[3] (US$ millions)	**(1,976)**	(1,622)	22%
Free cash flow (US$ millions)	**(1,438)**	(116)	
Underlying return on capital employed (product group operations)[4]	**3%**	6%	

2022 has been restated following the transfer of the Simandou iron ore project to outside the Reporting segments, as it now reports to the Chief Technical Officer, and to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.

1. Average realised price for all units sold. Realised price does not include the impact of the provisional pricing adjustments, which positively impacted revenues by $2 million (2022: $175 million negative).
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.
5. Mine design and plans will be reviewed by regulatory bodies as part of the OTFS23 process.
6. The 500 thousand tonne per year copper production target (stated as recoverable metal) for the Oyu Tolgoi underground and open pit mines for the years 2028 to 2036 was previously reported in a release to the Australian Securities Exchange (ASX) dated 11 July 2023 "Investor site visit to Oyu Tolgoi copper mine, Mongolia". All material assumptions underpinning that production target continue to apply and have not materially changed.

Financial performance

We delivered first sustainable production from the underground mine at Oyu Tolgoi, where we doubled our interest to 66% following the acquisition of Turquoise Hill Resources at the end of 2022. However, lower refined copper volumes and higher unit costs, primarily driven by the planned smelter and refinery rebuild at Kennecott, in addition to higher energy prices and an increase in exploration and evaluation expenditure, led to underlying EBITDA being down 26% to $1.9 billion. Underlying EBITDA margin remained relatively strong at 42%.

Our copper unit costs, at 195 cents per pound, increased by 32 cents, or 20%, as a result of the lower shipment volumes of refined copper following the planned rebuild at Kennecott and higher input costs.

We generated $0.5 billion in net cash from operating activities, a 64% decrease on 2022, from the same drivers as underlying EBITDA, together with $0.3 billion lower dividends from Escondida.

Negative free cash flow of $1.4 billion reflected the above movements and significant investment of $2.0 billion in sustaining capital and our growth projects. This mainly related to the ongoing development of the Oyu Tolgoi underground, the projects at Kennecott and evaluation costs at Resolution and Winu.

Review of operations

Mined copper production, at 620 thousand tonnes, was 2% higher than 2022, reflecting first sustainable production from Oyu Tolgoi underground in the first quarter. This offset challenges at Kennecott following a conveyor failure in March, with the concentrator not returning to full capacity until the third quarter. Our share of mined copper production from Escondida was flat at 300 thousand tonnes.

Refined copper production decreased by 16% to 175 thousand tonnes as we undertook the largest rebuild of the smelter and refinery in Kennecott's history across the second and third quarters. The smelter rebuild was successfully completed in the fourth quarter of 2023 and the ramp-up is progressing.

Oyu Tolgoi underground project

During 2023, Rio Tinto, Oyu Tolgoi and the Government of Mongolia continued to work together towards the implementation of Mongolian Parliamentary Resolution 103.

We continue to see strong performance from the underground mine, with a total of 86 drawbells opened from Panel 0, including 67 drawbells in 2023.

By the end of 2023, shafts 3 and 4 sinking had reached 923 metres and 1,013 metres below ground level, respectively. Final depths required for shafts 3 and 4 are 1,130 and 1,176 metres, respectively. Both shafts are expected to be commissioned in the second half of 2024.

Construction of the conveyor to surface works continued to plan and was 88% complete at the end of 2023. Commissioning remains on track for the second half of 2024.

Construction of primary crusher 2 commenced in December 2023 and is due to be complete by the end of 2025.

Construction works for the concentrator conversion remains on schedule. Commissioning is expected to be progressively completed from the fourth quarter of 2024 through to the second quarter of 2025. Technical studies for mine design and schedule optimisation for Panels 1 and 2 were completed during the second quarter[5]. The operation remains on track to ramp up to deliver average mined copper production of ~500 thousand tonnes per year (100% basis) between 2028 and 2036[6].

For more information about our capital projects and future growth options, see pages 30–31.

Nuevo Cobre exploration joint venture agreement

We have entered into a joint venture with Corporación Nacional del Cobre de Chile (Codelco) following the acquisition of PanAmerican Silver's 57.74% stake in Agua de la Falda S.A. The new joint venture, known as Nuevo Cobre (New Copper), will allow us to explore and potentially develop Nuevo Cobre's assets in partnership with Codelco in Chile's prospective Atacama region.

Chile has the largest copper reserves in the world, and currently is the leading copper producer. Chile is also a leader in other critical minerals that the world needs for the energy transition and to achieve net zero carbon emissions.

The partnership builds on a collaboration agreement with Codelco, which first commenced in 2007, that encourages best practices, innovation, and technology to improve safety and productivity in underground mining.

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

0.24
AIFR
(2022: 0.38)

30%
Underlying EBITDA margin (product group operations)
(2022: 40%)

$1.4bn
Underlying EBITDA
(2022: $2.4bn)

$5.9bn
Segmental revenue
(2022: $6.8bn)

$0.7bn
Capital expenditure
(2022: $0.7bn)

$0.5bn
Net cash generated from operating activities
(2022: $1.5bn)

3.7Mt
Scope 1 and 2 GHG emissions (equity Mt CO_2e)
(2022: 4.0Mt)

10,000
Employee numbers[1]
(2022: 9,500)

Safety

While we recorded zero fatalities at managed operations in 2023, tragically four colleagues died in a plane crash while travelling to our Diavik diamond mine in January 2024. We are working closely with the authorities to support their efforts to understand the full facts of what happened.

Unfortunately, in 2023, we also experienced a permanent damage injury at our Diavik mine. The number of potentially fatal incidents (PFIs) increased to 27, with vehicle collision and rollover, contact with electricity and lifting operations accounting for the highest number of PFIs. Two of these PFIs were also significant process safety incidents at our RTIT Quebec Operations site in Sorel-Tracy, which did not result in injuries. We have heightened our focus on managing these risks and have implemented measures in response to the investigation.

Our all-injury frequency rate (AIFR) decreased to 0.24, compared to 0.38 in 2022, as we recorded fewer employee and contractor injuries. The rate of injuries in our contractor workforce reduced significantly, going from 0.42 in 2022 to 0.20 in 2023.

In 2024, we will continue our journey of improvement, enabled by the safety maturity model. Additionally, we will intensify our focus on health, environment, and security 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 71-72.

Market Insights

The titanium dioxide (TiO_2) market saw a downturn in demand in developed regions, although there was a small improvement towards the fourth quarter. Elevated feedstock inventory also hampered TiO_2 purchases, leading to production cuts by major producers.

Borates prices also came under pressure as weak construction markets globally impacted underlying demand. Higher supply from leading producers accumulated into inventory as downstream demand underperformed.

The demand for IOC pellets in the European, Japanese, and Korean markets was stable in 2023 despite weaker steel production amid inflationary pressures. Following tentative signs of stabilisation in the European steel market in the middle of the year, pellet demand and premiums came under downward pressure by the end of the third quarter, and headwinds in the Atlantic Basin persisted through to the end of the year. Nevertheless, the demand for Direct Reduction pellets remained resilient in the Middle East and North Africa on the back of firm steel production in that region.

Downward pressure on lithium carbonate prices emanated from the deceleration in electric vehicle (EV) output growth and inventory accumulation along the supply chain. Supply from non-traditional regions (Africa) entered the market, incentivised by two years of elevated prices. Longer term, lithium market fundamentals remain strong as EV adoption continues to accelerate on supportive government policies and supply shortfalls requiring further investment.

Enabling the low-carbon transition

In 2023, our Minerals product group's absolute greenhouse gas (GHG) emissions were 3.7Mt CO_2e, a 6.7% decrease from 2022 levels and 0.1% lower than the 2018 equity baseline (3.7Mt CO_2e). We started the BlueSmelting™ demonstration plant at our RTIT Quebec Operations, a new ilmenite smelting technology that, if fully implemented, has the potential to reduce the site's overall GHG emissions by up to 70%.

We announced we would build the largest solar power plant across Canada's territories at Diavik Diamond Mine, featuring over 6,600 solar panels. It is expected to be fully operational in the first half of 2024. In Boron, California, we became the first open pit mine in the world to fully transition our heavy machinery from fossil to renewable diesel, which brings an anticipated CO_2e reduction of up to 45,000 tonnes per year. At QIT Madagascar Minerals, we commissioned the 8MW solar plant and 8.25 MWh lithium-ion battery energy storage system, and we started the construction of the 16MW wind project, scheduled for completion by 2025.

We have also opened a new battery manufacturing and testing research laboratory within our Bundoora Technical Development Centre in Melbourne, Australia, to test how our minerals and other products will perform in real-world applications, such as in EV batteries.

For more information
about our decarbonisation efforts in the Minerals product group, see our *2023 Climate Change Report* at riotinto.com/climatereport.

1. This represents the average number of employees for the year, including the Group's share of non-managed operations and joint ventures. Refer to page 215 for more information.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Minerals

Year ended 31 December	2023	2022	Change
Iron ore pellets and concentrates production[1] (million tonnes — Rio Tinto share)	**9.7**	10.3	(6%)
Titanium dioxide slag production ('000 tonnes — Rio Tinto share)	**1,111**	1,200	(7%)
Borates production ('000 tonnes — Rio Tinto share)	**495**	532	(7%)
Diamonds production ('000 carats — Rio Tinto share)	**3,340**	4,651	(28%)
Segmental revenue (US$ millions)	**5,934**	6,754	(12%)
Underlying EBITDA (US$ millions)	**1,414**	2,419	(42%)
Underlying EBITDA margin (product group operations)	**30%**	40%	
Underlying earnings (US$ millions)[2]	**312**	854	(63%)
Net cash generated from operating activities (US$ millions)	**548**	1,522	(64%)
Capital expenditure (US$ millions)[3]	**(746)**	(679)	10%
Free cash flow (US$ millions)	**(229)**	814	(128%)
Underlying return on capital employed (product group operations)[2, 4]	**13%**	22%	

1. Iron Ore Company of Canada (IOC) continues to be reported within Minerals.
2. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 'Income Taxes'.
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

Underlying EBITDA of $1.4 billion was 42% lower than 2022, primarily due to lower prices and higher costs. We experienced market weakness for many of our products, in particular for TiO_2 feedstock, where underlying demand for pigment was subdued on weak real estate activity in the Americas, Europe and China. This gave rise to lower sales volumes and, in combination with the two furnace failures at our RTIT Quebec operations, resulted in higher unit costs.

Net cash generated from operating activities of $0.5 billion was 64% lower than 2022, while negative free cash flow of $0.2 billion reflected the lower underlying EBITDA, higher working capital due to market conditions and a modest rise in capital expenditure.

Review of operations

Production of iron ore pellets and concentrate at IOC of 9.7 million tonnes was 6% lower than 2022 with challenges due to the wildfires in Northern Quebec in the second quarter, as well as extended plant downtime and conveyor belt failures in the third quarter.

TiO_2 slag production of 1,111 thousand tonnes was 7% lower than 2022. Two furnaces at our RTIT Quebec Operations remain offline following process safety incidents in June and July. In the fourth quarter, we decommissioned an additional furnace, which is due for reconstruction in 2024. As a result, we entered 2024 with six out of nine furnaces operating at our RTIT Quebec Operations and three out of four online at Richards Bay Minerals (RBM).

Borates production was 7% lower than 2022, as we adjusted for decreased customer demand, despite improved equipment reliability.

Our share of carats recovered was 28% lower than 2022, due to depleting one of three underground pipes and reaching the end of life for open pit mining.

For more information about our capital projects and future growth options, see pages 30–31.

Breakthrough technology: Scandium, a case in point

Scandium is a critical mineral in increasing demand for the energy transition and modern technologies such as aerospace, lasers and microelectronics due to its alloying and emerging high-tech properties. We are combining scandium with our low-carbon aluminium to produce an alloy that is stronger, more flexible and more resistant to heat and corrosion.

Today, our commercial scale demonstration plant in Quebec uses an innovative process to extract and produce high-purity scandium oxide from the waste streams of the existing TiO_2 production, without any additional mining.

This will make Rio Tinto one of the largest producers of scandium in the Western world. In two years, we have gone from testing the extraction process in a laboratory, to being able to supply a large share of the global scandium market.

In 2023, we acquired a high-grade scandium resource in New South Wales, Australia. The Burra™ Scandium Project is a small, high-value physical scandium asset, with a small environmental footprint. When operational, Burra will significantly increase, and geographically and operationally diversify, our annual scandium production.

Scandium is emblematic of Rio Tinto's transformation in terms of what we mine and how we mine.

Our approach to ESG

As temporary custodians of the land where we operate, we are entrusted with accessing the world's essential materials and making them available for society's use.

These resources are finite, and we have a responsibility to find better ways to extract the full value from them in the safest and most sustainable way possible.

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 are to strengthen our social licence and achieve 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.

Our shareholders, employees and host governments expect us to find better 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 also means we must deliver our own decarbonisation, alongside investing in research and development that enables our customers to decarbonise more quickly.

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.

Solar panel plant at Gudai-Darri, the Pilbara, Western Australia. See our *2023 Climate Change Report* for further information about this project.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Our ESG framework

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.

Each year we complete a materiality assessment to understand what ESG issues and topics matter most to, and have the greatest impact on, our stakeholders and our business. We gather information from internal and external stakeholders via interviews, surveys and reviews of publicly available information. We ask them what is important now and what they think will be important in five to ten years. Some issues are identified as higher materiality than others. Our ESG framework describes how we manage and report externally on these issues and how we contribute to the United Nations Sustainable Development Goals (UN SDGs).

The insights we gather through this process guide 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; combating 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.

Environment			Social					Governance
Low intensity materials	Environmental stewardship	Mining & metals practices	Heritage, culture & Indigenous Peoples	Human rights	Talent, diversity & inclusion	Health, safety & wellbeing	Supporting social & economic opportunity	Transparent, values-based ethical business
Climate change	Water management	Tailings & mineral waste management	Cultural & heritage site management	Respecting human rights	Inclusion, diversity & equity	Health, safety & wellbeing	Local community relations	Business integrity & governance
End-to-end materials management	Biodiversity & ecosystems	Closure, post-mining & land rehabilitation			Employment & talent retention	Pandemic response & public health	Impact of technology	ESG transparency & disclosure
Future-proof assets	Industrial environment impacts							Business performance
								Risk management & cybersecurity
								Responsible tax & royalty payments
								Supply chain transparency

Key
- Higher materiality
- Medium materiality
- Lower materiality

Each material topic above appears under either the environment, social or governance theme to which it primarily relates. However, there is crossover among ESG themes, meaning some material topics can be relevant to two or even all three themes. Accordingly, we work with themes and topics holistically, not in silos.

To achieve impeccable ESG credentials, we aim to:

- Provide people and communities with social and economic opportunities so they can live and grow sustainably.
- Play our role to advance a fair and socially inclusive energy transition.
- Build a healthy, diverse and inclusive workforce, support local communities to achieve their goals and aspirations, and deliver positive social outcomes.
- Decarbonise our operations (Scope 1 and 2) and 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.
- Minimise environmental and heritage impacts and act as a responsible steward of water and biodiversity, to strengthen our resilience to a changing environment.

The UN SDGs

Our approach to ESG aligns with the UN SDGs, which are recognised as the global blueprint for a sustainable future. The SDGs are a useful reference point to ensure we direct our efforts where they can deliver the most impact and our focus areas reflect society's expectations. We focus on goals that we feel are most relevant to operating our business responsibly and where we can have the biggest impact. Our two lead goals are SDG 12 (responsible consumption and production) and SDG 8 (decent work and economic growth).

Our operations also contribute to eight supporting SDGs (3, 4, 5, 6, 9, 10, 13 and 15), while SDG 17 (partnerships for the goals) 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 riotinto.com/sustainabilityapproach.

What is important now

Our internal and external stakeholders are broadly aligned on the four highly material ESG topics. Climate change is the most important topic and includes greenhouse gas emissions reduction, climate resilience and adaptation, and just transition. Respecting human rights; cultural and heritage site management; and health, safety and wellbeing are the other three highly material topics.

For our business, the safety and wellbeing of our people remains our highest priority. Biodiversity and ecosystems; business integrity and governance; ESG transparency and disclosure; inclusion, diversity and equity; local community relations, tailings and mineral waste management; and water management are also material topics as we strive to build a sustainable business.

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. Biodiversity and ecosystems; the impact of technology; respecting human rights; risk management and cybersecurity; business integrity and governance; supply chain transparency; and end-to-end materials management will also increase in importance.

Water management will continue to be an extremely important topic in the future due to the reliance of local communities and our mining operations on this increasingly scarce resource. Managing all these ESG topics well will be integral to our social licence to operate and the success of our business.

Reporting our performance

Our 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. An ESG 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 ICMM, we commit to reporting on our ESG performance against the 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 ESG areas. In 2022, all 29 Rio Tinto managed operating and refining assets completed a self-assessment against the ICMM PEs. A self-assessment was also completed for Rio Tinto Corporate. The criteria for prioritising 26 of our 29 operating assets for validation, within the three year cycle (2023-2025), was also disclosed at this time.

In 2023, on-site third-party validations were completed for 12 of our priority operating and refining assets. The validation reports received to date demonstrate a high level of alignment between the self-assessment and validation outcomes, with identification of relevant areas for improvement. Information on the 2022 self-assessment or 2023 validation results are presented in the ICMM PE Summary tab in the *2023 Sustainability Fact Book*. We have continued to improve our reporting to meet additional disclosure requirements, including the ICMM Social and Economic Reporting Framework (SERF). In 2023 we have disclosed our performance against most of the SERF indicators.

The majority of our ESG reporting is incorporated into this *Annual Report* and supplemented by our *2023 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 *2023 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 pages 111-112.

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 109.

Non-financial and sustainability information statement

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

- Environmental and climate matters, including Task Force on Climate-related Financial Disclosure (TCFD) disclosures (pages 44-58).
- Our employees (pages 71-74).
- Social matters (pages 66-75).
- Human rights (page 75).
- Corruption and bribery (pages 76-77).

Other related information can be found here:

- Our business model (page 9).
- Principal risks and how they are managed (pages 80-88).
- Non-financial key performance indicators (page 43).

Notes on data

The data summarised in this ESG 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]	Tax reports[2]	Human rights reports[3]	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 *Climate Change Report* and *2023 Addendum - Scope 1, 2 and 3 Emissions Calculation Methodology*.
2. Includes our *Taxes Paid Report* and *Country-by-Country Report*.
3. Includes our *Modern Slavery Statement* and our *Voluntary Principles on Security and Human Rights Report*.

For more information
see riotinto.com/sustainabilityreporting.

2023 performance against ESG targets

Targets	2023 performance
Reach zero fatalities and eliminate workplace injuries and catastrophic events.	**Zero fatalities at managed operations** (2022: 0 fatalities). – All-injury frequency rate (AIFR) at 0.37 (target: 0.40). (2022: 0.40). – 1.53 million critical risk management (CRM) verifications. (2022: 1.37 million).
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.	**6 assets achieved an exposure reduction to known health risks** (airborne contaminants and noise). (2022: 9 assets).
Reduce the rate of new occupational illnesses each year.	**27.15% increase in the rate of new occupational illnesses since 2022**
Reduce our absolute Scope 1 and 2 greenhouse gas emissions by 15% by 2025 and by 50% by 2030 (when compared to 2018 levels), and achieve net zero emissions from our operations by 2050.[1]	**5.5% reduction in Scope 1 and 2 greenhouse gas emissions below our 2018 baseline** (2022: 5.2%).
Disclose permitted surface water allocation volumes, annual allocation usage and the estimated surface water allocation catchment runoff from average annual rainfall for all managed operations by 2023. Achieve local water stewardship targets for selected sites by 2023.	**5 of the 7 water stewardship targets attained by 2023** (2022: 5 of 7). For more information about individual water target performance in 2023, see pages 60-61.
Achieve our global Communities and Social Performance (CSP) targets by 2026: – Year-on-year increase in contestable spend sourced from suppliers local[2] to our operations. – All sites to co-manage cultural heritage with communities and knowledge holders by 2026. – 70% of total social investment to be made through strategic, outcomes-focused partnerships by 2026. – All employees in high risk human rights roles to complete job-specific human rights training by 2024. – All employees to complete general human rights training by 2026.	– We sourced 16.8% of contestable spend from suppliers local to our operations. This was a 2.3% increase from 2022. Progress for each product group is included in the *2023 Sustainability Fact Book*. – We independently assessed 25 assets against the cultural heritage co-management maturity framework with 8 assets performing at level 4 (integrated), 7 at level 3 (defined), 9 at level 2 (emerging) and 1 at level 1 (learning)[3]. – Outcome indicator framework and strategic partnering principles were developed and endorsed in 2023 with self-assessment and baseline data to be collected in 2024. – Our human rights team delivered 35 tailored training sessions, targeting 11 assets and 12 functional teams globally. We recorded 2,441 completions of our modern slavery e-learning module, representing 66% of employees and contractors[4] in modern slavery high-risk roles.
Improve diversity[5] in our business by: – Increasing women in the business (including in senior leadership[6]) 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.	– 24.3% of our workforce were women, up 1.4% from 2022. – 25% of executive leaders were women, no change from 2022. – 30.1% of senior leadership were women, up 1.8% from 2022. – 30.8% of Board roles were held by women, up 0.8% from 2022. – 51.6% of our graduate intake were women, down 1.6% from 2022. – 37.6% of our graduate intake were from places where we are developing new businesses[7], up 1.6% from 2022.
Improve our employee engagement and satisfaction.	**1 point increase in our employee satisfaction score (eSAT[8]) since 2022 (from 73 to 74)** (2022: 2 point increase).

1. While we expect to have made financial commitments to abatement projects totalling more than 15% of our emissions by 2025, achieved emissions reductions will lag this.
2. 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.
3. The cultural heritage co-management maturity framework sets out a maturity model consisting of five levels of maturity – from "learning the practice" to "leading practice". There are six categories against which a site will be evaluated to determine its level of maturity, covering various aspects of cultural heritage management.
4. Contractors refers to category 1, 2 and 3 contractors.
5. 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.
6. We define senior leadership as Managing Directors, General Managers, Group Advisers and Chief Advisors.
7. Identifying with a nationality is not mandatory. More than 48% of our graduates have not formally reported a nationality.
8. eSAT (Employee Satisfaction) is a measure of "how happy an employee is to work at Rio Tinto". It is calculated by averaging the responses on a 1-7 scale and expressing this out of 100.

Environmental performance

Our purpose is to find better ways to provide the materials the world needs. The low-carbon transition is at the heart of our business strategy: we are focusing on growing production of the materials essential for the energy transition; decarbonising our operations; and partnering with our customers and suppliers to decarbonise our value chains.

Climate change

Our operational emissions targets are ambitious – to reduce emissions by 15% by 2025 and 50% by 2030 relative to 2018 levels, 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. We adjust our baseline to exclude reductions achieved by divesting assets and to account for acquisitions.

Our definition of net zero applies to our operational (Scope 1 and 2) emissions on an equity basis. To reach net zero we will need to decarbonise our operations as far as technically and commercially practical, and address all the remaining emissions with carbon dioxide removals from the atmosphere and long-term storage.

To tackle our Scope 3 emissions across our value chains we are committed to helping our customers and suppliers achieve their targets a decade earlier – reaching net zero by 2050. In particular, we continue to work with our customers to develop and scale up the technologies to decarbonise steel and aluminium production.

In this section, we comply with the requirements of Listing Rule 9.8.6(8)R by including climate-related financial disclosures consistent with the Task Force on Climate-related Financial Disclosures (TCFD) recommendations and recommended disclosures.

In determining our compliance with all 11 of the TCFD recommendations and recommended disclosures, we have considered both Section C of the TCFD Annex entitled "Guidance for All Sectors" and Section E of the TCFD Annex entitled "Supplemental Guidance for Non-Financial Groups". The climate-related financial disclosures made within this section also comply with the requirements of the *Companies Act 2006* as amended by the *Companies (Strategic Report) (Climate-related Financial Disclosure) Regulations 2022*.

Climate change matters are also integrated into other parts of this report, such as the key performance indicators (KPIs), principal risks, and notes to the financial statements. Progress on our Climate Action Plan (CAP) is material to the successful implementation of our Group strategy. This is summarised in the metrics and targets area of this climate change section. For supplementary information, please see our *2023 Climate Change Report* and *2023 Sustainability Fact Book*. We will continually enhance our climate reporting in response to emerging standards and requirements set by the International Sustainability Standards Board and national regulators.

"Many 1.5°C climate change scenarios rely on significant deployment of carbon dioxide removals to get to net zero, which may not be realistic. No single company or country can halt the course of climate change alone, so partnering to reduce emissions is vital."

Jakob Stausholm
Chief Executive

Environmental monitoring. Kennecott, US

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Climate-related governance

A) Describe the board's oversight of climate-related risks and opportunities

B) Describe management's role in assessing and managing climate-related risks and opportunities

Board, committee and management structure related to climate change

Summary of 2023 activities

Direct and monitor

Inform and report

The Board

Climate change is a material and strategic topic for our business and is part of ongoing discussion and analysis at the most senior levels of management and the Board. It is also an important topic when the Board and Executive Committee engage with investors and civil society organisations. The Board approves our overall strategy, policy positions and climate disclosures within this report and the *Climate Change Report*. The Board set the 2025, 2030 and 2050 emissions targets, and monitors performance against targets and operational resilience. The Chair of the Board is responsible for our overall approach to climate change. The Board delegates specific responsibilities to Board committees and the Chief Executive. Climate change and the low-carbon transition are routinely on the Board's agenda, including as part of strategy discussions, risk management, financial reporting and executive remuneration.

The Board considers climate-related matters as we develop and implement our strategy and make investment decisions. The low-carbon transition is at the heart of our business strategy and aligned with our four objectives. For additional information, see our Strategic context and Our strategy sections on pages 14-16.

For more information on the Board, their activities, and composition see pages 92-104.

- Held dedicated meetings to focus on decarbonisation including large-scale renewable projects and repowering our Pacific Aluminium Operations.
- Reaffirmed our strategy and engaged with investors and civil society organisations following the publication of our 2022 Climate Change Report.
- Approved the 2022 Climate Change Report and climate-related disclosures in the 2022 Annual Report notes to the financial statements.

Sustainability Committee

The Sustainability Committee maintains oversight of key sustainability areas that may be impacted by climate change, such as biodiversity and water. This includes assessing the effectiveness of associated controls and ensuring the operational-level resilience of the Group.

For more information see pages 111-112.

- Received and discussed the following reports: Physical resilience to climate change, Boron water control framework follow-up, Environment performance and maturity update, and Proposed approach to nature commitments.

Audit & Risk Committee

The Audit & Risk Committee addresses how climate issues (such as climate policy and our scenarios) impact the financial statements. The committee review all material accounting estimates and judgements relating to financial reporting, including those where climate issues are relevant and also appoint the external auditors, who assure greenhouse gas (GHG) emissions and ensure the effectiveness of the risk management framework.

For more information see page 107-110.

- Reviewed and approved material climate-related accounting estimates and judgements relating to financial reporting.
- Considered the relevance of climate-related risks when preparing and approving the Group's *Annual Report*.

People & Remuneration Committee

The People & Remuneration Committee ensures the Group's remuneration structure and policies include climate-related performance metrics and reward individual executives fairly and responsibly.

For more information see page 113-145.

- Assessed the annual executive performance against climate metrics and approved incentives and remuneration revisions related to the way climate change is incorporated into incentives.

Management role

Investment Committee

The Investment Committee reviews and approves the Group's capital expenditure in relation to abatement projects and climate change research and development. Decarbonisation investment decisions are made under a dedicated evaluation framework which considers the value of the investment and impact on cost base, the level of abatement, the maturity of the technology, the competitiveness of the asset and its policy context and alternative options on the pathway to net zero. Projects are also assessed against our approach to a just transition, with consideration to the impact on employees, local communities and industry.

Chief Executive and Executive Committee

The Chief Executive is responsible for delivering the CAP, as approved by the Board, with the Executive Committee supporting this role. Risk management, portfolio reviews, capital investments, annual financial planning and our approach to government engagement integrate our approach to climate change and emissions targets. The annual plan process focuses on the short-term (up to two years). The new growth and decarbonisation strategy is part of the medium term planning process. The Chief Executive leads the strategy process with the Executive Committee each year and, in 2023, reaffirmed the decision to put the low-carbon transition at the heart of our business strategy.

Remuneration: Our Chief Executive's performance objectives in the short-term incentive plan (STIP) includes delivery of the Group's strategy on climate change. These are cascaded down into the annual objectives of relevant members of the Executive Committee, including the Chief Technical Officer, and other members of senior management. Decarbonisation is also included as a performance measure in the long-term incentive plan (LTIP). See pages 119-141 for our Remuneration Policy, 2023 outcomes, and the incorporation of climate-related measures in the LTIP and STIP.

Energy and Climate Team

In 2022, we established a central team, Rio Tinto Energy and Climate (RTEC), to deliver progress on our CAP. This is led by the Chief Decarbonisation Officer, who reports to the Chief Technical Officer and is accountable for all aspects of the CAP. The RTEC team is structured according to the 6+1 programs that drive decarbonisation across our operations.

Two additional teams complete the RTEC organisation: a Decarbonisation Office that monitors and forecasts GHG emissions, tracks investment decisions and coordinates our approach to physical climate risks; and a Climate Policy and Advocacy team. Rio Tinto Commercial drives the approach to Scope 3 emissions, given its responsibility for procurement, shipping and sales to our customers. The Decarbonisation Office prepares a quarterly progress report for the Executive Committee, which includes operational emissions and progress on abatement projects across the 6+1 programs and other areas of our CAP.

Climate-related strategy and risk management

Strategy

A) Describe the climate-related risks* and opportunities the organisation has identified over the short, medium, and long term.

B) Describe the impact of climate-related risks and opportunities on the organisation's businesses, strategy and financial planning.

C) Describe the resilience of the organisation's strategy, taking into consideration different climate-related scenarios, including a 2°C or lower scenario.

Risk management

A) Describe the organisation's processes for identifying and assessing climate-related risks.

B) Describe the organisation's processes for managing climate-related risks.

C) Describe how processes for identifying, assessing, and managing climate-related risks are integrated into the organisation's overall risk management.

* We typically refer to risks as both threats and opportunities, but follow TCFD wording in this section.

Our quantification and assessment of climate-related risks and opportunities is embedded within our Group risk management framework. This includes six core elements that are continually reviewed to ensure that we are effectively managing current risks and preparing for emerging risks.

In 2022, we launched the physical resilience program which included a climate risk and resilience assessment methodology. This guideline provides our assets and product groups with a bottom-up assessment framework to quantify physical climate risk and focuses on the following:

- Climate modelling assumptions: to guide the selection of future emission scenarios and time horizons to support bottom-up risk assessment and analyses.
- A risk assessment process: to identify and evaluate climate-related risks and opportunities.
- A risk management framework: to plan and implement risk responses, communicate risks with stakeholders and maintain and update risk information.

Our three lines of defence provide assurance that risks are effectively managed in line with our policies, standards and procedures. While risk management is the accountability of our leaders, all employees are empowered to identify and manage risks at the point that they arise in their business. For further detail regarding the Group risk management process, the principal risks and uncertainties of the Group and how ESG has been incorporated into these, see pages 78-88.

We use scenarios to identify and assess the climate-related risks and opportunities impacting our business in the, medium and long term. We use market analysis for our short-term outlook rather than the scenarios which provide a longer term view out to 2050. For climate change 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.

Our short-term time frame aligns with our annual planning process. The medium-term time frame aligns to extended planning horizons that align with our growth projects and emissions abatement projects. Our long-term time frame considers the full lifespan of our mining assets and infrastructure, the long-term extent of our operations, and the continued impact climate risks and opportunities are expected to have on the business.

Low-carbon transition strategy and risk management

Through our Group risk assessment process and climate scenario analysis, it is evident that the low-carbon transition poses numerous transitional risks and opportunities for our business.

Based on our analysis of these risks and opportunities, their impact on the Group, and the role played in the transition, we have identified numerous transition-related principal risks and associated opportunities that have been incorporated into our Group risk strategy.

The materiality, and subsequent prioritisation, of each risk has been calculated through assessing the likelihood of an impact occurring as well as the effect this would have on the Group's free cash flow or business value.

The Group's climate change and the low-carbon transition uncertainties, based on our risk management process, have been assessed through the following principal risks:

2. Preparing our Iron Ore business to meet the demand for green steel.
3. Building trusted relationships with communities.
4. Minimising our impact on the environments we work in and building resilience to changes in those environments, including climate change and natural disasters.
7. Delivering on our growth projects.
8. Achieving our decarbonisation targets competitively.
9. Conducting our business with integrity, complying with all laws, regulations, and obligations.

See pages 82-88 where we have highlighted the key regions impacted by these risks, our risk management responses, and the relevant groups with oversight of each process.

The numerous risks and opportunities resulting from the low-carbon transition affect our portfolio in a variety of ways. The table on page 48 provides an overview of the varying impacts that the low-carbon transition has on our overall portfolio.

For more information on financial reporting considerations and sensitivities related to climate change and the low-carbon transition, see the notes to our financial statements on pages 162-165.

Capital allocation and investment framework

Decarbonisation investment is derived from the Group's capital allocation framework and aligned to our 2025 and 2030 Scope 1 and 2 emissions targets.

Our target to reduce emissions by 50% by 2030 relative to 2018 levels remains unchanged. However, we now believe that achieving this will require less capital investment and more operating expenditure. We originally estimated that approximately 3GW of renewable power would be needed to decarbonise our operations in the Pilbara - 1GW to replace gas-fired power generation and 2GW to decarbonise our diesel-based fleets. Carbon reduction from economically viable, large-scale fleet electrification has always been expected post-2030, however delays in the availability of this technology mean that we now do not expect to invest in the same scale of Pilbara renewables pre-2030. We remain committed to developing 1GW of renewable energy capacity in the Pilbara, however, we now estimate that 600 to 700MW capacity is required by 2030.

To accelerate our emissions abatement, we will take advantage of commercial solutions that can be ready in the market this decade and avoid lengthy project development schedules. Therefore, although our 2030 emissions target remains unchanged, we now believe that this can be met with $5bn-$6bn of capital investment, down from previous guidance of $7.5bn. This excludes capitalised RECs, voluntary offsets and compliance offset costs.

The table below shows capital and operational expenditure on decarbonisation. Group figures have been disclosed on page 173-174 and 184.

Decarbonisation expenditure

Capital expenditure on abatement projects

$94m

(2022: $86m)

Carbon credits and renewable energy certificates (RECs) (intangible assets)

$61m

(2022: $33m)

Operational expenditure

$234m

(2022: $138m)

Investments

$36m

(2022: $42m)[1]

1. Our 2022 figures have been restated to include Office of Chief Scientist and battery material investments.

Climate change scenarios

Our scenario approach is reviewed every year as part of our Group strategy engagement with the Board. We have not fundamentally changed the scenarios presented in 2022 or the analysis undertaken in early 2023 to evaluate the resilience of our business under different transition-related scenarios. Our scenario framework focuses on two prevailing macro-level business concerns: the rate of global economic growth and the pace of climate action, each heavily influenced by global geopolitics and governance. Our two core scenarios (Competitive Leadership and Fragmented Leadership) are used to generate a central reference case for commodity forecasts and valuations. Additional scenarios (including our Aspirational Leadership scenario) are used to further evaluate the positive and negative effects of the energy transition across our portfolio and stress test investment decisions. We have designed our Aspirational Leadership scenario with the aim or reaching net zero by 2050, to help us better understand the world on a 1.5°C pathway and what this would mean for our business.

We do not undertake climate modelling ourselves, but determine the approximate temperature outcomes in 2100 by comparing the emissions pathways to 2050 in each of our scenarios with the Shared Socio-economic Pathways (SSP) set out in the Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report. We also consider the carbon budgets associated with different temperature outcomes. The emissions pathway of Aspirational Leadership is most closely aligned with the IPCC's shared socio-economic pathway 1 (SSP1-1.9) with emissions reaching net zero by 2050, which limits warming to 1.5°C. The emissions pathway in Competitive Leadership limits the global temperature increase to 1.6-2.0°C (SSP1-2.6). Fragmented Leadership's emissions pathway is between SSP1-2.6 and SSP2-4.5, so the global temperature increase is less than 2.5°C by 2100. For physical risk, we also use the IPCC's highest emissions scenario (SSP5-8.5) in our bottom-up asset-level physical risk and resilience assessments and other scenarios for our financial risk modelling (see page 163 for more information). So, when assessing risks and opportunities to the business we use a 1.5°C-aligned scenario to assess a fast low-carbon transition and we use the highest emissions and high temperature outcome scenario (SSP5-8.5) to assess physical climate risks. While there are many uncertainties about how a changing climate may negatively affect gross domestic product (GDP) growth, physical impacts of climate change are integrated into the GDP growth assumptions in our three scenarios. These are most significant in Fragmented Leadership and least significant in Aspirational Leadership.

Aspirational Leadership

Aspirational Leadership reflects our view of a world of high growth, significant social change and accelerated climate action with all countries setting new Nationally Determined Contributions (NDCs) that collectively achieve net zero emissions by mid-century. We believe that despite geopolitical differences, major economies tend to work together through multilateral frameworks and proactively work towards limiting temperature change to 1.5°C by 2100. While there may be temperature overshoot in many 1.5°C scenarios, there is limited risk of this in Aspirational Leadership. Although Aspirational and Competitive Leadership share similar GDP growth, higher carbon prices under Aspirational Leadership result in lower global emissions.

Competitive Leadership

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 stronger business innovation, higher investment and improved productivity. This allows global GDP to continue growing at close to recent historical levels with a growing contribution from India and other developing countries. Carbon emissions are slightly higher than those in Fragmented Leadership by 2030 due to increased GDP growth. However, these decline over time as carbon prices continue to rise post-2030. Nations drive toward achieving their Glasgow Climate Pact commitments, resulting in global GHG emissions falling from 54Gt CO_2e today to 21Gt in 2050.

Fragmented Leadership

Fragmented Leadership is characterised by limited progress on policy reform with volatile low growth. The business environment is defined by weak final demand and greater uncertainty, and requires close ties with governments to manage risk. It is a world defined by geopolitical and domestic tensions, spurred by populist agendas that offer leaders little opportunity to build consensus around reform and environmental agendas. Nations eventually achieve their 2030 NDCs as agreed in Paris in 2015, but abandon further progress resulting in flat global emissions post-2030. Carbon prices track alongside Competitive Leadership levels until 2030, but remain constant subsequent to this, resulting in increased global emissions.

Key scenario metrics[1]

	Aspirational Leadership		Competitive Leadership		Fragmented Leadership	
Global temperature outcome in 2100	1.5°C		1.6-2.0°C		2.1-2.5°C	
	2030 Outcome	2021-2050 CAGR	2030 Outcome	2021-2050 CAGR	2030 Outcome	2021-2050 CAGR
Global average carbon prices in 2030, (2021 US$/t CO_2e)	59	9 %	42	8 %	42	3 %
Global emissions, Gt CO_2e	40	-11%[2]	50	-4 %	50	-1 %
Global energy demand, mtoe	10,500	0.3 %	11,000	1 %	10,300	0.2 %
Global GDP growth (PPP), %	4 %	4 %	4 %	4 %	3 %	2 %
Energy intensity of global GDP, toe/$1,000 2015 PPP	0.1	-3 %	0.1	-3 %	0.1	-2 %
Carbon intensity of total energy, gCO_2/MJ	40	-13 %	45	-5 %	45	-2 %
Global energy from electricity, mtoe	2,900	4 %	2,900	4 %	2,700	2 %
Global wind and solar capacity, GW	9,800	11 %	7,500	10 %	5,700	7 %
EV penetration by 2030 (%)[3]	70	11 %	60	10 %	40	10 %
Finished steel demand (relative to 2021)	>110	1 %	>110	1 %	<100	– %
Aluminium demand (relative to 2021)	>130	2 %	>130	2 %	>120	1 %
Copper demand (relative to 2021)	>150	3 %	>150	3 %	>130	2 %

1. These metrics have been extracted from our scenarios modelling and have been rounded to avoid the impression that they are precise predictions. Mtoe = Million tonnes of oil equivalent, PPP = purchasing power parity.
2. 11% p.a. decline in CO_2 emissions based on 2021-49 period in net zero pathway (by 2050), emissions in 2030 are highest in Competitive Leadership due to high GDP growth.
3. 2021-50 compound annual growth rate (CAGR) based on global electric vehicle (EV) sales.

Our overall portfolio risks and opportunities in the low-carbon transition

Key

High opportunity | Moderate opportunity | Moderate risk | High risk

S Short term (less than 2 years) | M Medium term (2-10 years) | ML Medium and long term | L Long term (beyond 10 years) | No risk

	Aspirational Leadership	Competitive Leadership	Fragmented Leadership
Iron Ore	**Short term:** There is limited transition risk or opportunity to the Iron Ore business in the short term as the impacts of carbon pricing regulation is relatively low. Slow transition in the steel sector towards low-carbon technology limits risk to Pilbara operations. GDP growth has a stronger influence on iron ore price than climate change policy		
	M Lower medium-term demand versus Competitive Leadership due to higher scrap-use affecting Pilbara products (recovers post 2040)	ML Strong global GDP growth and continued urbanisation support iron ore demand including for Pilbara products	ML Slowdown in China and global GDP growth erode demand, creating margin pressure across the portfolio
	L Large increases in carbon pricing and penalties drive demand for high-grade iron ore supporting Simandou and Iron Ore Company of Canada (IOC)	ML Stronger customer preference for Simandou and IOC ores for lower-carbon traditional and emerging steelmaking	L Smaller regional increases in carbon prices relative to the other scenarios help preserve longer-term margins for low-cost, Tier 1 Pilbara ores
Aluminium	S **Short term:** Current carbon pricing regulation raises operational costs for carbon intensive assets, notably our refineries and smelters in Eastern Australia. Limited transition related short-term demand growth for aluminium		
	M Higher carbon penalties put pressure on emissions intensive refining and smelting operations	ML Competition to secure large-scale firmed renewable electricity to repower coal-based Pacific Aluminium Operations	ML China slowdown and production cap on primary aluminium reduce demand for seaborne bauxite
	ML Strong GDP growth and EV penetration support demand with value upside for hydro-based smelters (more pronounced in Aspirational Leadership)		L Slowing demand and low-carbon penalties greatly reduce value upside of ELYSIS™ and hydro-based smelters
	L Higher carbon penalties support ELYSIS™, hydro-based smelting assets in Quebec and repowering projects in Australia		
Copper	S **Short term:** limited risk of carbon pricing regulation on copper operations given their location in the US, Mongolia and Chile. Some transition related short-term demand growth for copper given increasing electrification energy system		
	ML Strong GDP growth and accelerated EV penetration and global electrification (backed by renewable electricity) support demand growth and margins across the portfolio		ML Lower demand growth and poor carbon policy reduce margins and upside for low-carbon smelting and refining (Kennecott and Escondida)
	ML Pressure to meet rapid demand growth supports growth projects (and Nuton™) if they satisfy environmental and social requirements		
	ML Environmental and social approval hurdles for new projects including Resolution Copper and La Granja		ML Geopolitical tensions could reduce joint venture partnership opportunities and create potential engineering, procurement and construction and logistical issues
Minerals	S **Short term:** Potential for carbon penalties to raise operational costs for emissions intensive minerals operations in Canada and South Africa. Some transition-related short-term demand growth for minerals that support electrification		
	ML Accelerated uptake of EVs and battery storage solutions supports growth projects (Rincon and Tamarack joint venture)	ML Strong outlook for battery materials but international competition for greenfield and mergers and acquisitions opportunities limit growth options	ML Reduced battery material growth opportunities but resilience from operating high-grade TiO_2 assets
	ML Increasing ESG scrutiny of new projects and more stringent regulations		ML Supply disruption risks and volatility bolster demand for precious metal and critical mineral by-products
	ML Potential for carbon penalties to raise operational costs for emissions intensive downstream processing of TiO_2 and battery materials		

Our approach: decarbonisation and producing materials needed for the low-carbon transition

The energy transition is a key driver of commodity demand today and will continue to be so over the next two decades. This will come on top of the demand growth from continued urbanisation and industrialisation (particularly in emerging economies) and it will trigger a new phase of demand growth in developed economies, which have faced saturating demand over the past two decades.

While the low-carbon transition is expected to create additional demand for our commodities (and therefore an opportunity to provide transition materials), the outlook for demand varies significantly between our scenarios as a function of GDP growth, technology uptake, and scrap supply and use. Different demand trajectories, combined with industry supply responses and global carbon policy evolution, determine the market prices for our three major commodities and implications for our Group-level and asset valuations.

We aim to invest in quality assets that give robust returns under our scenarios, creating a resilient portfolio with a significant upside to the energy transition. We have continued to invest in our copper portfolio through traditional assets such as Oyu Tolgoi and Kennecott, as well as early-stage application of our Nuton™ copper leaching technology.

In aluminium, we continue to develop emissions-free smelting technology with ELYSIS™ trials. Significant further research and development is needed, including to scale up the technology towards larger commercial-sized cells, before the broader implementation of ELYSIS™ is possible. For this reason, we do not expect this new technology to achieve emissions abatement across our smelters before 2030.

We believe that global iron ore demand will remain strong with a premium on higher grade ore needed for the production of green steel in Direct Reduction Iron-Electric Arc Furnace (DRI-EAF) steel processing. This includes the higher grade ores from the IOC and our Simandou project. Demand for these ores increases in our Aspirational Leadership and Competitive Leadership scenarios.

In other commodities, we are evaluating a range of opportunities to produce lithium as well as making demonstrable progress on various critical mineral developments that are essential for the energy transition.

The pace of technological development is uncertain, which could delay or increase the cost of our decarbonisation efforts as well as the ability to fully capitalise on transition opportunities.

For additional information on the resilience of our portfolio, see page 163.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Physical climate risk and resilience

Our business and wider value chain experience a range of impacts associated with extreme weather. As the climate continues to change, so will the frequency and magnitude of events and impacts associated with extreme events. Proactive risk management is crucial for us to operate safely, productively, and profitably, well into the future.

Physical climate risk refers to the adverse impacts that arise from extreme weather and changes in climatic conditions and are typically categorised into two main types:

- **Acute climate risks** involve sudden and extreme events that can lead to rapid and severe impacts. Examples include tropical cyclones, wildfires, heatwaves, extreme rainfall, flooding and hail. Acute risks can disrupt operations, damage infrastructure, impact our people and communities, and result in production downtime and increased operational costs.
- **Chronic climate risks** manifest gradually over time, encompassing challenges such as rising sea levels, increasing air temperatures, and longer-term changes in precipitation patterns. Chronic risks are characterised by a slower onset and progression, requiring longer-term adaptation strategies and planning. Chronic risks can result in reduced resource availability, increased costs (such as water and energy), impacts on productivity and health and wellbeing of our workforce, and can potentially affect supply chain resilience.

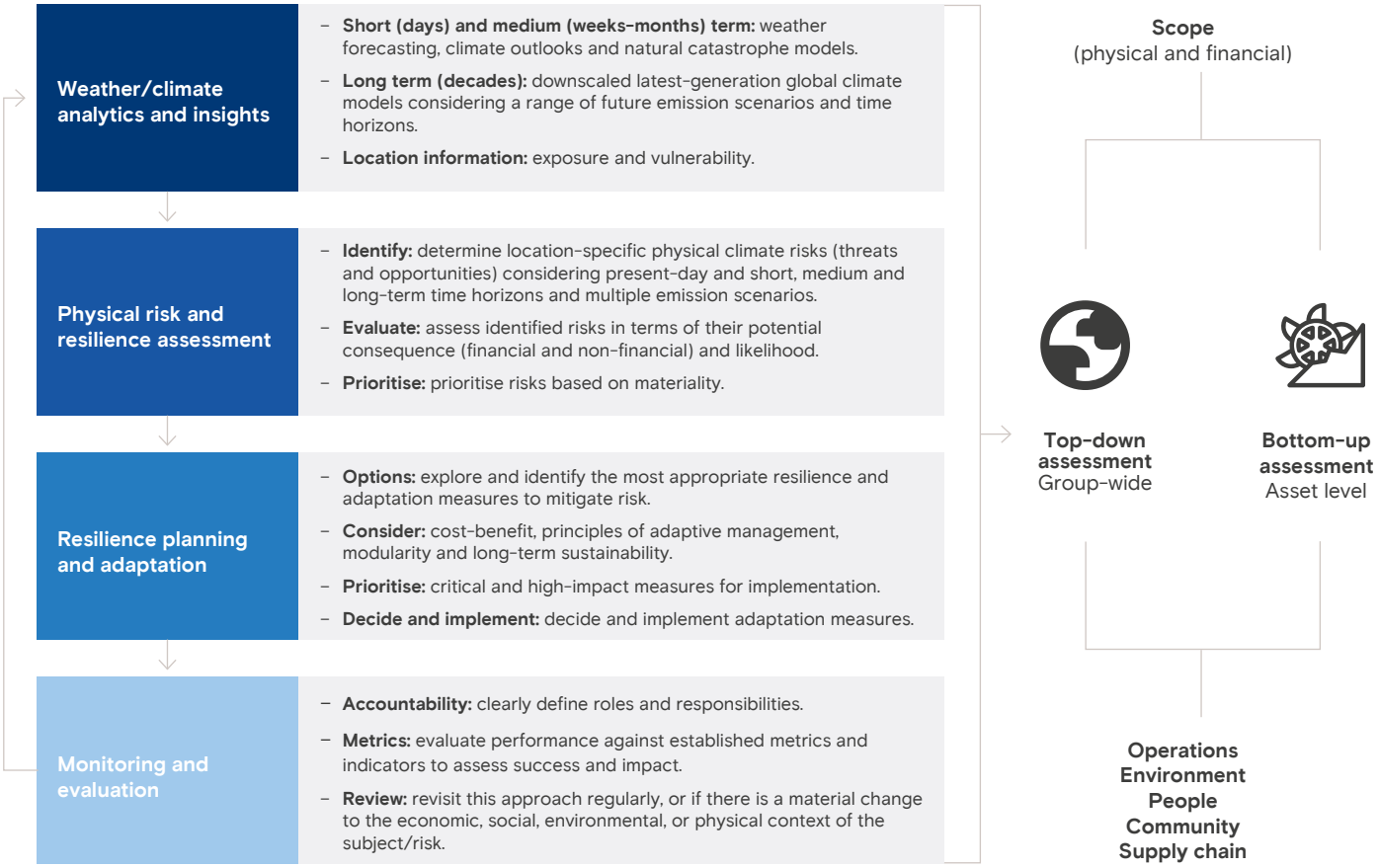
The combination of these two types of climate risk can lead to a compound extreme (such as a landfalling tropical cyclone coupled with higher sea levels) and can accentuate related impacts.

Building resilience to a changing climate means having the capacity to anticipate, adapt to, and recover from the impacts of extreme weather events, ensuring the long-term viability of our assets, our people and communities, and broader value chains.

Our strategy and approach

Taking and managing risk responsibly is essential to operating and growing our business safely, effectively, and sustainably. Enhancing our resilience to physical climate risk is an important component of our approach to climate change and is embedded within our risk management and internal controls framework. Our approach to physical climate risk and resilience is centred around four pillars that guide our risk management and work on adaptation, and is summarised below.

Our approach



Weather/climate analytics and insights

We use the latest-generation weather and climate data products to gain quantitative insights into short, medium and long-term weather and climate risks. The strategic implementation of these advanced tools help manage physical climate risks proactively across our geographically diverse sites and supply chains. Across the Group, we utilise the following tools, the combination of which cater for time horizons and weather and climate risks from hours in the future (operational resilience and short-term decision-making) to decades (long-term strategic and scenario planning).

Product	Time horizon	Variables	Detail and use
Weather forecasts	Short term: hours to days	Atmospheric conditions: temperature, precipitation, wind	Weather and severe weather forecasts used at site-level to inform short-term operational planning and trigger emergency response planning.
Severe weather forecasts	Short term: hours to days	Extreme events: storms, tropical cyclones, flash floods, hail, lightning	
Climate outlooks	Short term: weeks to months	Atmospheric conditions (rainfall outlooks) and extreme events (tropical cyclone outlooks)	Climate outlooks inform operational mine planning and bolster operational resilience and rainy season preparations across our portfolio.
Catastrophe modelling	Short, medium and long term (years to decades)	Extreme events: tropical cyclone, flood	Modelling to estimate potential financial losses and damages that can result from extreme climate events like tropical cyclones and floods.
Climate change projections	Long term: decades	Atmospheric, climatic, oceanic and extreme events	Long-term projections of how acute and chronic hazards may change in the future. Projections are used to inform our asset-level and Global Industry Standard on Tailings Management (GISTM) physical risk and resilience assessments, operations, closure planning and execution, exploration, projects, mine water management, and Group finance and insurance.

Climate change projections are available for every site in our portfolio (including non-managed assets). Downscaled climate change projections are available for over 60 climate change variables and future emission scenarios from the IPCC Coupled Model Intercomparison Project 5 and 6 (CMIP5 and CMIP6). We have completed flood risk modelling for 100% of our managed and non-managed assets considering three future emission scenarios and time horizons spanning present-day, medium and long-term time horizons.

Physical risk and resilience assessment

Our approach to quantifying and assessing physical risk (threats) and resilience is both targeted and systematic, spanning from individual assets (bottom-up) to the Group level (top-down). We first identify climate risks and opportunities across varying and applicable time horizons (present day/short term, medium and long term) and emission scenarios. Next, we evaluate their potential financial and non-financial consequences and likelihood and we prioritise these risks by materiality for effective risk management and appropriate resource allocation. This process is integrated within the Rio Tinto Risk Management Information System. The scope of our assessments includes our operations and the environments in which we operate, our people, the communities that host us, and our supply chain.

Resilience planning and adaptation

Each site, operating context and location is unique. Our resilience planning identifies the most appropriate resilience measures to manage climate risks and adapt to them. This can explore multiple options, weighing up cost-benefit, alongside principles of adaptive management, modularity and sustainability. An investment decision is comprehensively evaluated before funding approval. This includes prioritising projects and engaging key stakeholders to seek alignment on the investment and its implementation.

Monitoring and evaluation

Risks are actively and regularly monitored with clearly defined roles and responsibilities. Adaptation is a continuous and evolving process and we continually evaluate the latest-generation of climate change data and emerging technologies to assess the risk profile of our assets and infrastructure over time. Where a material change to the economic, social, environmental or physical context of the risk has been identified, the assessment process is revisited.

Physical climate risks and impacts

Combining climate insights with a top-down assessment, we have identified eight Group-level material physical climate risks. Identifying and evaluating our most material challenges and significant risks empowers us to implement targeted controls, adaptation strategies and risk management plans, to safeguard our business and ensure a safe, profitable and productive operation in a rapidly changing climate.

While the emergence of climate-related risks varies in response to the evolving nature of the underlying hazards, many of these risks could manifest today. For example, an extreme heat event could impact the health, safety and productivity of our workforce in the short term. However, increases in future temperature means that risks may become more material. The summary table on page 51 takes into account both the short-term risk that could emerge during current operations as well as the long-term risk associated with climate change.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Key

Short term (0–2 years) | Medium term (2–10 years) | Long term (10+ years)

Risk, impact and time horizon	Environmental triggers	Risk management
Tailings storage facility (TSF) containment breach/failure due to geotechnical instability or significant erosion event	Extreme rainfall, flooding	Our facilities comply with local laws and regulations and have risk management protocols in place, including a Group safety standard for tailings and water storage facilities. We regularly update this standard and undergo internal and external assurance checks. Our operational TSFs have, or are developing, tailings response plans and follow strict business resilience and communications protocols. In accordance with the relevant climate change requirements from the GISTM, all TSFs will conduct a climate change resilience assessment by August 2025.
Water shortages, supply and availability impacting operations and production, water treatment and environmental compliance, dust control and community relations	Rainfall, temperature	We use a water risk framework to identify, assess and manage water risks across our portfolio of managed operations. For more information on the water risk framework, see page 59. The framework covers four themes, one of which relates to water supply (water resource). The supply theme requires us to consider whether sufficient water is available to supply both our operational demands and the demands of other stakeholders within the broader catchment, under the range of conditions that are likely to occur over the asset's life. We apply rigorous standards and processes to ensure effective controls are in place at all sites. This includes our Group water quality protection and water management standard, and a standardised Group water management control library which describes all controls identified to manage our water risks. Asset-specific climate change risk and resilience assessments further enable continued improvement of water risk management over time.
Damage to critical coastal infrastructure (shipping berths, ship loaders, stackers/reclaimers, conveyors) resulting in operational and supply chain disruption	Tropical cyclone/ storm, wind, storm surge	Our coastal infrastructure is designed to withstand the wind loading and other impacts associated with extreme events, including severe tropical cyclones. Established business resilience management plans offer frameworks for response, continuity, and recovery in the event of a natural catastrophe scenario, aiming to minimise damage and resume operations swiftly. Our engineering risk assessment program, including asset-level critical risk assessments, considers natural catastrophe modelling and associated risks, if appropriate.
Damage and outages of critical electrical (motors, generators, cooling systems) **and power** (substations, transformers, transmission lines) **infrastructure**	Tropical cyclone/ storm, extreme rainfall, flooding, extreme temperatures, lightning	Electrical and power infrastructure is designed in accordance with local engineering and design standards and internal electrical safety standards and is considered in our asset-specific climate change risk and resilience assessments. Flood risk modelling (surface water, riverine and coastal inundation) incorporating future climate change projections has been completed across our portfolio of managed and non-managed operations.
Damage to critical mining and production infrastructure (eg fixed plant, conveyors) resulting in operational disruption	Tropical cyclone/ storm, extreme rainfall and/or flooding	Critical mining and production infrastructure is designed in accordance with local engineering and design standards and are considered in our asset-specific climate change risk and resilience assessments. Assets located in tropical cyclone-affected regions have appropriate controls to minimise damage and operational downtime. Flood risk modelling (surface water, riverine and coastal inundation) incorporating future climate change projections has been completed across our portfolio of managed and non-managed operations.
Health and safety and productivity of workforce	Extreme heat	Controls are in place to manage the risk of extreme heat for our workforce, including adequate acclimatisation prior to commencing work. Those undertaking high-risk heat tasks are monitored daily for signs or symptoms of heat illness/stress. Operator checklists ensure adequate hydration and work area management. Provision is made for cool rest areas with access to cool drinking water. Our workforce is able to self-pace their workload ensuring regular work/rest breaks.
Disruption to transport routes (maritime, rail, air and road access) **and supply chain** (supplies and critical spares and access to direct customers)	Tropical cyclone/ storm, extreme heat, extreme rainfall, flooding	We are working to better understand the interdependencies across our entire operation. In 2023, we operationalised analytics that provides real-time natural hazard impacts for over 50% of our tier 1-3 goods suppliers. Being alerted of potential supply disruption in real-time allows our teams to make informed decisions to reduce supply chain disruption. This work aims to identify critical components of our product group supply chains and manage the potential adverse impacts from physical climate risk.
Acute and chronic climate change impacting closure objectives	Tropical cyclones/ storms, temperature, rainfall, flooding, sea level rise	The physical impacts of climate change are considered when planning and executing closure. Latest-generation climate change projections specific to the site are used to inform appropriate landform design, water management and vegetation selection. This is to support modelling as per local regulatory requirements and internal closure standards. Ongoing and regular monitoring and maintenance of the site is essential to ensure the effectiveness of closure measures, including monitoring water quality, soil erosion, vegetation growth and any potential contamination or instability issues.

Climate-related metrics and targets

A) Disclose the metrics used by the organisation to assess climate-related risks and opportunities in line with its strategy and risk management process.

B) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 GHG emissions, and the related risks.

C) Describe the targets used by the organisation to manage climate-related risks and opportunities and performance against targets.

We have identified various metrics to monitor our climate-related risks, opportunities and targets. Our decarbonisation strategy is monitored by tracking progress on our abatement projects and reporting Scope 1 and 2 emissions. On Scope 3 emissions, we track our customer engagement on decarbonisation, progress on individual projects and partnerships as well as our emissions.

We provide metrics for transition-related opportunities (the increased demand for transition materials) on page 56. Physical risks metrics include the financial exposure metric and annualised damage metric on pages 57-58.

We have also disclosed other ESG-related KPIs, metrics and targets that integrate with our objective of achieving impeccable ESG credentials within the respective Environmental, Social, and Governance performance sections of this *Annual Report*. A summary of these metrics is found on page 43 with other Group KPIs highlighted on pages 20-22.

Scope 1 and 2: Operational emissions targets aligned with 1.5°C

In 2023, we updated our Scope 2 emissions reporting methodology to align with improved and evolving global GHG emissions reporting standards. Our primary metric for Group emissions is a market-based methodology and we have restated our baseline and current emissions. Further detail on this change in reporting and the implications for our emissions baseline is available in our *2023 Addendum - Scope 1, 2 and 3 Emissions Methodology* report.

While there is no universal standard for determining the alignment of targets with the Paris Agreement goals, we conclude that our Scope 1 and 2 targets for 2030 are aligned with efforts to limit warming to 1.5°C. In 2021, KPMG provided limited assurance over the alignment of our Scope 1 and 2 targets with efforts to limit warming to 1.5°C. They also provided assurance of the roadmap to delivering those targets (as set out in our *2021 Climate Change Report*). KPMG provide assurance over our 2023 reporting of progress on our Climate Action Plan (CAP) commitments as well as on our 2023 Scope 1, 2 and 3 emissions.

Current year progress and update on 2025 target

Our Scope 1 and 2 emissions were 32.6Mt CO_2e in 2023. This is 6% below our 2018 baseline of 34.5Mt CO_2e and slightly below our adjusted 2022 emissions of 32.7Mt CO_2e (adjusted for acquisitions). Abatement delivered by our projects in 2023 exceeded emissions growth from higher production giving a slight reduction in emissions on a like for like basis.

Our 2023 emissions were slightly higher than our actual 2022 emissions total of 32.3Mt CO_2e due to the recent acquisitions of additional equity in OT and MRN.

Against a backdrop of rising production, the emissions reductions achieved since 2018 are mostly the result of decarbonising power. These include PPAs at Escondida and the purchase of renewable energy certificates (RECs) at our Kennecott and Oyu Tolgoi copper operations.

The scale of our commitments on abatement projects has increased rapidly since we reset our Scope 1 and 2 emissions targets in October 2021. In 2023, we have made project commitments which deliver abatement of around 2Mt CO_2e per year, mostly in renewable energy contracts and certificates, and biofuels deployment.

By 2025 we expect to have made financial commitments to abatement projects that will achieve more than 15% of Group emissions. However, our actual emissions abatement will lag this.

These delays are the result of a range of factors including engineering and construction timelines, pace of development related to new technology and energy systems in the locations we operate, and the need to carefully integrate our ambitions with the needs of our local communities and stakeholder groups. We also need additional abatement to address underlying emissions growth as our production plans evolve.

Progress to our 2030 target

Between now and 2030, the most significant opportunities to reduce our Scope 1 and 2 emissions are to switch the electricity we generate or purchase to renewables, and to address process heat emissions from our alumina refineries.

To reach our 2030 goals, our single largest lever - accounting for around one-quarter of our emissions - is to develop a competitive renewable energy solution for the Boyne and Tomago aluminium smelters in our Pacific Aluminium Operations (PacOps). In December 2023, we signed a PPA to buy all the electricity, and associated green products to be generated in the future, from the 1.1GW Upper Calliope Solar Farm project, which if combined with more renewable power and suitable firming, transmission and industrial policy, could provide part of a solution to repower Rio Tinto's three Gladstone production assets (Boyne aluminium smelter, Yarwun alumina refinery and the Queensland Alumina Limited (QAL) alumina refinery). Once approved and developed, this solar project has the potential to reduce operating carbon emissions by 1.8Mt per year.

We must also execute other key projects in our pipeline related to renewable electricity contracts and alumina processing heat reductions to meet our 2030 target.

We expect to make financial commitments before the end of the decade that will result in structural abatement of our portfolio beyond 2030. This demonstrates our continued commitment towards our net zero goal.

In 2023, we built a 5MW solar plant pilot project at Kennecott Copper. We approved, subject to regulatory approvals, a 12.4MW solar system and a 2.1MWh battery storage system via long-term PPAs for Amrun. There have been continued discussions on the proposed coastal Pilbara solar photovoltaic with stakeholders and we progressed studies for further solar and wind developments.

In alumina processing, we have developed a decarbonisation energy strategy for Yarwun and QAL refineries. We have progressed our double digestion pre-feasibility study at QAL which includes the construction and commissioning of a pilot plant to provide technical inputs to support the study. Electric boiler feasibility studies have progressed at Vaudreuil and we have also approved the Yarwun Hydrogen Calcination Pilot Demonstration Program. .

Voltalia began Phase 1 construction of a 130MW solar farm for Richards Bay Minerals (via PPA) and construction has also commenced on the 16MW Phase 2 Wind project at QIT Madagascar Minerals.

In the Pilbara, we remain committed to building 1GW of renewable energy capacity. However, due to the extended timeline for deployment of battery electric haulage solutions, we now estimate that 600MW to 700MW capacity is required by 2030.

We have completed the commercial and technical due diligence of the submissions for supply of renewable electricity to Gladstone aluminium assets. In 2024, we aim to progress renewable energy supply for Boyne Smelter, launch a Request for Proposal for renewable energy projects for Tomago, and seek renewable energy and storage capacity for Tranche 1 of electrification at the Gladstone alumina refineries.

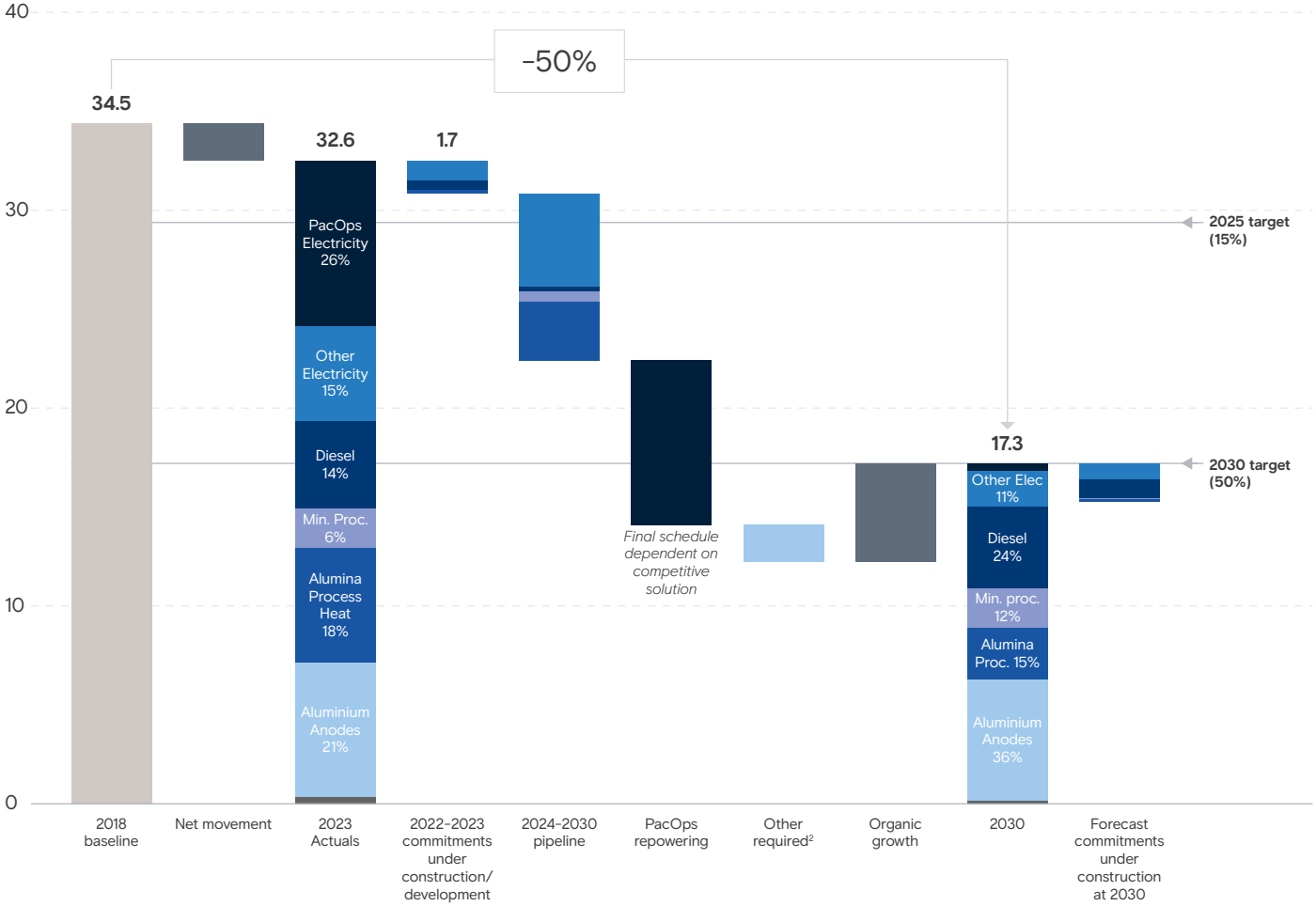
While prioritising emissions reductions at our operations, we are also investing in nature-based solutions (NbS) that can bring benefits to people, nature and climate. We may retire high quality carbon credits generated by these projects towards our 2030 targets. This will complement our abatement project portfolio – which aims to reduce operational emissions by 50% by 2030 – and support our compliance with carbon pricing regulation such as the Safeguard Mechanism in Australia. Our emissions reporting will continue to transparently distinguish between our underlying operational emissions, the volume and type of carbon credits retired and net Group emissions.

In 2023, our net emissions total does not include 86,000 ACCUs retired for compliance with the Safeguard Mechanism for the period 2021-22. We expect to include ACCUs in our net emissions figure from 2024 onwards.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Pathway to our 2030 Scope 1 and 2 emissions target

(Mt CO_2e, equity basis)[1]



Note: small differences in chart attributable to rounding.

1. Restated emissions due to Scope 2 methodology changes. Data represent gross Scope 1 and 2 emissions and direct abatement projects.
2. "Other required" will flex over time based on abatement project delivery, growth, closures and asset changes.

Scope 3: Partnering to reduce the carbon footprint of our value chains

In 2023, our Scope 3 emissions were 578.1Mt CO_2e (equity basis), approximately 18 times higher than our Scope 1 and 2 emissions. Most of these emissions (94%) stem from customer processing of our products, particularly iron ore (69%) and bauxite and alumina (22%).

Scope 3 processing emissions related to our iron ore rose from 386.6Mt CO_2e in 2022 to 399.9Mt CO_2e in 2023 primarily due to an increase in production.

Downstream processing emissions from bauxite and alumina decreased from 147.3Mt CO_2e in 2022 to 129.8Mt CO_2e mostly as a result of reduced emission intensities related to aluminium smelting in China.

We have seen a significant increase in the number of our customers setting public targets for their Scope 1 and 2 emissions (our Scope 3). About 53% of our total iron ore sales are now to steel producers with existing public targets to reach net zero by 2050, up from about 50% in 2022 and 28% in 2021. Meanwhile, nearly 40% of our bauxite sales are to customers with net zero emissions targets, though only 13% of this is to companies aiming for net zero by 2050. As these numbers rise, we expect to enhance our ability to partner through the value chain to achieve our common sustainability objectives.

As things stand today, our analysis of our customers' targets and their governments' commitments to reduce their emissions, shows a trajectory for those processing emissions that approaches net zero by around 2060.

We are committed to partner with our customers and suppliers to find better ways to help them achieve their targets a decade earlier – reaching net zero by 2050.

To do this, we are investing in the development of breakthrough technologies aiming to help decarbonise our value chains and upgrading our ores to be suitable for these.

As the world's largest iron ore producer, we have a key role to play in decarbonising the steel industry. We are currently working with over 40 partners across 50 projects in 10 countries. Supported by research on our ore bodies, our objective is to unlock the most sustainable and economic pathways for our iron ores.

To reduce our Scope 3 emissions, we have defined 4+2 focus areas to address our Scope 3 emissions. These include our four most significant categories considering the magnitude of emissions and our ability to drive meaningful incremental impact – steel, alumina refining, shipping and procurement decarbonisation. In parallel, we are also working on two transversal programs aimed at leveraging our size and scale to support collective industry and policy action and enhancing emissions transparency across our value chains.

Steel value chain: We are actively working with our customers to help reduce their carbon emissions from the current blast furnace process. We have progressed the design plan of the Baowu Meishan microwave lump drying pilot plant and are also testing increased lump usage in the blast furnace with POSCO and Zenith. An economically viable carbon capture technology with Shougang that could capture blast furnace gas is also currently in development.

As part of our focus on emerging pathways, we aim to utilise our high-grade iron ores to accelerate the early proliferation of low-carbon technologies. During the year, we signed a multi-year agreement to supply high grade direct reduction iron ore pellets from IOC operations to H_2 Green Steel's integrated steel plant. We are also evaluating a portfolio of options in energy-advantaged regions (Canada, US, Europe, Australia, and the Middle East) to accelerate the build-out of natural gas and, eventually, hydrogen shaft furnace solutions.

Due to the scarce availability of high-grade ore, the main focus of our research and development is on a range of new technologies that unlock competitive low-carbon pathways for low and medium-grade iron ores.

We are working to solve the key constraints to this, notably removing impurities found in low-mid grade iron ores prior to/during iron and steel making.

We are currently evaluating the extent to which impurities can be economically removed from our Pilbara blend ores prior to processing and have completed mineral resource and inventory reviews to understand how much of our future reserves are suitable for upgrading. Our detailed feasibility study related to Biolron™ has been completed and we have progressed research on the pelletisation of Pilbara ores.

In 2023, we spent $28 million on steel decarbonisation initiatives, and have set specific action-oriented targets for steel decarbonisation.

We estimate that we will spend $100 million on steel decarbonisation in 2024. Approximately one third of this will be capital expenditure on Biolron™ (subject to approvals and technical feasibility), with the remainder being operational expenditure on our other partnerships.

Aluminium value chain: The majority of our product is processed in China using coal-fired refining and smelting processes, where we have little influence over the power source for these electricity grids. Because of this, our short-to-medium-term focus is to help our customers improve the alumina refining process to increase energy efficiency and optimise the use of our bauxite. This is mostly via sweetening and improved digestion and renewable energy for heat source via hydrogen calcination and electric boilers in the longer term.

In 2023 we worked with three key customers representing more than 47% of our bauxite sales, to shortlist potential areas for future collaboration and we are now developing action plans to collaborate in priority ESG areas.

Procurement: Due to the nature of our businesses, many of our purchased inputs are from hard-to-abate sectors, such as caustic, coke, pitch and steel. In 2023 we completed a study to understand the sources of our procurement-related emissions. This enhanced our understanding of the sources and nature of our procurement-related emissions, including our highest emitting categories and suppliers, and potential abatement solutions.

Shipping: Our Scope 3 emissions from shipping and logistics are 9.2Mt CO_2e. We have achieved a 37% emissions intensity reduction relative to 2008 by incorporating larger, more efficient vessels such as Newcastlemaxes into our fleet, implementing various design improvements and technical modifications, and by ensuring the implementation of speed and route optimisation measures.

We continue to explore opportunities for biofuels and liquid natural gas (LNG) and are focused on bringing dual fuel, net zero vessels into our portfolio by 2030.

Although the economics of implementing these fuels remain challenging, a 12-month biofuel trial has been completed on our owned vessels which affirmed the fuel's technical viability for existing vessels.

Scope 3 near-term targets

By holding ourselves accountable on real and measurable commitments in the near term, we can help to make sure technologies are developed early enough to accelerate the transition in the long term.

Therefore, this year we have set specific near-term targets for steel, alumina refining, shipping and procurement decarbonisation.

To accelerate steel decarbonisation, we have set targets to support our customers to reduce blast furnace emissions by 20-30% by 2035, halve our Scope 3 emissions from IOC by 2035[1] relative to 2022 levels, commission the Biolron™ continuous pilot plant (CPP)[1], shaft furnace (DRI) and Electric Smelting Furnace pilot plant by 2026 and finalise the Pilbara beneficiation pilot plant study by 2026.

In alumina decarbonisation, we are committing to partnerships with the goal of improving energy efficiency, specifically via implementing and validating digestion improvement technology and developing approaches to control or remove organic compounds from the refining process. We are also committing to developing technologies that reduce moisture in our bauxite.

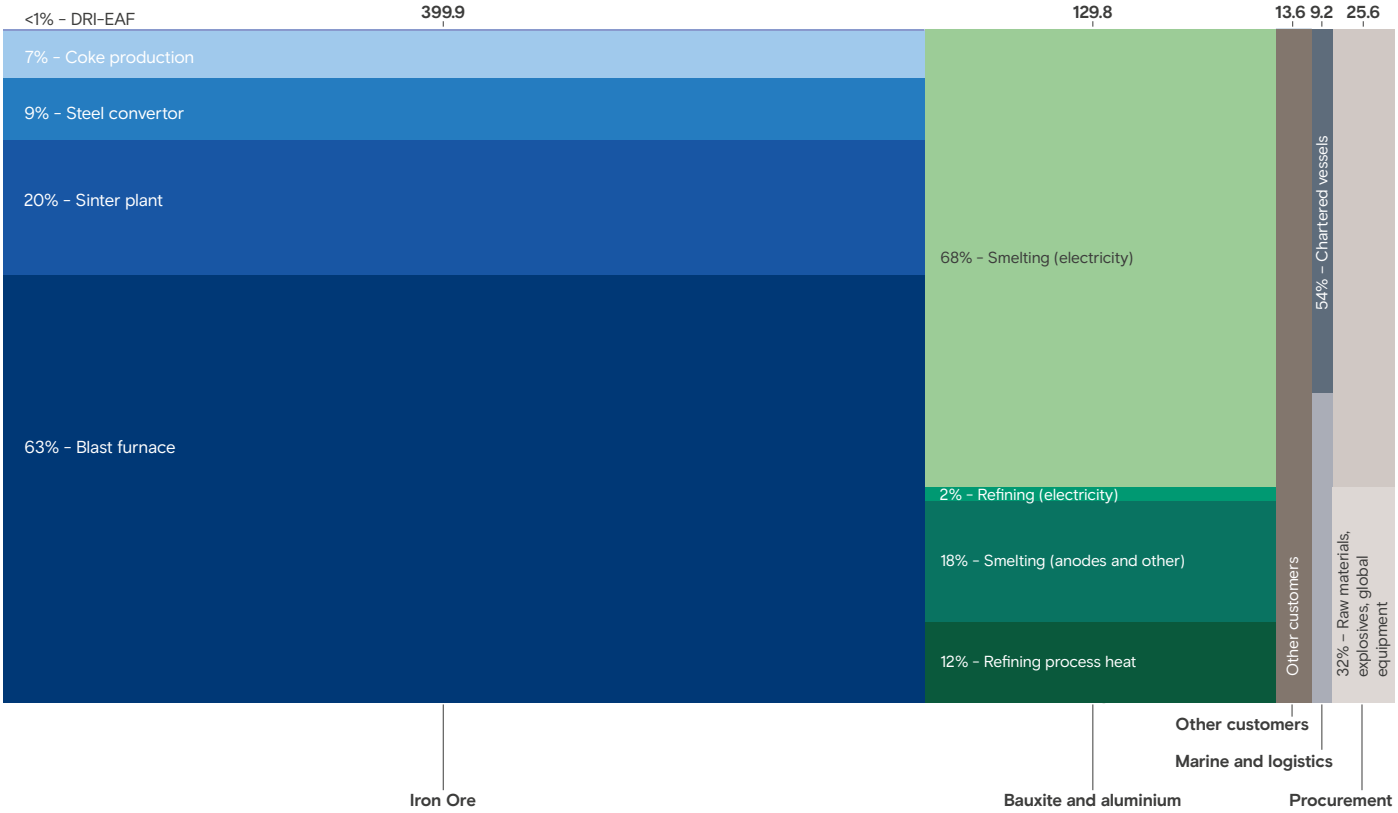
In relation to shipping emissions, we are aiming to reach net zero by 2050, have 10% of our chartered fleet using net zero fuel by 2030 (as per our First Movers Coalition pledge), achieve a 40% emissions intensity reduction by 2025 with a 50% reduction by 2030, and improve emissions reporting accuracy using actual voyage data in 2024.

To help decarbonise our procurement, starting in 2024, we will engage with our top 50 suppliers on decarbonisation and incorporate it as a key criterion for all new sourcing in high-emission categories.

1. Subject to funding approval and technical feasibility.

2023 Scope 3 emissions by category and source (equity basis)

578.1Mt CO_2e (2022: 583.9Mt CO_2e)



Scope 1 and 2 greenhouse gas emissions – equity basis (Rio Tinto share[1]). Performance against target

Equity greenhouse gas emissions (Mt CO_2e)	2023	2022	2018
Baseline Scope 1 and 2 emissions	**32.6**	32.7	
Carbon offsets retired	**0**	0.0	
Baseline net Scope 1 and 2 emissions[2]	**32.6**	32.7	
2018 emissions target baseline (adjusted for acquisitions and divestments)			34.5

Our 2030 greenhouse gas emissions targets are to reduce our absolute Scope 1 and 2 emissions by 15% by 2025 and 50% by 2030 compared with our 2018 equity baseline. Please see page 150 of this report and our *2023 Addendum - Scope 1, 2 and 3 Emissions Calculation Methodology* report for further detail on our emissions reporting methodology.
Changes to our 2018 baseline include: Scope 2 update to market-based methodology, the additional equity share of the Oyu Tolgoi mine that was purchased in mid-December 2022, and the additional equity share of MRN purchased in 2023 so a like-for-like comparison can be done on progress. We have also adjusted our 2022 emissions total to compare our actual progress on abatement in 2023 relative to other changes at our operations.
The baseline value is based on the current equity in each asset, including zero equity in divested assets.This differs from the "Scope 1, 2 and 3 greenhouse gas emissions - equity basis" table which does not get adjusted with asset or equity changes.
1. Rio Tinto share (equity basis) represents emissions from our benefit or economic interest in the activities resulting in the emissions.
2. Scope 2 emissions in the Baseline are calculated using the market- based method.

Scope 1, 2 and 3 greenhouse gas emissions – equity basis

Equity greenhouse gas emissions (Mt CO_2e)	2023	2022	2021	2020	2019
Scope 1 emissions	23.3	22.7	22.9	23	23.1
Scope 2: Market-based emissions[1]	9.3	9.6	10.1	10.4	9.9
Total Scope 1 and 2 emissions	32.6	32.3	33	33.4	33
Carbon offsets retired[2]	0	0	0	0	0
Total net Scope 1 and 2 emissions (with offsets retired)	32.6	32.3	33	33.4	33
Scope 2: Location-based emissions[3]	7.8	8.2	8.5	8.6	8.1
Scope 3 emissions	578.1	583.9	558.3	576.2	—
Operational emissions intensity (tCO_2e/t Cu-eq)(equity)[4]	6.8	7	7.2	7	6.8
Direct CO_2 emissions from biologically sequested carbon (eg CO_2 from burning biofuels/biomass)[5]	0.03	0	0	0	0

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 2023 equity emissions and our 2018 baseline include QAL emissions on the basis of Rio Tinto's 80% ownership. In 2023, the additional emissions associated with the step-in were 0.8Mt. 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. Scope 2: Market-based emissions reported as zero include Escondida, Resolution Copper, Weipa and Kennecott Copper with surrendered Renewable Energy Certificates (RECs) and Oyu Tolgoi I-RECs from Inner Mongolia and nearby provinces. QMM has a wind and solar contract with energy attributes.
2. In 2023, we did not reduce our reported net emissions by using any surrendered carbon units as eligible offsets retired. Our net emissions total does not include 86,000 ACCUs retired for compliance with the Safeguard Mechanism for the period 2021-22. We expect to include ACCUs in our net emissions figure from 2024 onwards.
3. Scope 1 and 2 equity emissions total – Location-based: 31.1Mt CO_2e.
4. Historical information for copper equivalent intensity has been restated in line with the 2023 review of commodity pricing to allow comparability over time.
5. GHG Protocol Corporate accounting and reporting standard recommends disclosure of CO_2 emissions from biologically sequestered carbon for transparency. These are from biofuel use and are not classified as our Scope 1 emissions.

2023 equity greenhouse gas emissions by location (Mt CO_2e)	Scope 1 Emissions (Mt CO_2e)	Scope 2 Emissions[1] (Mt CO_2e)	Total Emissions (Mt CO_2e)
Australia	13.0	6.3	19.2
Canada	6.4	0.0	6.4
Africa	0.5	1.3	1.8
US	0.9	0.0	0.9
Europe	0.3	1.7	2.0
South America	0.5	0.0	0.5
Mongolia	0.2	0.0	0.2
New Zealand	0.5	0.0	0.5
Other	0.9	0.1	0.9
Total	**23.3**	**9.3**	**32.6**

1. Scope 2 emissions in this table are calculated using the market-based method.

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

Transition materials metrics

The following table provides metrics related to the first two pillars of our business strategy (grow in materials essential for the energy transition and accelerate the decarbonisation of our assets).

These metrics are production, revenue, capital expenditure, operating assets and emissions associated with each of our products. These products are classified as key transition materials (KTM) and other transition materials (OTM) aligning with the CA100+ Net Zero Standard for Diversified Mining Companies. The table also includes iron ore and gold as transition neutral materials (TNM). We divested the last of our coal assets in 2018.

Commodity	Classification	Year ended 31 December	Production[1]	Revenue[2] US$m	Capital expenditure[3] $m	Operating assets[4] $m	Emissions Mt CO_2e[5,6]	2024 Guidance Rio Tinto production share, unless otherwise stated
Lithium	KTM	**2023**	**–**	**–**	**27**	**834**	**–**	**–**
('000 tonnes)		2022	–	–	15	835	–	–
Copper[7] (Mined)	KTM	**2023**	**562**					
('000 tonnes)		2022	521					
Copper[7] (Refined)	KTM	**2023**	**175**					
('000 tonnes)		2022	209					
Silver (Mined)	OTM	**2023**	**3,811**					
('000 ounces)		2022	3,940					
Silver (Refined)	OTM	**2023**	**1,407**	**2023: 6,625**	**2023: 2.474**	**2023: 21.046**	**2023: 1.1**	Mined copper: 660 to 720kt
('000 ounces)		2022	1,950	2022: 6,618	2022: 1,942	2022: 18,463	2022: 1.7	Refined copper: 230 to 260kt
Molybdenum	OTM	**2023**	**2**					
('000 tonnes)		2022	3					
Gold (Mined)	TNM	**2023**	**282**					
('000 ounces)		2022	235					
Gold (Refined)	TNM	**2023**	**74**					
('000 ounces)		2022	114					
Aluminium[8]	OTM	**2023**	**3,272**	**9,272**	**906**	**11,919**	**17.2**	3.2 to 3.4Mt
('000 tonnes)		2022	3,009	10,738	925	10,131	16.5	
Alumina[8]	OTM	**2023**	**7,537**	**1,288**	**325**	**1,315**	**5.9**	7.6 to 7.9Mt
('000 tonnes)		2022	7,544	1,636	356	2,400	5.7	
Bauxite[8]	OTM	**2023**	**54,619**	**1,648**	**226**	**2,649**	**0.9**	53 to 56Mt
('000 tonnes)		2022	54,618	1,607	204	2,458	0.9	
Minerals[9]	OTM/TNM	**2023**	See footnote	**3,240**	**380**	**4,102**	**2.8**	Titanium dioxide slag:
('000 tonnes/carats)		2022	10	3,485	332	3,955	3.0	0.9 to 1.1Mt
Iron Ore	TNM	**2023**	**290,171**	**33,772**	**3,193**	**20,581**	**3.7**	IOC[11] iron ore pellets and concentrate: 9.8 to 11.5Mt
('000 tonnes)		2022	283,247	32,801	3,273	19,525	3.7	Pilbara iron ore (shipments, 100% basis): 323 to 338Mt
Metallurgical Coal	Not applicable	**2023**	**–**	**–**	**–**	**–**	**–**	**–**
('000 tonnes)		2022	–	–	–	–	–	–
Thermal Coal	Not applicable	**2023**	**–**	**–**	**–**	**–**	**–**	**–**
('000 tonnes)		2022	–	–	–	–	–	–

Further notes on production and capacity

Mined copper: On track for 1Mt copper production within five years.
Recycled aluminium (Matalco): System capacity of 900kt; production of 582kt in 2023.
Lithium carbonate (Rincon 3000): System capacity of 3,000 tonnes by the end of 2024.
Iron ore (Pilbara System): System capacity of 345–360Mt mid-term.
Iron ore dual fines product of blast furnace and direct reduction fines (Simandou): 60Mtpa production target (Rio Tinto share of 27Mt). The estimated annualised capacity of approximately 60 million dry tonnes per annum iron ore for the Simandou life of mine schedule was previously reported in a release to the ASX dated 6 December 2023 titled "Investor Seminar 2023". Rio Tinto confirms that all material assumptions underpinning that production target continue to apply and have not materially changed.

1. Production figures are measured according to Rio Tinto's ownership % share of each site. For further details on the share %, see pages 297 and 298 of the *Annual Report* where these have been highlighted.
2. Revenue reflects third party sales by product on a consolidated basis inclusive of our share of equity accounted units.
3. Capital expenditure is the net cash outflow on purchases less sales of property, plant and equipment, capitalised evaluation costs and other intangible assets, inclusive of our share of equity accounted units and reported by product.
4. Operating assets by product recorded above are the net assets of subsidiaries, joint operations and the Group's share relating to equity accounted units adjusted for net (debt)/cash and post-retirement assets and liabilities, net of tax, after the deduction of non-controlling interests.
5. Scope 1, 2, and 3 emissions are measured on an equity basis and align to the Rio Tinto ownership % share used to record production values. For additional information on our emissions methodology, see our *2023 Sustainability Fact Book* at riotinto.com/sustainabilityreporting.
6. The emissions in this table are Scope 1 and 2 GHG emissions for the operating sites producing the commodity listed. The total differs from the full Group share reported numbers as these exclude development, closure sites, marine and corporate emissions.
7. Copper production from Oyu Tolgoi, Kennecott and Escondida has been certified under the Copper Mark system. The Copper Mark certification for Escondida has been obtained via BHP who is the majority partner.
8. For a list of assets certified under the Aluminium Stewardship Initiative, see our *2023 Sustainability Fact Book*.
9. Minerals comprise titanium dioxide slag (KTM), borates (TNM), salt (TNM) and diamonds (TNM).
10. 2023 Mineral production is as follows:
    - Titanium dioxide slag ('000 tonnes): 1,111 (2022: 1,200)
    - Borates ('000 tonnes): 495 (2022: 532)
    - Salt ('000 tonnes): 5,973 (2022: 5,757)
    - Diamonds ('000 carats): 3,340 (2022: 4,651)
11. Iron Ore Company of Canada continues to be reported at Rio Tinto share.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Physical climate risk and resilience

Modelling financial exposure to physical climate risk

Throughout 2023, we advanced our climate physical risk modelling, in collaboration with our climate risk consultants Marsh, and used modelling from XDI. Our latest analysis estimates the expected financial losses for individual assets, considering various time horizons and emission scenarios caused by discrete physical climate hazards. This analysis shows the potential financial losses associated with asset damage, but excludes the losses associated with business interruption or productivity loss. The latter, while considered in the formulation of the analysis, was excluded due to the complexity of our value chain and the increased subjectivity of loss attribution. This aspect may be considered in future years and requires further analysis to fully assess financial consequences.

Understanding and quantifying our financial exposure to these physical climate risks is important for prioritising our adaptation and investment decisions, safeguarding our assets, maintaining operational resilience, ensuring long-term profitability, and aligning with the evolving expectations of investors, regulators and stakeholders.

This modelling process and methodology considers the following:

1. **Asset portfolio:** encompasses a significant breadth of assets, including mining assets and critical infrastructure components, which are integral to our operations. Our modelling has considered over 18,000 individual points, each with unique latitude and longitude coordinates, representing assets across 76 sites in 18 countries. Assets are geolocated, facilitating the assessment of climate-related risks and hazards to their specific geographic location. Each point is assigned one of 28 asset archetypes, representing our diverse asset base. These archetypes best define the engineering characteristics and specifics of that point and determine the vulnerability to damage by different climate hazards. Archetypes do not capture unique design and engineering attributes of each asset.

   Only active industrial and mining facilities were modelled, including non-managed operations. Corporate offices and remote operation centres have been modelled but are not presented in this analysis. Assets in our closure portfolio have not been modelled, but are considered in bottom-up physical risk and resilience assessments.

2. **Climate scenarios, time horizons and hazards:** modelling considers two future emissions scenarios - Representative Concentration Pathways (RCPs) - from the IPCC, including RCP4.5 (intermediate greenhouse gas emission scenario) and RCP8.5 (high greenhouse gas emission scenario).

Emission scenario	Description and outcome
Intermediate emissions scenario IPCC Representative Concentration Pathway 4.5 (RCP4.5)	Emissions peak around 2040, then decline. Relative to the 1986-2005 period, global mean surface temperature changes are likely to be 1.1°C-2.6°C by 2100.
High emissions scenario IPCC Representative Concentration Pathway 8.5 (RCP8.5)	Emissions continue to rise throughout the 21st century and is considered a worst-case climate change scenario. Relative to the 1986-2005 period, global mean surface temperature changes are likely to be 2.6°C-4.8°C by 2100.

Source: The Intergovernmental Panel on Climate Change

   Our physical climate risk modelling considers present day (short term) and future risks. Multiple future time horizons are modelled, including 2030 (medium term), 2040 and 2050 (long term). Eight climate hazards are modelled in this analysis, including flooding (riverine and surface water), coastal inundation, including sea level rise, extreme heat, cyclonic wind, extreme wind, forest fire and freeze-thaw.

3. **Annualised damage (AD):** the output of the modelling is calculated for each asset under various climate scenarios, time horizons and hazards. AD, expressed as a percentage, represents the expected average annual damage to an asset attributable to climate-related hazards relative to a fixed value (eg $1 million). As such, an AD of 0.5% would mean that for every $1 million of exposure, $5,000 could be damaged, on average, in any given year.

   Asset-specific outputs have been aggregated to the site, region and Group level. Risk categorisation is based on the AD values, with thresholds set at <0.2% for low AD risk, 0.2-1% for medium AD risk, and >1% for high AD risk.

   Estimates consider a stationary "do nothing" approach for our operating assets and does not consider present or future controls, adaptation/resilience projects that will likely materially impact our AD cost.

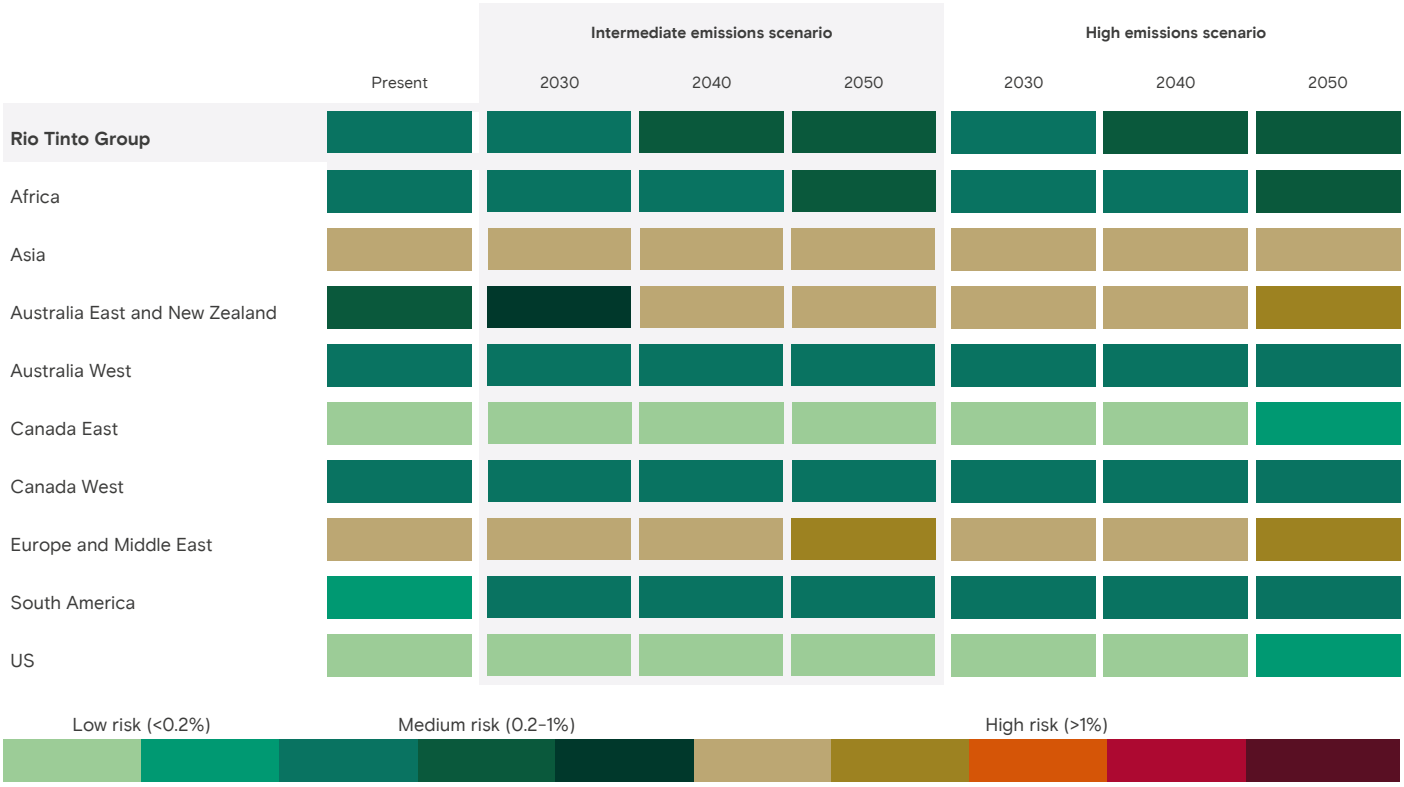
Annualised damage risk scores

At the Group level, present day AD losses fall within the initial range of the medium AD risk category (0.2-1%). Considering projected future emission scenarios by 2050, increases in AD are expected. This places the Group's AD in the intermediate range of the medium AD risk category, potentially exceeding a two-fold rise from present values.

Currently, across nine core climate geographies where we operate, the risk of AD is low in three regions, medium in five and high in two. Notably, sites located in Asia, the Middle East and Guinea are the primary contributors to the highest risk classification. In both the intermediate and high emissions scenarios, by 2050, eastern Australia and New Zealand are also expected to be classified as high risk with up to a four-fold increase in AD. This is principally due to the potential effects of coastal inundation, surface water flooding and cyclonic winds. Other notable increases in risk are in Europe and the Middle East (an approximate 60% increase). The risk trend in Asia is steady through time.

In assessing the risk of various hazards under different emissions scenarios projected for 2050, there is a notable shift in the risk profile for various perils across our operating sites. The number of sites at risk from coastal inundation, riverine flood and surface water flood increase under both future emission scenarios. Of all hazards, riverine flood sees the largest increase by 2050 under a high emissions scenario. The number of operating sites at risk from cyclonic wind, extreme wind, forest fire, freeze-thaw and soil subsidence are not expected to materially change with future emissions scenarios.

Annualised damage risk | Group and regional



Considerations and limitations

In our 2023 climate physical risk modelling analysis, we acknowledge several limitations and uncertainties inherent in the methodology and the long-term nature of the assessment.

Climate change modelling is subject to inherent uncertainties stemming from the dynamic nature of the Earth's climate system and from the unpredictability of future GHG emissions. Climate change scenarios should be regarded as representations of a plausible future (what may happen in the future) and not as forecasts or predictions (what will happen in the future). These factors contribute to a range of possible outcomes. However, despite these challenges, such models are useful for assessing potential risks and informing strategic decision-making for climate-resilient infrastructure and adaptation.

Furthermore, the accuracy of our analysis is contingent upon the quality and completeness of asset data and asset operating status. We have assumed there is no change in our operating assets and their value, not accounting for potential changes in types of operations, locations or design standards over time. Each asset was assigned an appropriate archetype, which best defines its engineering characteristics and subsequent vulnerability to specific hazards. This does not fully capture the unique design and engineering attributes of each asset, which may impact the resultant risk profile.

This analysis represents our initial perspective and is iterative, evolving with new scientific insights, climate projections, and advancements in risk modelling. We plan to regularly update this analysis to reflect our dynamic asset base.

The outcomes of this work will inform our areas of focus and refine our physical resilience program for 2024.

2023 progress on physical risk and resilience

Throughout 2023, we made progress on quantifying, managing and adapting to our physical climate risks.

- **Advancing our bottom-up physical resilience assessments:** progress in the Pilbara centered on further validation and quantification of physical climate-related risks from the 2022 climate change assessment and progress embedding physical resilience into business-as-usual management actions. We also conducted asset-level resilience assessments across our Canadian sites, including those in Saguenay, BC Works and IOC, as well as at our Simandou Iron Ore Project in Guinea and at Weipa and Yarwun in Australia. We have completed flood risk screening for all of our managed and non-managed assets.
- **Quantifying our top-down financial risk exposure:** scenario analysis was conducted across our global portfolio to quantify the financial impacts of physical climate risk.
- **Global Industry Standards on Tailings Management (GISTM):** in accordance with GISTM guidelines, we initiated a climate resilience assessment process for our tailings storage facilities (TSFs). The approach tests the design basis of each TSF component considering future climate change. Initially focused on 14 extreme and high-risk consequence TSFs, which we completed in 2023. Assessments for all remaining facilities will be completed by August 2025.
- **Technical adaptation and guidance:** in 2023, we developed a new internal leading practice guideline on how to incorporate climate change into mine water management planning. This guidance provides insights on when and how to model the impacts of climate change to inform hydrological design.
- **Supply chain:** this year, we operationalised analytics that provide real-time natural hazard monitoring for 50% of our supply chain (tier 1-3 goods suppliers). Being alerted of potential supply disruption in real time provides our teams with the opportunity to make informed decisions to reduce supply chain disruption.

In 2024, we will progress bottom-up physical risk and resilience assessments across our operating sites and across our TSFs, in accordance with the GISTM. Climate physical risk modelling completed in 2023 has provided us with valuable data which will be used to focus our activities in 2024 and beyond.

For more information on physical risk and resilience see riotinto.com/climaterisk.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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.

2023 progress

In 2023, we continued to strengthen our approach to environmental risk management by updating and implementing a shared language, developing a standardised set of controls and associated performance requirements and ensuring we are assessing the full breadth of potential environmental impacts in a consistent way across our business. This is evident in our Group environmental risk taxonomy and consequence descriptions for risk and incidents.

As a forum member of the Taskforce on Nature-related Financial Disclosures (TNFD), we have undertaken pilots of the prototype risk management and opportunity disclosure framework at our Simandou site in Guinea and at Greater Hope Downs in Australia. The final framework was released in September 2023. Through our membership with ICMM, we are engaging with our industry peers to develop mining sector-specific guidance for TNFD. We have also refreshed our approach to managing nature-related risk and are developing a pathway to increasing our environment-related disclosures in line with the requirements of TNFD. As part of the Health, Safety, Environment and Security Transformation Program, we continue to improve how we manage our environmental data. Access to trusted and timely environmental data across all Saguenay–Lac-St-Jean sites is supporting decision making, meeting the growing demand for transparency and enabling us to set meaningful targets for continuous improvement in environmental performance. A project is underway to optimise environmental data collection across the business, leveraging existing tools as much as possible.

We have also worked to build a more consistent approach to environmental management and embed it across our business processes throughout the lifecycle of our operations. To support our assets in managing their overall health, safety and environmental performance, we continue to evolve our approach. We recently incorporated environmental and health risk ownership and performance management into our safety maturity model (SMM).

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 ecosystems 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 2030 water stress as determined by the World Resource Institute (WRI) to identify operational catchments of most concern.

For more information
see www.riotinto.com/water.

First major mining company to publish site-by-site water usage data

In 2023, on World Water Day, we became the first major mining company to release our site-by-site water usage. The interactive online map shows surface water usage across our global network of managed sites in 35 countries.

For each site included, the database shows permitted surface water allocation volumes, annual allocation usage and the associated catchment runoff from average annual rainfall estimates.

These disclosures allow us to engage closer with our stakeholders and be even more transparent, while we continue to focus on becoming better water and land stewards for future generations.

For more information
see www.riotinto.com/watermanagement.

Group water risk profile (percentage 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 2023, we continued to embed the Group water control library, a suite of critical controls and their associated performance requirements 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. Below we give examples of how the risk framework has been applied across some of our assets with site-based targets.

Not applicable | Low risk | Moderate risk | High risk | Very high risk

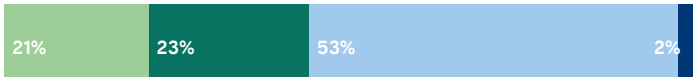
Water resource

Is there enough water available for both environment needs, 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.

2023 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 ICMM and global reporting initiatives.

We also report on our aggregated water balance for sites in water-stressed areas. We assess water stress using the WRI's Aqueduct Water Risk Atlas mapping tool.

For more information
see our *2023 Sustainability Fact Book* at riotinto.com/sustainabilityreporting.

Our water numbers

Our total operational withdrawals for 2023 were 1,170GL (2022: 1,173GL.). Freshwater, or category 1 quality, withdrawals accounted for 424GL or 36% of this total (2022: 432GL). 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 2023 were 692GL (2022: 694GL). Total water recycled or reused for 2023 was 303GL (2022: 312GL).

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 consisted 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.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

We successfully achieved our Group target in 2023. A disclosure platform was developed and released, making public detailed information about annual surface water usage across our global network of managed sites in 35 countries; a first for the mining industry.

We attained four of our six site-based water targets with improved understanding of our responsibilities for water stewardship evident throughout the business. Refer to the table below for further details.

Throughout 2023, we continued embedding our water risk framework and associated controls across our product groups, and commenced the development and socialisation of our next round of nature-related targets. Further details on the new target program will be released during 2024.

Progress against our targets

Group target	Water risk	Status	Commentary
Rio Tinto Group (Tier 1[1])			
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	Attained	A disclosure platform was developed and released in 2023, making public detailed information about annual surface water usage across our global network of managed sites in 35 countries.
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)	Attained	Successful completion of six managed aquifer recharge investigations with another three investigations underway. Two of the investigations resulted in ongoing recharge programs.
Oyu Tolgoi, Copper (Tier 1)			
Oyu Tolgoi will maintain average annual water use efficiency at 550L/tonne of ore to concentrator from 2019-23.	Water resource (intensity and efficiency)	Attained	Oyu Tolgoi maintained its average annual water use efficiency below 550L/tonne for the period 2019-23. Oyu Tolgoi remains one of the most efficient copper operations in the industry.
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 attained	With the exception of 2019, annual concentrator water intensity has remained above the 2014-2018 target baseline. Required changes to the concentrator process during 2020 resulted in increased water usage compared to the initial target baseline. Kennecott's water usage has trended down since the implementation of these changes. Kennecott's commitment to improve water efficiency through the concentrator successfully reduced intensity in 2022 and 2023 to approximately 10% lower than the period peak recorded in 2021.
Ranger Mine[2], 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 attained	Since the commencement of the Water Target in 2019, ERA has implemented the process water treatment capacity upgrades that were envisaged in the Ranger closure plan of the time, including an upgrade to the capacity of its Brine Concentrator and the construction and subsequent upgrade of a Brine Squeezer. Despite these upgrades, process water treatment rates have not met expectations. Other changes in project schedule mean that the assumptions behind the Ranger water model used to set the Water Target are no longer valid. A feasibility study refresh completed in 2023 identified that ERA should move to a program management approach to the rehabilitation of Ranger, with additional studies required for the later stages of the project. The outcome of these additional studies will ultimately lead to an updated Ranger water model and a revised plan for process water treatment.
QIT Madagascar Minerals (QMM), Minerals (Tier 2[3])			
QMM will develop and implement an improved integrated site water management approach by 2023.	Quantity/quality (discharge quality)	Attained	Actions committed to and in-progress as part delivery of the site-based water target include: – updated water management strategy and vision – host community engagement in water management activities – establishing a water treatment plant – improvements in data integrity and capability in testing controls – improved transparency and disclosure of water information – improvements in host community access to potable water.
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: – Project L1: integrity of bunds and drains – 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.	Quality/quantity (discharge quality) Joint venture performance improvement	Attained	Progress of nominated water-related improvement projects is aligned with current project schedules. Refer to the 5-Year Environment Strategy on QAL's website for further details.

For more information
about our progress against our site-based water targets see www.riotinto.com/water.

1. Tier 1 water targets form part of the Rio Tinto external limited assurance program.
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 program.

Biodiversity

We are dependent on healthy ecosystems to run a successful business and we recognise our responsibility to effectively mitigate the impact of our operations on nature.

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 where we operate. This means striking a balance between negative impacts on biodiversity and positive outcomes achieved through mitigation.

2023 progress

We are active members of ICMM and other industry associations and working groups seeking to drive improvements for our industry. Our involvement in the ICMM Taskforce on Nature-related Financial Disclosures (TNFD) working group, Global Reporting Initiative (GRI) Biodiversity Technical Committee and the ICMM Nature Working Group have contributed to the development of important industry resources: the TNFD framework, the draft GRI Biodiversity Standard, and ICMM's Nature Position Statement.

We continue to assess the sensitivity of our activities by using global datasets of threatened species and conservation and protected areas, developed by the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC). Together with the UNEP WCMC, we completed an updated biodiversity sensitivity study in 2023 to inform risk prioritisation across our activities, including exploration and projects, and support allocation of resources. Work will continue in 2024, to be guided by the recommendations of the TNFD framework.

We continue to innovate to help us become better environmental stewards. In 2023, in partnership with the UNEP WCMC, we piloted a standard method for efficiently identifying potential actions to deliver conservation value beyond the management of our direct impacts. Together with UNEP WCMC, we conducted TNFD pilots at two sites (Simandou in Guinea and Greater Hope Downs in Western Australia) to inform the development of the framework. This process provides us with a better understanding of our impacts, dependencies and importantly, the key environmental monitoring and management activities that will underpin future disclosure requirements.

In 2023, we continued the independent review of monitoring programs at our high-priority biodiversity sites.

This involved ensuring management plans and actions adequately address biodiversity risks. We completed this review at our Richards Bay Minerals (RBM) site in 2023, with further efforts planned for 2024.

We also submitted a revised Environmental and Social Impact Assessment (ESIA) for our planned mine and rail activities at our Simandou project in Guinea, drawing on data collected over the last decade, and have progressed work to deliver an ESIA in 2024 for the planned development of the port.

At our Weipa operations, we continue to use machine-learning solutions to support research and monitoring of the endangered Palm Cockatoo and have partnered with the Australian National University and Australia Zoo's Wildlife Warriors to better understand the challenges faced by this species. This ensures that leading conservation science informs our decisions and helps bring balanced perspectives, innovation and best practice to responsible environmental stewardship.

For more information
about our biodiversity work see riotinto.com/biodiversity.

Land

2023 progress

In 2023, we rehabilitated 22 square kilometres of land, mostly at our iron ore mines and exploration areas in the Pilbara, Western Australia and our mineral sands mines in South Africa and Madagascar. Of this, we rehabilitated 4.5 square kilometres of ex-pit landforms and legacy areas across our Pilbara mines. This is part of our Iron Ore business's plan to increase rehabilitation, in partnership with Pilbara Aboriginal businesses. Since 2021, we have completed 24 square kilometres of land rehabilitation across our Pilbara mine operations.

In Mongolia, we have rehabilitated 4 square kilometres of abandoned mine workings based outside our operational footprint, along valley floors and river beds in the Selenge province. This is a part of Oyu Tolgoi's commitment to the Government of Mongolia's national movement to plant one billion trees by 2030.

In 2023, our land footprint – total disturbed area – was 3,848 square kilometres, an increase of 38 square kilometres compared to 2022. This includes all disturbances to our operating assets and activities, such as exploration activities, smelters, mines and supporting infrastructure.

Our rehabilitation teams continue to partner with research centres and universities to refine our rehabilitation approaches and improve outcomes.

We continue to support the Australian-led Cooperative Research Centre for Transformation in Mining Economies (CRC TiMe) through research that addresses the complex challenges underpinning mine closure and relinquishment. At our bauxite mines and refineries we have continued trials focusing on transforming stored tailing material into soils that will support plant growth. We also continued trials using satellite-derived data to test methodologies aimed at providing insights to support on-ground monitoring for vegetation and erosion monitoring of rehabilitation. In addition, 16 of our operations completed rehabilitation trials to improve seed germination, erosion and topsoil quality.

For more information
about our closure work see page 64.

Waste

2023 progress

Waste and residues from our operational activities are key areas of our environmental risk management. In 2023, we continued to focus on managing potential contamination from these sources. This included work to remove all use of PFAS (perfluoroalkyl and polyfluoroalkyl substances) in fire-suppression systems at our sites, which will continue through to 2024 due to delays in retrofits of equipment and infrastructure and challenges sourcing alternative fluorine-free substances for use in fire-suppression systems in some jurisdictions.

At some of our long-life assets, we continue to evaluate waste management practices of the past that have led to a need for remediation in the present. We focus on finding better ways to extract maximum value and to transform waste and by-products from our operations into materials the world needs. One example is our work to sustainably extract and produce high-purity scandium oxide and tellurium from waste streams.

We also continue to look for opportunities to repurpose items we purchase at the end of useful life. For example, in 2023, we partnered with a local business to trial recycling end-of-life conveyor belts used to move iron ore across our Pilbara operations. This trial will continue into early 2024 and has the potential to divert 10,000 to 15,000 tonnes of waste from landfill every year.

Some of our assets generate mineral waste with the potential to be chemically reactive, requiring careful management to prevent environmental impacts. We conduct independent reviews every four years to assess the effectiveness of our risk management programs and identify areas for improvement. In 2023, this was done at two sites – Diavik in Canada and RBM in South Africa. The review at Diavik revealed long-term progress in managing and controlling our mineral waste risks. At RBM there were no risks of critical or high significance, and the risk posed by reactive mineral wastes at the asset was low. Further opportunities to improve mineral waste management will continue at both sites in the short and long term.

For more information
about tailings see page 64.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Turning slime into solar panels

Tellurium is one of the rarest elements on Earth, usually found in small, sparse rock deposits, making it difficult to mine at scale. But at our Kennecott copper operations near Salt Lake City, Utah, we have discovered a way to extract tellurium from an unlikely source – slime waste material. And while we know we have more to do to eliminate waste completely, Kennecott's tellurium plant is the latest example of work we are doing globally to minimise our waste by finding a use for every material we dig from the ground or creating new products from the waste itself.

For more information about how we extract tellurium from slime see riotinto.com/telluriumfromwaste.

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 (SOx), mainly at our aluminium and copper smelters
- nitrogen oxides (NOx), mainly from burning fossil fuels
- gaseous fluoride emissions from aluminium smelters
- respirable particulate emissions (PM_{10} and $PM_{2.5}$), very fine particles from mining and processing operations and from burning fossil fuels.

We focus on reducing emissions at source by upgrading equipment to use the best available technologies, adding air pollution control equipment, implementing mitigation measures and using renewable energy or alternative feed material where possible. Our air quality management programs 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 Iron Ore Company of Canada (IOC), there is a multidisciplinary working group focused on assessing dust abatement options. We are mitigating dust at the source by introducing new dust control technology at the induration machine stacks. The working group is also exploring biodegradable dust suppressants to limit wind erosion at IOC's tailings facilities. We have expanded our air quality monitoring network at IOC's mine in Labrador City and at our Rio Tinto Iron and Titanium Quebec Operations Sorel-Tracy plant.

In some instances, we exceeded permissible dust levels at nearby air quality monitoring stations. We investigated all high dust concentration events. Most resulted from unusual forest fires, such as those close to our operations in Sept-Îles, Canada, in June, where exceedances were observed over a large region. Improving our air quality monitoring network over the coming years will help us to prevent dust incidents in the future.

Operational environment overview

	2023	2022	2021	2020	2019
Significant environmental incidents[1]	**1**	0	3	0	0
Fines and prosecutions – environment ($'000)[2]	**987**	110	7	27	19
Land footprint – disturbed (cumulative square kilometres)	**3,848**	3,810	3,735	3,630	3,627
Land footprint – rehabilitated (cumulative square kilometres)	**552**	522	494	490	489
Mineral waste disposed or stored (million tonnes)	**977**	978	1,005	987	905
Non-mineral waste disposed or stored (million tonnes)	**0.73**	0.75	0.65	0.47	0.28
SOx emissions (thousand tonnes)	**72.5**	66.2	70.2	75.7	76.8
NOx emissions (thousand tonnes)	**64.8**	64.6	62.3	65.2	63.4
Fluoride emissions (thousand tonnes)	**2.61**	2.36	2.36	2.27	2.34
Particulate (PM_{10}) emissions (thousand tonnes)	**146.0**	146.3	142.3	143.2	130.7

1. Significant environmental incident is an incident with an actual consequence rating of high or very high. We measure and rate incidents according to their actual environmental and compliance impacts using five severity categories: very low, low, moderate, high and very high. Very high and high environmental incidents are usually reported to the relevant product group head and the Rio Tinto Chief Executive as soon as possible. The severity categories were updated for incident reporting in 2023 based on changes to Rio Tinto's risk matrix and associated environment consequence descriptors..
2. In 2023, we paid environmental fines totaling $986,968 resulting from non-compliant storage of residue materials as well as exceedance of the annual mobile fluoride load within the final effluent at Alma, Canada; spillage of an acidic substance at a discharge outfall at Arvida, Canada; exceedance of the annual mobile fluoride load within the final effluent at Laterriere, Canada; removal of an elm tree as well as the drowning of two Goitered Gazelles at the tailings storage facility at Oyu Tolgoi, Mongolia; release of water with a slightly elevated total suspended solids concentration than authorised by the site's Environmental Authority from Yarwun, Australia; multiple breaches (13) of land clearing conditions relating to iron ore exploration activities within the Pilbara region, Australia; separate spills of caustic and acidic materials, as well as a fine for a separate administrative non-compliance issue, at Sorel Tracey, Canada; and failure to immediately notify the regulators of a dangerous substance spill at Havre Saint Pierre, Canada..

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 operate 98 tailings storage facilities (TSFs) across our global assets. Thirty-nine are active TSFs, 26 are inactive and 33 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 at riotinto.com/tailings. 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 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 TSFs have emergency response plans – tested through training exercises in collaboration with stakeholders such as local emergency services – and follow strict business resilience and communication protocols.

2023 progress

We have continued to progress our implementation of the Global Industry Standard on Tailings Management (GISTM), which focuses on preventing tailings facility failures, reducing the social and environmental impacts of tailings facilities, and improving engagement and transparency on tailings with local communities. We have also assessed our progress on implementation through self-assessment and independent audits using ICMM's GISTM Conformance Protocols.

Much of the implementation work is already complete for the tailings facilities that have a "very high" or "extreme" consequence classification, and all these tailings facilities are nearing conformance with the GISTM. However, there is still work to do to complete the implementation and to embed the changes made.

Implementation work programs are specific to each tailings facility, and while the timing for completion of each work program varies, we anticipate that we will deliver this work progressively and that all "very high" and "extreme" consequence classification tailings facilities will fully meet the requirements of the GISTM in 2024 (except where longer-term engineering works are required).

In August 2023, we disclosed detailed information for the tailings facilities we operate that are rated "very high" or "extreme" under the GISTM consequence classification scheme. We also disclosed information on the other tailings facilities we operate that have lower GISTM consequence classifications, based on the Investor Mining and Tailings Safety Initiative (IMTSI) request for public disclosures on tailings.

For more information
about our most recent tailings facilities disclosures see our interactive map at riotinto.com/tailings.

In 2023, we:

- Continued to regularly convene the Tailings Management Committee with our designated Accountable Executives, which provides coordinated governance of tailings management practices across the Group.
- Conducted multi-disciplinary risk assessments for all our "very high" and "extreme" consequence facilities.
- Continued to partner 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 support the Future Tails partnership, a collaboration between Rio Tinto, BHP and the University of Western Australia (UWA). In 2023, seven students were awarded a Graduate Certificate in Tailings Management from UWA, three of whom are Rio Tinto employees. This year, the program had 91 students from 15 countries who have enrolled in 262 micro-credentialled units. Two PhD candidates also commenced their research programs in 2023.
- Continued to play an active role in the ICMM tailings working group, which provides guidance to support the safe, responsible management of tailings with the goal of eliminating fatalities and catastrophic events.

Closure and repurposing

As we mine and process metals and minerals we have an environmental and social impact. Our aspiration is to create a positive legacy, meeting our commitments to stakeholders and host communities, and deliver environmental, social and financial value. The end of an asset's life is an opportunity for a new beginning. We are finding better ways to repurpose and renew our assets.

2023 progress

Our approach

We recognise we are often a short chapter in the long history of the land where we operate. Understanding this, our first step is to work with stakeholders to develop a shared vision for the future and a pathway to deliver that together.

Today, we incorporate closure through each stage of the asset lifecycle, in the way we design, build and operate. In 2023 we made it easier for operating assets to fund progressive closure work to reduce our impact. For more information on progressive rehabilitation in 2023, see page 65.

We develop asset closure strategies to identify potential future land uses and focus on opportunities to reduce closure costs and risks over the asset lifecycle. We completed eight additional asset closure strategies in 2023, and now have these in place for 59% of our active operations. All of our operating sites have closure plans, and we are developing closure plans for assets that have an indefinite life such as some port facilities. 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 endeavour to work in partnership with other asset owners to ensure closure is considered through asset design, planning and operations.

To bring greater certainty to our closure plans, we are undertaking 16 closure studies across operations and our legacy portfolio.

For more information
about our closure risks see page 84.

90+

legacy assets managed within our portfolio

59%

of our active operations have asset closure strategies in place

$17.2bn

in closure provisions on our balance sheet at the end of 2023 (2022: $15.8bn)

Partnering

We partner to ensure decisions from design through to operations create social, economic, and environmental value when mining and processing ends.

- To build industry capability and share best practices in closure, we developed the Leadership in Sustainable Mine Closure Program in partnership with the University of British Columbia, Curtin University and Ernst & Young.
- To reduce our waste inventory, we continue to explore circular economy options. We began a trial to recycle end of life tyres and belts at Argyle and we completed the first shipments of scrap steel from the Gove refinery for recycling.
- To identify opportunities to create value, we consider options for reprocessing. At Nevada Copper, a former copper site in McGill, Nevada, US we completed a drilling program with Regeneration Enterprises.
- To create long-term social and economic value from the remediation effort at Beatson, a series of former underground copper mines on Latouche Island in Prince William Sound, Alaska we signed a Memorandum of Understanding with the Native Village of Chenega, an Alaska Native tribe, and Chenega Corporation, an Alaska Native corporation, establishing a framework for collaboration toward achieving common goals.

Innovating

We innovate to seek lasting benefits. 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.

- Our Mining Influenced Water Challenge was launched to inspire solutions for sustainable water treatment through closure. We received 98 submissions from 36 countries. We have committed to fund $15 million over three years for the 13 projects selected.
- We launched a crowdsourcing campaign through the Pioneer Portal to seek partners to develop a remote sensing solution for environmental monitoring and mineral waste characterisation receiving 100 concept papers.
- We continue to progress our partnership with the Mining Microbiome Analytics Platform to better understand the data collected about the microbes we have at our sites and how they can support rehabilitation and recover metals from mineral waste at closed sites.

We continue to build our expertise and learn as we execute closure work and manage our legacy portfolio.

Argyle diamond mine

We continue to rehabilitate the Argyle diamond mine on Miriwoong and Gija country in Western Australia. In 2023, we completed removal of the processing plant above ground infrastructure, continued reprofiling of the alluvial mining and waste rock landforms and capping of the tailings storage facility. We have reviewed our contracting strategy to increase work awarded to Traditional Owner businesses, increasing our spend to A$33 million in 2023 (2022: A$21 million). We are engaging with Traditional Owners on how to best support and expand meaningful participation.

Gove refinery and residue disposal areas

In 2023, we began the largest demolition project in the Southern Hemisphere at the Gove refinery in the Northern Territory, Australia. While water treatment and capping of the residue disposal areas continues, we are working closely with Gumatj and Rirratjingu Traditional Owners, and the Northern Territory Government, to plan for the future of the region beyond mining. In 2023, we spent A$94 million with Traditional Owner businesses, a decrease on the previous year due to lower global fuel prices (2022: A$101 million).

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 the Ranger Project Area 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, 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.

On 4 April 2023, we announced our support for ERA's Interim Entitlement Offer (IEO), which raised approximately A$369 million to address funding requirements for the Ranger Rehabilitation Project to the end of the second quarter of 2024. Rio Tinto, which owns 86.3% of ERA's shares, subscribed for its full entitlements under the terms of the IEO, at a cost of A$319 million.

In October 2023, ERA announced that the findings of a 2022 Feasibility Study were under review. The study was undertaken on a lower technical risk rehabilitation methodology and to further refine the Ranger Project Area rehabilitation execution scope, risks, cost and schedule. In December 2023, ERA announced that they expected rehabilitation costs to materially exceed the previously estimated range and expected to increase their closure provision to approximately A$2.3 billion.

Rio Tinto continues to provide project support, including organisational and technical support, as requested by ERA. For more information, please visit ERA's website.

Legacy assets

We manage over 90 legacy assets in nine countries and 28 tailings storage facilities, for more information on tailings management see page 64.

In 2023, we donated over 28 acres of land to the Southwestern Oregon Community College in Brookings, Oregon, US to support the expansion of their Curry Campus. The donation triples the size of the Curry Campus providing additional education opportunities in the region.

In France we opened an eco-park in partnership with the French Ministry of ecological transition at Le Thoronet, a former bauxite mine. The park features hiking trails and diverse habitat areas to support local wildlife.

We completed relinquishments at Lochacker Schreiber, a former landfill in Switzerland returning the land to local government for future use, long-term management and monitoring.

At Kelian, a former gold mine in Indonesia we have entered into a post-mining agreement with the province of East Kalimantan, under the supervision of the Ministry of Environment and Forestry to support the long-term management of the site. We have completed the restoration of the environment in the protected forest, which contains a rhinoceros sanctuary.

For more information about closure provisions and financial statements see page 196.

Building capability in closure

Mine closure is a complex challenge that we face as an industry. Changing societal expectations mean the landscape is evolving and we need to develop specialist skills and capability in closure. We developed the Leadership in Sustainable Mine Closure Program in partnership with the University of British Columbia, Curtin University and Ernst & Young to help meet this need and create opportunities to share best practices and learnings. Learn how some of our first program participants are finding better ways to incorporate closure into their work.

For more information see riotinto.com/closure.

Social performance

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 communities and countries where we operate.

Community engagement and social investment

The strength of our relationships with the communities where we operate, and broader society, is fundamental to our business. Without the support from host communities we can not operate successfully.

Through our partnerships, we strive to support communities in achieving their aspirations and improve lives by contributing to social and economic outcomes, all while respecting and protecting their connection to culture and nature.

We have evolved our approach to engaging with communities and Indigenous Peoples across our business. By listening to understand, being willing to learn from our mistakes and genuine partnering, we will deliver better long-term outcomes for everyone. It enhances our understanding and appreciation of the people and diverse cultures in the geographies where we work. Our relationships with Indigenous Peoples are a priority for us and we especially value our agreements with First Nations People of the lands on which we operate.

We seek out the voices of communities to inform our planning and decision making, and it helps us manage our impacts better, contribute to social outcomes and preserve and protect heritage.

Our Communities and Social Performance (CSP) teams work across our entire business and include people with a range of expertise, from archaeologists, anthropologists, social scientists and economic development experts, to human rights specialists and operational leaders. While these teams help to implement our technical activities, everyone in our business has a role to play in our social licence.

Our assets operate in line with our global *Communities and Social Performance Standard*, which was revised and strengthened in 2022. Our standard provides clear direction on what success looks like and the minimum requirements expected across our global business.

2023 progress

We continue to strengthen our social performance capacity and capability to be better operators and partners. Throughout 2023, our CSP practitioners undertook online learning, communities of practice and face-to-face cross-functional workshops. We have also added central roles in key areas such as heritage, agreements and human rights.

Understanding and acting on the perceptions of communities who host our operations is essential. In 2023, we trialled a new program which will be rolled out across the Group in 2024 and 2025, to help us more effectively engage and better understand our host communities' perceptions, leading to improved data-driven social performance.

CSP targets

In 2023, we progressed initiatives towards our 2026 CSP targets. We focused on developing and implementing frameworks and measurement criteria for both cultural heritage co-management and social investment strategic partnerships. Our human rights training continued throughout the year, with planning for expanded online learning programs.

For more information about our CSP targets see page 43.

Yinjaa-Barni Art, Roebourne, Australia

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Country updates

QIT Madagascar Minerals (QMM), Madagascar

In 2023, QMM faced protests led by representatives of a local association. The protests affected the safety and well-being of employees and people in the communities and in October 2023, an altercation between protesters and public security forces escalated into violence. Public security forces officially reported one person died, and one person was injured. We are committed to learning from this tragic event and will work together with local communities and other stakeholders through open, meaningful, and respectful dialogue to seek to prevent such incidents in the future and find safe, peaceful and long-term solutions to community concerns.

In 2023, QMM committed to increase its community and social investment spend to $4 million per year, on projects to be co-designed with communities, authorities and government, and which are consistent with local, regional and national development plans. This is part of a range of initiatives aimed at maintaining trust and collaboration with local communities. Our commitment to reforestation also continues through our initiative to help local communities establish village tree nurseries.

Resolution Copper project, Arizona, US

At our Resolution Copper project, we are committed to preserving Native American and local community cultural heritage and bringing lasting benefits to the entire region. We continue to strengthen relationships with local communities and Native American tribes by deepening our engagement and partnership support. In 2023, we signed agreements with a number of Native American tribes with ancestral ties to the land, to work together on youth recreation, cultural preservation and economic initiatives. We also finalised a Good Neighbour agreement with the Town of Superior to define the relationship with the town and local community groups over the life of the mine.

Resolution Copper also entered into several multi-year partnership agreements with local and national-level Native American organisations supporting education and youth recreation, including the American Indian Science and Engineering Society (AISES), the Native American Basketball Invitational (NABI) and the Belvado Foundation at the San Carlos Apache community.

For more information
visit Resolution Copper's website resolutioncopper.com/cultural-heritage.

Simandou project, Guinea

At our Simandou iron ore project, we work with local communities to design and deliver local social investment programs, regional economic development programs and livelihood restoration initiatives to build community resilience and support the future of the operation. By raising local capacities, engaging with local entrepreneurs, and investing in training and development, we hope to contribute to a better future for the local communities.

We also work with our infrastructure and joint venture partners to ensure a consistent application of internationally recognised environmental and social performance standards across the entire project. And we are implementing human rights due diligence processes to understand our potential human rights impacts and ensure our employees, contractors and those in the local communities are treated with dignity and respect.

Oyu Tolgoi, Mongolia

At Oyu Tolgoi, we strive to be a leader in sustainable social and economic change through partnerships with local communities and government. Since 2015, we have made an annual contribution to the regional Development Support Fund (DSF) – administered jointly by Oyu Tolgoi and the community – for community initiatives in the Umnugovi aimag. In 2023, the fund provided $6.2 million to help complete a local school, kindergarten and health care centre and construct sewage pipelines, pasture irrigation, waste plant and rare animal protection projects. This has improved accessibility and provided a better standard of living for community members.

The Future Generation Special Fund makes up 5% of the annual DSF investment and provides development opportunities for youth. In 2023, 114 local students were awarded the Goviin Oyu scholarship to study in specialist fields. Since 2015, 519 students have received scholarships, and of these, 70% have been hired for jobs in their local communities.

Employment from the local communities at Oyu Tolgoi increased by 10% in 2023 due to a comprehensive recruitment process and local talent development. There is also a focus on strengthening the local and national supply chain with local spending increasing from $261 million in 2022 to $272 million in 2023.

In 2023, Oyu Tolgoi committed $50 million over five years to support the Khanbogd Soum town development by 2040. Some infrastructure projects are already underway, including the construction of a road, a public square, a recreational sport centre and the renovation of the local hospital.

Oyu Tolgoi also continues to work with herders, local communities and the government to improve water accessibility and address the increased demand for water.

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, we transferred our 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 Oversight Committee (Committee), was formed to oversee a detailed independent assessment of the Panguna mine. The Panguna Mine Legacy Impact Assessment (Legacy Impact Assessment) will cover the environmental impacts, and directly connected social and human rights impacts, caused by the Panguna mine since the cessation of mining. 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 2022, the Committee selected and endorsed Tetra Tech Coffey to undertake phase 1 of the Legacy Impact Assessment. The Legacy Impact Assessment began in December 2022 and continued throughout 2023 with three field campaigns completed successfully. The field work in 2023 included interviews with community members across the study areas as well as assessing the stability of aging mine infrastructure and impacts related to water quality and flooding. The Legacy Impact Assessment will provide all parties with a clearer understanding of the human rights impacts, so we can consider the best way forward together. Results will be presented to the Committee when phase 1 is completed (due 2024).

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 programs as well as concerns regarding CBG's stakeholder engagement.

In 2023, sustainability advisory committees at Halco and CBG levels met regularly, strengthening our governance 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 four plenary sessions and several other bilateral meetings between the parties in 2023. Through a collaborative approach, important progress was made with agreements on CBG's practices on stakeholder engagement and management of grievances. Additionally, the implementation of previous agreements on blasting and access to water have progressed, delivering positive outcomes to local communities. Halco continues to participate in the mediation process as an observer, alongside the IFC.

Social investment

We have a long history of partnering to support the host communities and regions where we operate. We employ local people, buy local products, and engage local services. In 2023, our total voluntary global social investment was $84 million, covering a wide range of social and economic programs. And we introduced a new company-wide approach to social investment, which focuses on working together with communities to find out what is important to them so we can make decisions that will deliver positive and enduring outcomes. This is essential for our continued social licence in an increasingly complex world.

For more information about our partnerships and community engagement see riotinto.com/socialeconomicdevelopment

Update on our communities and social performance commitments

This section provides an update on our CSP commitments made after the tragic destruction of the rock shelters at Juukan Gorge in May 2020. This remains an important area of focus, as we continue to find better ways, recognising we always have things to learn.

In 2021 and 2022 we asked Traditional Owner groups in the Pilbara to share feedback on our progress on some of the commitments we made as part of the Rio Tinto Board Review in 2020 on cultural heritage management. We repeated this process in 2023 with six out of ten Pilbara Traditional Owner entities choosing to respond. The verbatim feedback is presented on our website at riotinto.com/juukangorge as it was provided, with only the names removed for anonymity. We now have a three-year longitudinal perspective on our relationships. We have summarised our progress under three areas: relationships, governance and process, and leadership and inclusion.

For more information see our *2021* and *2022 Communities and Social Performance Commitments Disclosures* at riotinto.com/cspreport.

Relationships

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, working in partnership with Indigenous Peoples across our operations. Our approach aims to enhance our understanding and appreciation of Indigenous cultural heritage and ensure that Indigenous voices inform our planning and decision making.

Social, Cultural and Heritage Management Plans

In 2023, our Iron Ore business advanced five Social, Cultural, and Heritage Management Plans for proposed developments, with positive feedback by Traditional Owners. It is based on building understanding, co-designing, partnering, and transparently sharing information.

Memorandum of understanding with Yindjibarndi Energy Corporation

We are exploring new economic models to increase First Nations participation in our business. In October 2023, we announced a memorandum of understanding (MoU) with the Yindjibarndi Energy Corporation to explore opportunities to collaborate on renewable energy projects on Yindjibarndi Country in the Pilbara region of Western Australia. Together, we will consider a range of opportunities, including wind and solar power and battery energy storage systems.

Nammuldi cultural heritage incident

In August 2023, as part of our cultural heritage monitoring and management processes, we identified the fall of a Pilbara scrub tree and a one cubic metre rock from the overhang of a rock shelter in an area adjacent to the Nammuldi mine site. As soon as we identified this, we paused nearby blasting work occurring 150 metres away, and notified the Traditional Owners of the land, the Muntulgura Guruma People. We have apologised to the Muntulgura Guruma People, who we deeply respect, and are continuing to work closely with them. We've completed a detailed review to understand what happened and how we can improve.

We are working through the outcomes of the review with the Muntulgura Guruma People. We will continue to listen, learn and improve our ways of working.

Working with Indigenous communities in Canada

Healthy community relationships are essential to our operations and future growth. We have 12 active long-term impact benefits/participation agreements with Indigenous communities in Canada, supported by proactive site-based and regional engagements.

Naskapi Nation and Iron Ore Company of Canada agreement

In February 2023, the Naskapi Nation of Kawawachikamach and Iron Ore Company of Canada (IOC) signed an agreement to establish a mutually beneficial relationship based on dialogue, collaboration and trust. This socio-economic agreement aims to create opportunities for greater participation by Naskapi People in IOC's activities through training and development, employment, collaboration on environmental projects, and procurement. It will also protect and encourage the practice of traditional activities and provide long-term financial benefits to the Naskapi Nation.

Cheslatta Carrier Nation visit Australia

We are increasing engagement, participation and encouraging learning. In 2023, the Cheslatta Carrier Nation from British Columbia attended the World Mining Congress in Brisbane, and visited our Weipa operations in Queensland where they met with Traditional Owners.

Governance and process

During 2023, we continued to implement our *Communities and Social Performance Standard*, and revise systems and processes to help us meet external expectations and deliver better social and human rights outcomes. We have strengthened our social risk framework, and our teams' understanding of social and human rights risks.

Australian Advisory Group

We established the Australian Advisory Group (AAG) in 2022 to provide independent expert advice to our executives on matters impacting our operations in Australia, with a priority focus on First Nations issues and opportunities. The group met four times in 2023, including site visits to Weipa and the Pilbara. An independent review of the AAG was finalised in October to ensure the AAG continues to operate in a way that adds genuine value to our business.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

The Oxford Leading Sustainable Corporations Programme

A recommendation from the Juukan Gorge Board review in 2020 was to strengthen our leaders' understanding of current and emerging environmental, social and governance (ESG) issues to better preserve cultural heritage. In 2022, we partnered with Saïd Business School, University of Oxford to pilot their Leading Sustainable Corporations Programme. In 2023, 116 leaders completed the 12-week course. Learning outcomes and feedback were overwhelmingly positive, igniting new discussions about sustainability that will support our decarbonisation objectives, mutually beneficial sustainability outcomes for communities and the long-term success of the business. It will be offered again in 2024.

Independent Cultural Heritage Management Audit

In March 2023, we published an independent report (produced by ERM, a global sustainability consultancy) on a global audit of our cultural heritage management performance.

The audit was completed throughout 2021 and 2022 across 20 assets in Australia and 17 assets in other countries where we operate, including Canada, South Africa, US and Mongolia. The audit identified areas where we are achieving leading cultural heritage practices but also areas where we need to improve our performance. Based on the report recommendations, we are developing a consolidated action plan and a cultural heritage maturity model to monitor progress across the business.

For more information
see the results from the Independent Cultural Heritage Management Audit at riotinto/culturalheritage.

Leadership and inclusion

We are fast-tracking Indigenous Australians into professional and leadership roles to ensure we have a stronger representation of diverse voices at our decision-making tables in Australia. In 2023, we revised our target to have 100 Indigenous leaders by 2025. Having true diversity of perspectives, and an Indigenous lens on decision making, will guide our company moving forward.

Creating an environment that is safe for Indigenous employees is a priority. Our cultural safety initiative "Care for Mob" will be delivered against a national framework in partnership with the Everyday Respect taskforce to ensure all employees feel safe, supported and respected.

In 2023, we launched the Elevating Voices Network in Australia. The Network is led by a small group of Indigenous and non-Indigenous employee volunteers who come together to activate events, activities and conversations. By encouraging connections, building cultural intelligence, and fostering a more culturally safe company, the Elevating Voices Network aims to create stronger links for collaboration, celebrate representation of our Indigenous workforce, enhance current and future initiatives and complement meaningful workplace opportunities through engagement.

We have also continued our Cultural Connection program to ensure leaders can navigate and understand Indigenous culture and build strong trusted relationships with the Indigenous community and Indigenous employees in Australia. In 2023, we introduced this program to our Communities and External Affairs team in Mongolia, to uplift their cultural knowledge in preparation for a cross cultural visit between the Nyangumarta Traditional Owner group in Australia, and Mongolian herders and employees in Mongolia.

Indigenous participation

In 2023 we re-established the Aboriginal Training and Liaison (ATAL) program through a co-design process with the Traditional Owner groups we work with in the Pilbara. This work-ready program is focused on empowering participants to develop skills for ongoing employment in different jobs and industries across the Pilbara.

Indigenous partnerships

One of our priorities is partnering with local and national Indigenous organisations to provide support in key areas such as economic development, community empowerment, preserving traditional knowledge and practices and promoting sustainable development and social inclusion.

In November 2023, we announced a five-year partnership with First Nations Media Australia (FNMA) to help them digitise and preserve at-risk media (audio and video tapes) from the 1970s to 1990s. The FNMA Archiving Project will support First Nations media organisations and other Central Australian-based Aboriginal media organisations.

The partnership sits within our Living Languages Living Cultures program, which has been designed to promote the recognition, preservation, and revitalisation of Australian Indigenous languages and cultures for the benefit of Australian Indigenous communities.

Supporting Indigenous businesses

We support local businesses, employ local people and buy local products, especially from Indigenous, small and regional businesses. In 2023, we spent more than A$725 million with Indigenous businesses across Australia – an increase of 28% on the year before.

We are also increasing our spend with local and Indigenous businesses in Canada and the US. In 2023, we spent $190 million with Indigenous suppliers in North America. We do not always get it right, but when our local suppliers have concerns, we listen and learn. In February 2023, at our Rincon lithium project in Argentina, some members of local Indigenous suppliers blocked a road to the site due to concerns about the procurement process. We met with the communities, listened to the issues and made changes to facilitate their ability to access contracts.

Truth and reconciliation

In 2023, we supported the referendum for an Aboriginal and Torres Strait Islander Voice in the Australian Constitution and provided a corporate donation to the "Yes" campaign.

The "No" outcome does not change our support for constitutional recognition for Indigenous Australians. As one of the largest employers of Indigenous Australians and a company that operates on the lands of Indigenous Peoples, we have long supported constitutional recognition for Indigenous Australians.

In Canada, we continue to create learning opportunities for our people to raise awareness about the history, culture and rights of Indigenous Peoples. In 2023, we introduced a new online training on awareness of Indigenous culture and issues, across all our Canadian sites. We held a series of educational events to celebrate National Indigenous History Month, and to commemorate Truth and Reconciliation Day.

Economic contributions ($ million)

	2023	2022	2021	2020	2019
Consolidated sales revenue	**54,041**	55,554	63,495	44,611	43,165
Net cash generated from operating activities[1]	**15,160**	16,134	25,345	15,875	14,912
Profit after tax for the year[2]	**9,953**	13,048	22,597	10,400	6,972
Underlying earnings[2]	**11,755**	13,359	21,401	12,448	10,373
Underlying earnings per share (US cents)[2]	**725.0**	824.7	1,322.4	769.6	636.3
Net (debt)/cash	**(4,231)**	(4,188)	1,576	(664)	(3,651)
Capital expenditure[3]	**(7,086)**	(6,750)	(7,384)	(6,189)	(5,488)
Employment costs	**(6,636)**	(6,002)	(5,513)	(4,770)	(4,522)
Payables to governments[4]	**(7,881)**	(9,313)	(12,789)	(8,224)	(7,175)
Amounts paid by Rio Tinto	**N/A[5]**	(10,779)	(13,334)	(8,404)	(7,635)
Amounts paid by Rio Tinto on behalf of its employees	**N/A[5]**	(1,622)	(1,486)	(1,353)	(1,284)

1. Data includes dividends from equity accounted units, and is after payments of interest, taxes and dividends to non-controlling interests in subsidiaries.
2. Comparative information for 2022 and 2021 has been restated to reflect the adoption of narrow scope amendments to IAS12 Income Taxes.
3. Capital expenditure is presented gross before taking into account any disposals of property, plant and equipment.
4. Payables to governments includes corporate taxes, government royalties and employer payroll taxes.
5. Our *Taxes Paid Report* will be published later this year on riotinto.com.

	2023	2022	2021	2020	2019
Community investment[1] (discretionary)	**84***	62.6	72.1	47.0	36.4
Development contributions[2] (non-discretionary)	**17.6**	18.2	19.1	12.8	12.0
Payment to landowners[3] (non-discretionary)	**231.9**	299.0	222.9	165.9	147.0

* Community investment increased in 2023 attributed largely to Oyu Tolgoi and Rio Tinto Iron Ore.
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.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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 health, safety and wellbeing of our employees, contractors and communities.

2023 progress

Although there were no fatalities on our managed sites in 2023, in January 2024, tragically four team members from our Diavik mine in Canada lost their lives when a charter flight crashed on its way to the mine.

In 2023, we also continued to see fatalities more broadly across our industry, including six at our non-managed operations. We firmly believe all fatalities are preventable. Our focus remains on identifying, managing and, where possible, eliminating risks to ensure everyone, including partners and colleagues at our non-managed operations, goes home safely every day.

In 2023, we encountered three permanent damage injuries; two significant hand injuries at Diavik and Guinea respectively, and another at Kennecott Integrated Skarns Project, where one of our colleagues sustained a leg injury requiring amputation.

We also experienced three significant process safety events in 2023; two at Sorel-Tracy in Quebec, and one at Kennecott in Utah. We are continuing to find better ways to safely run our operations and prevent these incidents from occurring. One example is our newly developed process safety improvement plan that aims to continually improve the maturity of our management system and culture. These will continue to be implemented globally through until 2025.

Our all-injury frequency rate (AIFR) was 0.37 in 2023, an improvement from 2022 (2022: 0.40). We continue to see a disparity in safety performance for employees compared to contractors, so our focus remains on improving contractor safety by further integrating contractors into our safety culture.

Across our operations, we continue to see serious incidents where people are exposed to potentially fatal events. The main safety risks relate to falling objects, falling from heights and vehicle-related incidents. These risk areas account for 58% of the total potentially fatal incidents and remain at the forefront of our safety maturity efforts.

Critical risk management

Critical risk management (CRM) remains our primary fatality elimination tool, helping to ensure critical controls are in place and working where there is a fatal risk. In 2023, we initiated a project to help our teams reconnect with why we have CRM, and to enhance the quality of verifications which check that the right critical controls are in place for each task. In 2024, we will leverage the data we collect to identify trends, which will help us proactively intervene before incidents occur.

Vehicles and driving

In 2023, we introduced a program to help our teams learn critical lessons related to vehicles and driving, including potential gaps in vehicles and driving critical controls, and developing effective strategies to address these.

We also focused on deepening our understanding of mass transport risks, facilitating self-assessments at our sites to identify compliance with our Group procedure. We will undertake a similar exercise to better understand our aviation-related risk profile in 2024.

Safety maturity model

We acknowledge the importance of leadership and strong processes in driving a sustained improvement to our safety performance and safety culture. This is evident in the implementation of our safety maturity model (SMM). Introduced in 2019, the SMM is our blueprint for safety, integrating best practices in leadership, engagement, learning, risk management and work planning, as well as operational ownership of health and environmental risks. In 2023, we continued to work closely with our assets to evaluate and evolve their safety maturity, and foster both physical and psychological safety. Through this work, we have refined our assessor training program, placing a higher emphasis on elements such as mindsets, behaviours and felt experiences towards our safety maturity efforts. This supports our belief that all employees and contractors should feel empowered to work safely, speak up and make decisions that prioritise their wellbeing. While we acknowledge cultural transformation is a long-term journey, we draw encouragement from the outcomes of the SMM assessments conducted in 2023. These have significantly deepened our understanding of the safety culture at each site and support actionable insights which will guide us towards creating an even safer work environment.

Demonstrating leadership of maritime safety and crew welfare

As the first initiative of its kind for the dry bulk industry, we launched the Designated Owners and Operators Program. It provides us and our shipping value chain partners, including shipowners and operators, a structured platform to work together on improving maritime safety and crew welfare standards. Although we have not had any fatalities across our owned vessels since the formation of Rio Tinto Marine in 1989, over the past four years, seven seafarers have tragically lost their lives on chartered vessels. As part of the program, our partners commit to improving everyday practices to prevent fatalities and injuries, and improve crew welfare. So far we have onboarded 16 owners/operators, representing around 36% of our shipped volumes.

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.

Our employees' mental health can be impacted by psychosocial hazards 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*. This focuses 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. In 2023, 83.5% of our employees completed the "Building Everyday Respect" employee learning module, a critical step towards changing our culture, building trust and supporting the psychological safety of our colleagues.

To better support people impacted by bullying, harassment, sexual harm, racism and discrimination, we introduced Care Hub in late 2023. Care Hub facilitates access to a range of wellbeing pathways and informal non-investigative resolution options to help people navigate routes for healing, recovery, support and resolution, as is aligned to the recommendations from the *Everyday Respect Report*. For more information about Care Hub, see page 77.

In 2023, 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. The practices support ISO 45003 and the World Health Organisation's mental health report. 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 ill-health.

Aligned with our commitment to provide our employees the tools and skills they need to support their mental health, we continue to provide and promote the employee assistance program (EAP), our mental health toolkit and our global Peer Support Program, which includes more than 1,600 peer supporters globally. We also support our people through our domestic violence support programs, which cover 100% of employees. Importantly, we continued to support global mental health campaigns such as R U OK? Day and World Mental Health Day. In October 2023, we held our mental health week to support mental wellbeing and encourage our people to look out for one another. We ran a program of activities that included a comprehensive communications toolkit, packed with vital information and resources for holistic wellbeing. Our people, from graduates to the Executive Committee, shared powerful stories and commitments to mental health in a series of impactful videos.

We also hosted a number of engaging regional calls addressing related wellbeing topics which have contributed to shaping a culture that prioritises mental wellbeing and breaking down stigmas.

In 2023, we challenged ourselves on the role we can play in preventing suicide. This work involved understanding how we can work together as a business, improve identification of those individuals who may be at risk, and support our people and families impacted by deaths from suicide.

We continue to be an active 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.

Occupational health

In 2023, we recorded a higher number of new occupational health illnesses compared to the previous year, with 98 (2022: 70), 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. We continue to standardise and simplify these assessments to help improve our health performance.

We also ran two workshops for our global health and hygiene practitioners to share learnings, best practice and recent technology developments in the Southern and Northern hemisphere. We completed occupational and industrial hygiene monitoring at all of our operational and managed assets. This included analysis of noise, airborne particulates, gas and other contaminants that can lead to adverse health effects for our employees and contractors. This helped us to better understand our exposure profile and prioritise actions to put effective controls in place.

In 2023, we commenced a project to improve clarity and accessibility of data collected through annual surveys. This project will continue in 2024 and beyond, allowing better internal reporting of health and industrial hygiene risks at a Group level, and individually for each product group. Health monitoring remains a pivotal focus, involving the redesign of fit-for-purpose medical assessments.

The data collected over 2023 allowed for semi-quantitative assessments of risk and identified 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 Health Area of Expertise, will be designed, developed and implemented to reduce exposures for our employees and contractors. We will continue to track exposure reduction projects across product groups in 2024.

Recognising the need to improve the transparency and detail of our health data, we performed a Group internal audit in 2022. We are continuing to implement 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.

We also made improvements to our annual corporate reporting activity to ensure data collected and reported is relevant to both internal and external stakeholders.

This transparently shares our health, safety, environment, security and communities performance over a longer period of time, and builds our environmental, social and governance (ESG) credentials.

Health, safety, environment and security transformation

The health, safety, environment and security (HSES) transformation program has simplified the way we work and provided access to trusted and timely data, ultimately making our business safer. Following three successful pilots in Enablon™ in 2022 – a new digital tool helping us to integrate HSES data and processes into a single platform – global deployment of the core Enablon™ modules started in 2023. Today, more than 70% of the business is using Enablon™, and the final wave of deployment will be completed in early 2024.

We also deployed 11 Enablon™ environment modules across all Saguenay–Lac-St-Jean sites in Quebec, Canada in 2023.

Work continues to expand the capabilities of Enablon™ to support processes such as management of change, in-field safety tools and chemical management, which will drive simplification and standardisation across the Group.

Safety and health performance

	2023	2022	2021	2020	2019
Fatalities at managed operations	**0**	0	0	0	0
All-injury frequency rate (per 200,000 hours worked)	**0.37**	0.40	0.40	0.37	0.42
Number of lost-time injuries	**236**	225	216	187	227
Lost-time injury frequency rate (per 200,000 hours worked)	**0.23**	0.25	0.25	0.22	0.27
Safety maturity model score[1]	**5.2**	4.7	5.7	5.4	4.5
Rate of new cases of occupational illness (per 10,000 employees)[2]	**19.2**	15.1	15.2	16.8	20.7
Number of employees[3]	**57000**	54,000	49,000	47,500	46,000
Fines and prosecutions – safety ($'000)[4]	**330.0**	339.0	646.2	25.4	40.7
Fines and prosecutions – health ($'000)[5]	**0.9**	0.0	5.0	0.0	1.4

1. 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 program based on project and closure cycles. New assets to the program are baselined in the first quarter of each year and added to the Group average at the end of the year.
2. 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).
3. These figures include the Group's share of joint ventures and associates (rounded).
4. In 2023, we paid safety fines resulting from non-compliances identified during MSHA inspections at our Boron and Owens Lake operations, California, US, and Kennecott Copper and Bingham Canyon mines, Utah, US.
5. In 2023, we paid health fines resulting from non-compliances identified during the inspections conducted by the Health Authorities at our Oyu Tolgoi mine in Mongolia.

Contributing causes for newly reported illness cases (employees)

	2023	2022	2021	2020	2019
Noise induced hearing loss	**28**	20	16	23	34
Musculoskeletal disorders	**46**	32	32	29	29
Mental stress	**4**	5	1	2	2
Others	**20**	13	15	14	16

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

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Talent, diversity and inclusion

We are finding better ways™ to live our values and build an environment of trust where everyone feels safe, respected and empowered. This is how we attract and retain world-class talent to our operations globally. Our people have access to outstanding development opportunities allowing them to build skills and capabilities to support them in their role, many that are transferable within and beyond our industry.

2023 progress

Listening to our people

More than 39,000 employees responded to our most recent survey in October 2023, and our employee satisfaction score (eSAT) increased to 74 (from 73 in 2022). Of particular note was the positive progress we are making on key indicators aligned with everyday respect: authenticity (75), belonging (71), inclusion (69) and speaking up (74). We have more to do and will continue to focus on accountability and increasing collaboration inside and outside of our business.

Supporting an inclusive culture

In 2023, we continued our work to support an inclusive culture by implementing the recommendations outlined in the *Everyday Respect Report*. Our focus has been on:

- promoting respect
- investing in leadership development
- creating an inclusive workplace
- increasing support for our people
- ensuring equality through pay equity.

In 2024, we will conduct an independent Everyday Respect progress review. We look forward to reporting on the results and our progress.

Promoting respect

The physical and psychological health and safety of our workforce is a priority. In 2023, 83.5% of our employees completed a learning module on building psychological safety and becoming an upstander.

We have also introduced the concept of "Purple Banners" across the business. Through these updates, we share case studies of recent instances of harmful behaviours and disrespect that has happened in the business. This encourages deeper discussions about conduct among our teams and helps increase transparency.

For more information
about our work to support employees' psychological health and safety see the health, safety and wellbeing section on pages 71-72.

Investing in leadership development

In 2023, we held two leadership conferences to bring our senior leaders together to reflect on our past, make further progress against our strategy and look at ways we can shape the future of our business for the next 150 years. The keynotes, leader presentations and discussions with community groups were underpinned by our values.

We also continue to offer the Voyager leadership program to all senior leaders to help them lead authentically with care, courage and curiosity. This is an immersive leadership experience that accelerates personal growth and deepens self-understanding. This program has now been completed by 72% of our senior leaders. In 2023, we continued to support and develop our leaders through the Leading Sustainable Corporations Programme in partnership with Oxford University and focusing on developing leaders as coaches.

In 2023, we have spent time developing, testing and launching new leadership programs that will help our leaders create a safe environment, empower their teams and perform together.

We are also committed to increasing cultural knowledge, advancing Indigenous leadership in our workforce and creating an environment where everyone feels safe and respected. In Australia, our Indigenous leadership program continues to fast-track Indigenous Australians into professional and leadership roles, helping us to ensure that we have a stronger representation of diverse voices across our business.

For more information
about how we are increasing Indigenous leadership in our business see the CSP commitments section on page 69.

Creating an inclusive workplace

The representation of women across all levels in our business continues to be an important focus. In 2023, we saw an increase from 22.9% to 24.3% and further increases across all levels of the organisation, with senior leaders increasing from 28.3% to 30.1%, and operations and general support increasing from 16.2% to 17.7%.

Implementing the *Everyday Respect Report* recommendations remains our priority and we are confident that this will improve both the attraction and retention of women and other diverse groups to our business.

For more information
about the Everyday Respect initiative see riotinto.com/everydayrespect.

We continued to evolve our award-winning graduate program in 2023 and recruited our biggest cohort yet with 298 graduate roles. Of these, 51.7% in new graduate roles were women and 37.6% were from communities where we are building new businesses. In Australia, 10.6% of the graduate intake (down from 15% in 2022) and 13.8% of our vacation student program (up from 2.2% in 2022) were Indigenous.

In December 2023, we formalised our ambitions to increase representation of ethnic minorities setting a global target of 18% ethnic minority representation within our senior leadership population (Executive Committee direct reports) by the end of 2027.

Collecting and monitoring ethnicity data is challenging in a global context. We have more work to do in 2024 to ensure that we have an accurate understanding of both our baseline and progress against this target. We will report on the progress and the key programs and activities we put in place to increase representation, to ensure our organisation is welcoming and built to support all of our people.

Throughout 2023, we have also made it a priority to address safety and hygiene risks in our facilities with improvements to security, lighting and access to well-maintained restrooms and change rooms. We are performing audits and making rectifications across all major sites and offices. We are committed to investing to ensure that our facilities are safe and meet the needs of our diverse workforce. To provide a safe and constructive way for employees and contractors to raise concerns and give feedback, we have created new village councils across managed villages and camps. We now have over 20 village councils across our camps, and these principles are also being adopted in some of our office locations.

We have also established a global network of Employee Resource Groups (ERGs) to help us find better ways to elevate diverse voices. These employee-led groups, each with an Executive Committee member as a sponsor, bring people with a shared identity together with their allies to offer a diverse lens to business challenges and projects and offer participants career development opportunities. We have three ERGs which are LGBTQ+, neurodiversity and gender equality. We plan to broaden our scope and launch additional ERGs in 2024.

55,000[1] people

make up our workforce of employees and contractors, an increase of 5.8% since 2022 (52,000).

9,166 new hires

joined the business in 2023, of which 2,718 were contractors becoming permanent employees. (2022: 11,062 new hires of which 4,317 were contractors).

24.3% women

in our workforce, an increase of 1.4% since 2022 (22.9%). Workforce breakdown: 13,396 women; 41,660 men; 8 undeclared gender.

62% employees

participated in myShare[2], an increase of 3% (2022: 59%).

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 2023, rounded to the nearest 1,000.
2. myShare is our global employee share plan.

Increasing support for our people

In 2023, the Business Conduct Office (BCO) launched Care Hub, our new independent care unit providing trauma and people-focused support, practical care and alternative resolution options to anyone affected by harmful behaviours. Care Hub currently supports matters reported through myVoice, including matters where reporters are referred to myVoice by Human Resources, our Health, Safety, Environment and Security function, leaders, our Peer Support Network, and has supported over 276 people since launching.

For more information about the BCO, myVoice and Care Hub see page 77.

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

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. Our 2023 equal pay gap is less than 1% in favour of men.

Our 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. Our 2023 gender pay gap is less than 1% in favour of women.

For more information about our commitment to pay equity see riotinto.com/payequity.

Workforce data by region[1][2]

Region	Average employee headcount[3]	Headcount distribution %	Absenteeism[4]	Average contractor headcount[5]	Headcount distribution %
Africa	3,058	6.0%	3.1%	134	2.8%
Americas	16,174	31.9%	0.6%	845	17.7%
Asia	5,834	11.5%	1.2%	137	2.9%
Australia/New Zealand	24,535	48.3%	4.7%	3,594	75.3%
Europe	1,168	2.3%	0.7%	64	1.3%
Total[6]	**50,768**	**100.0%**	**2.9%**	**4,773**	**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 2023.
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. Excludes 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]

		Gender[3]					Age Group[4]				Region[4]				
Headcount distribution %		Women (count)	Men (count)	Undeclared (count)	Women %	Men %	Under 30	30-39	40-49	Over 50	Africa	Americas	Asia	Australia /NZ	Europe
Senior leaders	1.1%	175	407	0	30.1%	69.9%	0.2%	6.4%	44.9%	48.5%	4.5%	26.0%	10.6%	43.8%	15.1%
Managers	8.2%	1,526	3,005	2	33.7%	66.3%	0.5%	25.3%	44.2%	30.0%	5.1%	34.1%	11.3%	43.5%	6.0%
Supervisory and professional	37.2%	6,282	14,173	5	30.7%	69.3%	11.7%	36.7%	30.3%	21.3%	6.4%	24.7%	16.9%	50.0%	2.0%
Operations and general support	52.6%	5,138	23,831	1	17.7%	82.3%	17.8%	28.8%	26.6%	26.8%	6.4%	35.5%	9.1%	47.5%	1.5%
Graduates	0.9%	275	244	0	53.0%	47.0%	84.9%	13.3%	1.8%	—%	5.7%	32.4%	14.6%	46.3%	1.0%
Total	**100.0%**	**13,396**	**41,660**	**8**	**24.3%**	**75.7%**	**14.5%**	**31.1%**	**29.4%**	**25.0%**	**6.3%**	**31.3%**	**12.2%**	**48.0%**	**2.2%**

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 2023.
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. In 2023, eight (8) individuals' gender was undeclared.
4. Representation by Age and Region includes employees only, excludes contractors.

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]	**17.6%**	35.0%	65.0%	42.8%	30.8%	17.8%	8.6%	7.4%	26.2%	14.2%	49.0%	3.2%
Employee turnover rate[7]	**8.4%**	8.7%	8.3%	11.1%	7.9%	6.8%	9.5%	5.2%	6.0%	3.8%	11.3%	7.9%

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 2023.
2. Excludes Non-Executive Directors and contractors.
3. Rates have been calculated based on average monthly headcount in the year per category.
4. In 2023, eight (8) 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.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Human rights

Our human rights program is core to delivering on our business strategy and achieving impeccable environmental, social and governance (ESG) credentials.

Commitment

We commit to respecting and supporting the dignity, wellbeing and human rights of everyone we interact with. Living up to that commitment relies on embedding rights-respecting and ethical behaviour throughout our business, from how we work with local communities to how we choose our suppliers and engage with others in the workplace. We know that our activities, and those of our partners, can have both a positive and a negative impact on human rights. Successfully embedding Group-wide respect for human rights relies on our:

- business culture (to establish supportive mindsets and behaviours aligned with our values)
- processes and systems (to integrate and operationalise human rights due diligence into management systems)
- engagement with broader society (to help address root causes of human rights harm).

For more information
about our human rights commitments see our *Human Rights Policy*.

Progress in 2023

Governance

We continue to evolve our human rights performance to help prevent our involvement in adverse human rights impacts. We regularly review and update internal standards, systems and processes to integrate human rights due diligence and promote more responsible and ethical ways of working.

As part of ongoing assurance of our human rights program, the Group Internal Audit team completed its review of risk assessment and evaluation processes across the Group's identified salient issues. The review found that while risks impacting human rights are being identified and captured in risk management systems, broader Group-wide understanding of risks and human rights consequences is needed. To help with this, we continue to develop our Group-wide human rights controls, with a focus on modern slavery risk control management.

Salient human rights issues

Aligned with the United Nations Guiding Principles (UNGPs) on Business and Human Rights, we identify the priority human rights issues that could severely impact people through our activities or business relationships. These issues consider our operational footprint, value chain and external contexts and include:

- 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.

Assets conduct a range of assessments to enable a more complete understanding of their risk context so they can prevent and mitigate human rights risks. In 2023, Richards Bay Minerals, ISAL, Kennecott, Rincon, Iron Ore Company of Canada and all Pacific region operations undertook risk assessments to review their salient human rights issues. In addition, 13 assets completed human rights and tailings assessments as part of the Global Standard on Tailings Management review. Our human rights team supported higher risk assets as they worked towards conducting human rights impact assessments, with a focus on QIT Madagascar Minerals, Simandou, Rincon and Oyu Tolgoi. For assets in more complex security contexts that involve private and public security forces, we continued to undertake security and human rights assessments.

For more information
about our security and human rights program see our annual *VPSHR* statement.

Our business relationships

We partner with communities, business partners and other stakeholders to advance respect for human rights in line with international standards and our values.

Our joint venture partners

In 2023, we worked with joint venture partners to provide human rights technical support and monitored human rights performance, through Board and Committee roles for non-managed operations. Human rights risk assessments were completed at La Compagnie des Bauxites de Guinée (CBG) and Sohar Aluminium, as part of a broader human rights due diligence program and Aluminium Stewardship Initiative (ASI) certification. CBG received its provisional ASI certification in December 2023.

Suppliers

Using a risk-based approach through our third party due diligence process, we pre-screen our potential business partners and complete desktop human rights reviews. More than 10,000 business partners completed baseline screening in 2023, and 177 were escalated for human rights review. We undertook human rights knowledge shares with 18 strategic suppliers.

We expect our suppliers (including subcontractors) to adhere to our *Supplier Code of Conduct*, which includes respecting human rights. In 2023, we reviewed this code to further clarify our expectations and align with best practice, and plan to launch the updated code in 2024.

In 2023, we focused due diligence efforts on higher risk supplier categories, including logistics and renewables due to operating contexts and potentially higher risk workforces. We started a project to review non-financial, sustainability and human rights risks in core procurement categories to further promote transparency and effective risk management. We expect this work to be completed in 2024.

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

Grievance and remedy

Effective grievance management can enable more trusted relationships. Every asset is required to have a grievance mechanism. In 2023, we updated guidance and provided training to help teams better align practice with the UNGPs effectiveness criteria.

We are committed to providing for, or cooperating in, remediation when we identify we have caused or contributed to, human rights harm. We may also play a role in remediation where we are directly linked to harm through our products, services or operations. Receiving feedback, complaints or grievances from stakeholders is an important part of our ongoing human rights due diligence approach. In 2023 the human rights team provided counsel and support on a range of internal investigations.

Capacity building on human rights

Everyone has a role in respecting human rights; our people are our first line of defence. Our strategy focuses on demystifying, integrating, operationalising and personalising respect for human rights.

In 2023, our human rights team delivered 35 tailored training sessions targeting 11 assets and 12 functional teams globally. We recorded 2,441 completions of our modern slavery online learning module. We will launch further learning initiatives to support our target to train 100% of high-risk human rights roles by the end of 2024. Our human rights training records are available in the *2023 Sustainability Fact Book*.

Collaboration

It is crucial that we collaborate with peers, civil society organisations and others given the systemic nature of human rights issues. We identify and embrace initiatives that work to mitigate the root causes of human rights harm. We advocate on public policy efforts that help businesses respect human rights. We continue to engage with peers, investors, civil society organisations, workers' organisations and business partners on issues relating to human rights. In 2023 this focus included multiple industry initiatives including International Council on Mining and Metals Human Rights working group, the Human Rights Resources and Energy Collaborative, and the Mining Association of Canada's International Social Responsibility Committee. We actively participate in the Voluntary Principles Initiative and United Nations Global Compact networks and attend regional business and human rights forums in Africa, Asia and Europe.

For more information
about how we engaged with our key stakeholders, including civil society organisations see pages 12.

Governance performance

We expect our people and partners to uphold the highest standard of integrity, act ethically and do the right thing. The way we treat our people, our partners, the environment, the communities where we work, and how we conduct business is what makes us a responsible partner of choice.

Transparent, values-based, ethical business

2023 progress

Code of Conduct

In early 2023, we launched *The Way We Work*, our updated Code of Conduct, which is available at riotinto.com/ethics. It is designed to help all employees and contractors live our values of care, courage and curiosity, and is a a central tool in reshaping our culture. The values, commitments and behaviours set out in our Code of Conduct provide clarity which allows us to deliver responsibly. It is broader in scope than the previous version, reflecting changes in societal expectations. It also includes our newly developed ethical decision-making model to help our people reflect on the potential impacts decisions may have on the business and others. An interactive, online version of the Code of Conduct is also available, including additional related content, real life examples and associated training.

Compliance program developments

Business integrity is core to how we build trust with our stakeholders and the foundation of our ability to run our operations. Our Business Integrity Compliance Program (BICP) is continuously evolving to align with leading industry practice, the regulatory landscape and specific business integrity risks we face across the countries where we operate.

During 2023, we delivered several BICP improvements:

- We set up a new online disclosures system for gifts and entertainment from and to third parties, conflicts of interest and sponsorship and donations. This increases transparency and allows us to automate approvals and workflow.
- We are exposed to reputational, financial and non-financial risk through our third parties' actions. We continued to enhance our Third-Party Risk Management (TPRM) framework and hired relevant subject matter experts in areas such as sanctions and renewables. Our TPRM Committee meets regularly to set policy and risk appetite associated with categories of third-party risk. We have also started to implement a new TPRM system to increase automation and improve risk management by integrating it with other associated business processes.
- We completed a fraud risk assessment across the organisation and reviewed our controls to prevent and detect fraud risk. This helps us better understand the root causes of fraud and improve our response.
- We hired more people in country to support developing businesses in high-risk jurisdictions, such as Guinea and Argentina.
- We invested in our Sanctions Compliance Program to enhance our monitoring of trade sanctions and increase awareness of trade sanctions compliance.

25,187 employees

undertook compliance training in 2023

Annual training

Our reputation as a business that operates with high levels of integrity is dependent on the actions and decisions we make each day. We empower our people to seek guidance when faced with ethical or business dilemmas – both to prevent incidents from occurring, and to protect them and others from harm. To help equip our workforce to navigate uncertain areas and spot ethical and compliance-related risks, we implemented a new online training course focused on ethical decision making through several interactive, real-life scenarios. 25,187 employees completing online compliance training in 2023.

In addition to online training, the Ethics and Compliance team delivers tailored risk-based face-to-face training on anti-bribery and corruption, data privacy, anti-trust and trade sanctions. A total of 6,359 employees received face-to-face training in 2023. We also provide business integrity training to our third parties on a risk basis.

Operations Centre in Perth, Australia

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

myVoice, our confidential reporting program

We want to create a safe, respectful and inclusive workplace, with a strong ethical culture, that reflects our values, and we encourage and support our people to speak up if they have concerns about potential misconduct or harmful behaviour. A strong culture of speaking up, with protections against reprisal, enables us to identify and address potential issues early, respond appropriately, minimise risk and care for our people and the communities in which we operate.

The myVoice program enables confidential and anonymous reporting, including protected whistleblower disclosures. myVoice is operated by the Business Conduct Office (BCO), which reports to our Chief Legal, Governance and Corporate Affairs Officer, and provides regular program insights to the Board and the Group Ethics and Compliance Committee.

In 2023, the BCO continued to enhance the myVoice program by refining our triage and investigation processes, including a people-centric, trauma-informed approach.

Care Hub

In 2023, the BCO launched Care Hub, which provides additional and more accessible channels to raise concerns, access wellbeing support and explore resolution options. Care Hub provides options to resolve reports of harmful and disrespectful behaviour via alternative resolution and early intervention where appropriate rather than investigation. Our support partners facilitate specialised care, guidance and resolution options for our people for matters involving racism, sexual harassment and assault, bullying and harassment or discrimination. They also support leaders, Human Resources, respondents and witnesses to those behaviours. Care Hub is underpinned by regionally appropriate support services and resolution options informed by diverse voices throughout the organisation.

Since launching, Care Hub has supported over 276 people, and feedback has been positive; people feel safe and supported.

We established a BCO reporting and governance function to help us capture and communicate early insights. In 2023, we saw an increase in the number of concerns raised through myVoice to 1,613 (2022: 1,459).

The rate of reporting per 1,000 employees was 29.1 in 2023 (2022: 28.1). Anonymous reporting in 2023 (40%) remained consistent with trends in previous year (2022: 38%).

Of the cases investigated by the BCO, 61% were substantiated in 2023 (2022: 65%). Of the cases closed in 2023 (for both matters reported into myVoice in 2023 and prior periods), the average days to close a case reduced to 38 days from 52 days in 2022.

Upcoming areas of focus:

- Refine and update the myVoice Procedure to reflect enhancements to our framework and processes.
- Continue to expand our data analytics capability and provide the business with insights that enable our people to strengthen processes and culture, locally and globally.
- Expand the channels of reporting to services and support available through Care Hub.
- Continue to identify possible barriers preventing individuals from speaking up.
- Track the increased awareness and impact of the BCO's interventions in more depth through data analytics.

We know there is more work to do to improve our organisational culture. Each person's experience of misconduct is unique. We are committed to holding ourselves accountable and having controls in place to identify where our business processes may have created an opportunity for misconduct to arise. This is critical to ensuring our people feel safe and respected in the workplace.

Transparency

Transparency encourages accountability – ours as well as others'. 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. This 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. 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 and 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 at 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 independent organisations and initiatives assess and recognise our performance, and we participate in industry accreditation programs for some of our products.

For more information about our voluntary commitments, accreditations and memberships see riotinto.com/sustainabilityapproach.

myVoice cases reported by category (% of cases reported)

	2023		2022		2021		2020		2019	
Case rate	**29.1**		28.1		25.7		14.5		15.9	
Reports received[1]	**1,613**		1,459		1,246		748		804	
	Reports received	**Reports substantiated[2]**	Reports received	Reports substantiated	Reports received	Reports substantiated	Reports received	Reports substantiated	Reports received	Reports substantiated
Business integrity	**254**	**48%**	211	52%	154	36%	102	51%	134	36%
Personnel	**1,196**	**55%**	1,034	65%	819	57%	421	38%	454	31%
Health, safety, environment[3]	**109**	**61%**	120	47%	186	22%	68	35%	52	46%
Communities	**4**	**0%**	10	0%	6	0%	25	0%	3	0%
Information security	**22**	**0%**	16	67%	18	36%	99	47%	111	81%
Finance	**2**	**50%**	1	0%	0	0%	2	68%	5	33%
Other	**26**	**0%**	67	33%	63	14%	31	50%	45	0%

1. Includes multiple reports relating to same allegations, where applicable.
2. Based on all cases investigated and closed during 2023, including cases reported in previous years. Where percentages slightly differ from previous annual reports, this can be due to a number of factors including re-opening of cases, internal reviews or quality assurance processes.
3. Contained community concerns pre-2020 are now split into a separate category.

Our approach to risk

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

Risk appetite is an expression of the acceptable exposure to uncertainties that an organisation is willing to accept in pursuit of its strategic objectives. Energy transition continues to be core to our strategy to strengthen our resilience and pursue new growth opportunities and partnerships.

Partnering to advance decarbonisation efforts

Our targets are to reduce our absolute Scope 1 and 2 emissions by 15% by 2025 and by 50% by 2030 (when compared to 2018 levels), and achieve net zero emissions from our operations by 2050.

We aim to reduce our Scope 3 emissions from the Iron Ore Company of Canada (IOC) by 50% by 2035, and increase our marine emissions intensity reduction target to 50% by 2030.

We expect to invest $5-6 billion in capital to 2030 to deliver our decarbonisation strategy.

Our approach to investment is based on commercial transactions for available technologies and attractive economies; transformational projects that transition our assets for low carbon; and industry breakthroughs in hard-to-abate processing.

Developing products and technologies to create options for the future

We partner with customers, competitors, suppliers, technology developers, governments and universities to tackle the energy transition.

We are committed to support customers with their intent to reduce carbon emissions from existing blast furnaces by 20% to 30% by 2035. We expect to spend around $400 million every year in research and development on the five components of our technology road map to deliver on this: health and safety, lightening our overall environmental footprint, supporting growth, decarbonising our business and our products, and improving productivity.

The full list of climate targets is published in our *Climate Change Report*.

Shaping our portfolio to enable the 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 to achieve 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.

Port Dampier, Australia

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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 impact on nature.

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

Set strategy, objectives and risk appetite	Risk analysis	Risk management	Assurance	Communication	Improve & embed
	Identify and evaluate risks to our strategy and objectives	Implement controls and actions to manage risks within risk appetite	Check and verify that controls and actions are effective in managing the risks	Communicate current and emerging risks and escalate as appropriate	Build risk capability and culture so active management is embedded in how we run our business
Plan		Do	Check	Act	

Rio Tinto has an enterprise-wide risk management information system (RMIS) which includes a set of integrated tools and applications to capture, manage and communicate material risks to the business. We are currently implementing a program to refresh our three lines of defence as a core part of the risk management framework, enabled by the development and implementation of a Group Control Library to strengthen the first line and optimise the second line.

Governance structure supporting our risk management framework

Board and sub-committees

Full Board	Audit & Risk Committee	Sustainability Committee	People & Remuneration Committee

Executive management committees

Risk Management Committee	Ore Reserves Steering Committee	Evaluation & Investment Committee	Ethics & Compliance Committee	Disclosure Committee
Major Hazards Technical Committee	Closure Steering Committee	Safety & Operations Committee	Cyber Security Steering Committee	Financial Risk Management Committee

Operational management committees

Management steering committees providing oversight of risk management in their areas of responsibility

Strategic and portfolio risks

- Resources to Reserves risks
- Capital project risks
- Technology risks
- Portfolio opportunities
- Low-carbon transition risks

People, partnerships and operational performance risks

- People and culture risks
- Major hazards risks
- Health, safety, environment and security (HSES) risks
- Communities and social performance (CSP) risks
- Climate change and natural disaster risks
- Cyber risks
- Ethics and compliance risks
- Third-party risks
- Non-managed asset risks
- Managed asset risks
- Closure risks

Financial and commercial risks

- Liquidity risks
- Market risks
- Credit risks
- Tax risks
- Disclosure risks

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 own 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. Given our diverse portfolio and geographical footprint, we are exposed to many highly uncertain, complex and often interrelated risks. We track leading indicators of emerging risks and their likely impact on our business, markets and host communities. Our analysis is anchored on our global scenarios as outlined in the Strategy section on page 14.

We have actions in place to minimise the potential impact of heightened geopolitical tensions and macroeconomic uncertainty that could impact our performance. We have put actions in place to minimise this impact. This is discussed within principal risks 11 and 14 detailed in the following pages.

Governments have been introducing new policies to support reindustrialisation, accelerate decarbonisation and meet societal expectations. While this could support demand for materials we produce and provide support for both new and existing operations, it could also encourage competition.

The rapid proliferation of Artificial Intelligence (AI) and advancing technologies is an emerging area of exposure for the business. We recognise the significant opportunities and threats presented by the use of AI for us and the global economy. Our focus is on further understanding this evolution and ensuring we have strong risk management and governance processes to support its use.

Climate change and the low-carbon transition continue to provide both opportunity and threats for us. We closely monitor and assess the impact of climate change through scenarios; see page 46-47. We address these and our current actions under our principal risks 2, 4 and 8. Please refer to the climate change section on pages 44-58 for further details.

Longer-term viability statement

Context

To deliver our strategy, which is underpinned by our business model, we must meet our four strategic objectives. Our strategy and business model are outlined on pages 8 and 9 respectively.

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 and model.

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 (2024-28) of the business plan. This allows for a detailed analysis of the potential impacts of risks materialising in the first three years and enables us to further stress test the business plan for risks materialising towards the end of the time period, although with less certainty. Our Directors are therefore able 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, prospects or reputation. For the viability assessment, we have considered principal risks that could severely impact the Group's liquidity and solvency.

Assessment of viability

The principal risks and key assumptions considered in our longer-term viability assessment are as follows:

Principal Risk A

Remaining competitive through economic cycles or shocks

Scenario assumptions: A global financial crisis takes place in 2024, akin to the one that took place in 2008, albeit not as severe, and extends through to the end of the assessment period. It assumes commodity prices experience large negative pricing shocks in 2024, which is sustained through 2028.

Principal Risk B

Group material major hazard or cyber risk

Scenario assumptions: A singular catastrophic event occurs, resulting from a major operational failure or cyber security breach, such as a tailings and water storage facility failure, extreme weather event, or underground or geotechnical event. It results in multiple fatalities, cessation of operations and significant financial impacts. We have assumed two such events occur within the assessment period. It relates to principal risks 1 (Preventing fatalities, permanent disablements, and illness) and 12 (Preventing material business disruption and data breaches due to cyber events).

Principal Risk C

Delivery of our growth projects

Scenario assumptions: A risk impacting our ESG credentials materialises (for example, principal risks 6 (Building trusted relationships with Indigenous Peoples) and 3 (Building trusted relationships with communities), impacting our ability to deliver our growth strategy. We have assumed an impact on our near-term key projects and considered available alternatives. The financial impact assumed here is in addition to any non-financial impact, such as reputational damage.

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. We apply a probabilistic approach to quantify risks and impacts where relevant.

The first five years of the Group's business plan has 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.

The most "severe" scenario, 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 time 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 an estimated outflow of $6 billion in aggregate.

We have a suite of management actions available to preserve resilience through the period of assessment, including accessing lines of credit, reducing organic and inorganic growth capital expenditure and raising capital. Our financial flexibility could be limited during the peak of the crisis. The viability of the Group under all the scenarios tested remained sound.

The resilience of the Group's business model is largely underpinned by four factors:

- the competitive position and diversification of our commodities portfolio
- the disciplined capital allocation framework and commitment to prudent financial policy
- the pay-out shareholder return policy being based on earnings, and is therefore more sustainable
- the focus on achieving impeccable ESG credentials and therefore strengthening our social licence, which allows for growth and maintained access to debt capital and bank loan markets.

Therefore, considering the Group's current position and the robust assessment of our emerging and principal risks, the Directors have assessed the prospects of the Group over the next five years (until 31 December 2028) and have a reasonable expectation that we will be able to continue to operate and meet our liabilities as they fall due over that period.

In the long term, there are four principal risks with long-dated consequences that could have a material impact on our viability.

- Preparing our Iron Ore business to meet the demand for green steel[1].
- Leaving a positive legacy for future generations, embedding closure considerations throughout the lifespan of our assets.
- Minimising our impact on the environments we work in and building physical resilience to changes in those environments, including climate change and natural disasters.
- Delivering our growth projects.

The principal risks and uncertainties section provides further details including current management responses.

1. Produced through low CO_2 technologies.

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 emerges 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 consequence and likelihood. These assessments, and the effectiveness of our associated controls, reflect management's current expectations, forecasts and assumptions. By definition, they involve subjective judgements and depend on changes in our internal and external environments. While we deploy controls to reduce the likelihood and consequence of risks, 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.

The principal risk potential assessments mapped below are primarily based on our managed operations. We are exposed to risks associated with our non-managed joint ventures which, if they arise, may have consequences on our reputation or our financial condition. We 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. We do this through engagement, embedded representatives and influence, in line with applicable laws.

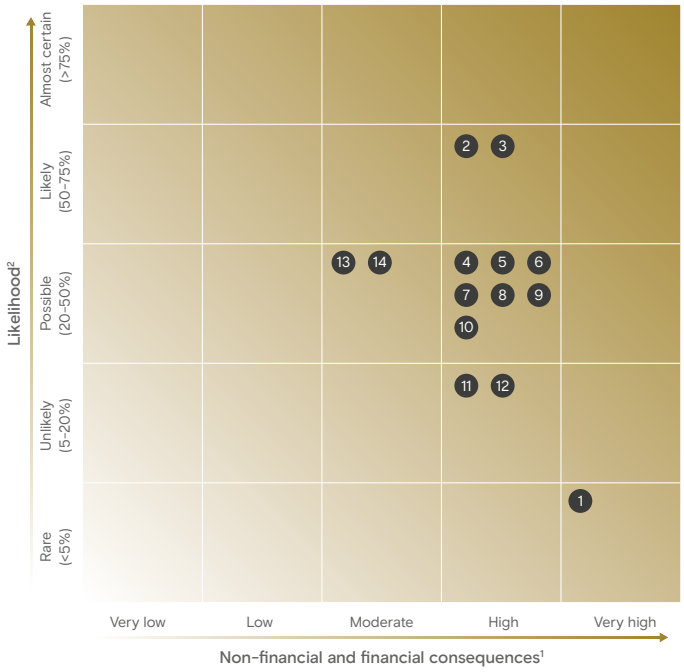
The timeframe of our principal risks is within five years unless explicitly stated otherwise.

We frame our principal risks in the context of our overarching strategic objectives: to be the best operator; to achieve impeccable ESG credentials; to excel in development; and to protect our social licence. These are summarised in the table below in order of maximum reasonable consequence, likelihood and change since 2022.

Current assessment of principal risks

As of February 2024

	Principal risk	Key objective	Oversight
1	Preventing fatalities, permanent disablements, and illness from a major hazard or safety event	Best operator	Sustainability Committee
2	Preparing our Iron Ore business to meet the demand for green steel	Best operator	Board
3	Building trusted relationships with communities	Social licence	Sustainability Committee
4	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
5	Leaving a positive legacy for future generations, embedding closure considerations throughout the lifespan of our assets	Social licence	Sustainability Committee
6	Building trusted relationships with Indigenous Peoples	Social licence	Sustainability Committee
7	Delivering on our growth projects	Excel in development	Board
8	Achieving our decarbonisation targets competitively	Impeccable ESG	Board
9	Conducting our business with integrity, complying with all laws, regulations and obligations	Impeccable ESG	Board
10	Transforming our culture, enabling us to live our values	Best operator	Board
11	Remaining competitive through economic cycles or shocks	Best operator	Audit & Risk Committee
12	Preventing material business disruption and data breaches due to cyber events	Best operator	Board
13	Attracting, developing and retaining people with the requisite skills	Best operator	People & Remuneration Committee
14	Withstanding the impacts of geopolitics on our trade or investments	Best operator	Board



1. Free cash flow or business value (NPV)
2. Considering effectiveness of existing controls

Change versus 2022 represents changes in risk evaluation, movements up or down are driven by changes in consequence or likelihood.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

1. 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 where we operate. 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. Our focus is on identifying, managing and, where possible, eliminating risks.

Strategic alignment	Change vs 2022
Best operator	Stable

Opportunities

Demonstrating our ability to meet or exceed our commitments in safety and hazard management can support us in attracting and retaining talent and help us achieve our impeccable ESG credential objective.

Threats

Major hazards include process safety, underground mining, slope geotechnical and tailings management. Failing to effectively manage these risks could result in a catastrophic event or other long-term damage. Loss of technical capability at complex operations poses a significant risk.

While not considered major hazards, significant risks at our sites include falling objects, fall from height, and vehicles and driving. These are the top three causes of potentially fatal incidents (PFIs) which could result in fatalities in our business.

Key exposures

Our underground operations such as Oyu Tolgoi, Diavik and Kennecott. Geotechnical risk at our Kennecott and QIT Madagascar Minerals (QMM) operations. Mass passenger transportation risks (including chartered aviation). Process safety at our smelters and refineries. Our tailings and water storage facilities.

Risk oversight

The Major Hazards Steering Committee, Risk Management Committee and Sustainability Committee.

Management's response includes:

- Oversight by the Sustainability Committee, supported by the Risk Management Committee, Major Hazard Steering Committee and quarterly major hazard meetings taking place at each product group.
- Providing key technical capability in hazard and asset management through our Centres of Excellence within our Development & Technology function. Providing assurance against the Group Standards and Procedures with an associated control library in the RMIS.
- Ongoing implementation of the Global Industry Standard on Tailings Management (GISTM).
- Focusing on fatality elimination through our critical risk management (CRM) program.
- Reporting, investigating and sharing learnings from HSES incidents internally (such as sharing learnings from PFIs) and monitoring HSES performance monthly at Group level.
- Building safety targets into personal performance metrics to incentivise safe behaviour and effective risk management (as outlined in our Remuneration report).

2. Preparing our Iron Ore business to meet the demand for green steel

Decarbonisation of iron and steel making may affect the future relative values of our iron ore products. We have the opportunity to unlock business value through the optimisation of our iron ore product strategy, partnering with technology providers and universities, and innovating with our customers to position ourselves favourably for the future demand for green steel.

Strategic alignment	Change vs 2022
Best operator	Stable

Opportunities

By proactively engaging with customers, technology providers and research institutes we can develop low-carbon steelmaking pathways suited to our low-mid grade ores, protecting the future value of our Pilbara ores.

Threats

The emerging low-carbon iron and steel making technologies require high grade iron ores, and may not favour low-mid grade ores such as those found in the Pilbara. This could impact the future competitiveness of our iron ore portfolio. Decarbonisation of the steel value chain will require the development and proliferation of economic low-carbon technologies suited to low-mid grade ores.

This principal risk is focused on a medium- to longer-term time horizon.

Key exposures

Pilbara low-mid grade ores.

Risk oversight

The Steel Decarbonisation Steering Committee and the Board.

Management's response includes:

- Reshaping our Iron Ore portfolio to bring additional high-grade ore to the market, such as Simandou.
- Establishing the Rio Tinto Steel Decarbonisation team to identify and develop technical and commercial options through deep partnerships and collaboration across the steel value chain with a specific focus on economic low-carbon solutions for our Pilbara ores. See our *2023 Climate Change Report* for further details.
- Exploring beneficiation and modular concentrators with technology partners to upgrade Pilbara ores to reduce impurities and increase amenability to future low-carbon steelmaking technology.
- Developing long-term strategic research and development partnerships with key iron ore customers including Baowu, Nippon Steel, BlueScope, POSCO, Zenith and Shougang to explore a range of economic new low-carbon technologies suited to low-mid grade iron ores. Key areas of focus include the development of electric melter technology, fluidised bed technology, carbon capture, use and storage, as well as optimisation of existing blast furnaces.
- Developing BioIron™ in partnership with the University of Nottingham and Metso. The BioIron™ process uses sustainable biomass and microwave energy to convert Pilbara ores into metallic low-carbon iron.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

3. Building trusted relationships with communities

If we are not viewed as a trusted partner by communities and broader society, our performance, future prospects and reputation will be impacted.

Strategic alignment	Change vs 2022
Social licence	Increasing

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

Our 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 social and economic outcomes in communities that host our operations. Other potential issues can include operational disruption, security incidents, expropriation, export or foreign investment restrictions, increased government regulation and delays in approvals, which may threaten the investment proposition, title or carrying value of assets.

Key exposures

Simandou, Richards Bay Minerals (RBM), Resolution, QMM, Oyu Tolgoi and Jadar.

Risk oversight

The Risk Management Committee and the Sustainability Committee.

Management's response includes:

We seek to build trusted relationships with communities by:

- Strengthening community engagement through appropriately resourced and skilled CSP teams (with support from the CSP Area of Expertise) and having clear accountability for relationships with host communities residing with the asset leader.
- Delivering sustainable, long-term outcomes through strategic social investment for impact, regional economic development and mutually beneficial partnerships.
- Setting the minimum operating standard through our revised *Communities and Social Performance Standard* and *Human Rights Policy*.
- Setting local procurement policies and targets, including local content commitments for major capital projects.
- Uplifting capability in our leadership and teams across our organisation supported by our CSP Area of Expertise to coach and elevate CSP expectations.
- Building our capacity for grievance management so that we address and remedy (where applicable) issues before they escalate to more serious problems.
- Implementing human rights due diligence to improve our understanding of potential harms and mitigating their occurrence wherever possible.
- Deploying specialist technical resources where required to support business units to manage more complex issues and risks.

4. Minimising our impact on the environments we work in and building physical resilience to changes in those environments, including climate change and natural disasters

Producing the materials the world needs means we have an impact on the environment. Our operations and projects are inherently hazardous, requiring proactive management to minimise potential impact to water resources, air quality or biodiversity in new asset developments, existing operations and closures. Our assets, infrastructure, communities and broader value chains are exposed to the impacts of extreme weather events, such as drought, flooding, heat waves and fires. Climate change is expected to impact the frequency, intensity and likelihood of extreme events.

Strategic alignment	Change vs 2022
Impeccable ESG	Increasing

Opportunities

By understanding specific exposures across our portfolio, our capital programs can incorporate measures to minimise environmental impact and improve resilience in the event of an extreme climatic event. Development and investment in nature-based solutions, independent of mining operations, addresses climate change while halting and reversing nature loss, and supporting the resilience of communities through alternative socio-economic opportunities.

Threats

A number of our operations and future development opportunities exist within, or close to, sensitive biodiverse regions. Our licence to operate and develop requires us to demonstrate our capability to protect ecosystems and community health through improved practices and technological solutions. Natural hazards or extreme weather events can endanger our employees and communities, damage our assets or cause significant operational interruption. Longer-dated exposure to chronic changes in climate is less understood given the inherent uncertainty in future climate projections.

Key exposures

Our operations in the Pilbara and Saguenay-Lac-Saint-Jean region, Simandou and RBM.

Risk oversight

The Risk Management Committee and the Sustainability Committee.

Management's response includes:

- Our product group CEOs endorsing Annual Environmental Certification across all assets.
- Understanding our exposure at each asset through programs such as our critical risk assessment (CRA) program and asset integrity assurance, and climate change resilience assessments (CCRAs).
- Applying protective principles instead of having a compliance-driven approach at all our operations. Fostering proactive relationships with international civil society organisations, governments and environment departments to support protective legislation.
- Actively supporting and reporting our practices against the commitments outlined in the International Council on Mining and Metal's position statement on water stewardship.
- Using the latest-generation climate analytics (weather forecasts, climate outlooks, catastrophe modelling and projections) to gain quantitative insights into short-, medium-, and long-term physical climate risks.
- Developing technical guidance to inform physical climate risk identification, management and adaptation.
- Having Business Resilience Plans and Emergency response plans, training and annual exercises to prepare for a natural disaster event, including established communication plans and coordination with local, regional and state agencies.

5. Leaving a positive legacy for future generations, 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, embedding closure considerations throughout the entire lifespan of our assets – in the way we design, build, run, close and transition them.

Strategic alignment	Change vs 2022
Social licence	Increasing

Opportunities

The opportunities for us to improve our existing closure planning lie in working more closely with our stakeholders over the life of our managed operations to understand and work towards agreed outcomes. We also invest in research and development to find efficient and better ways to manage closure risks. Finally, we look for opportunities to repurpose and reuse sites for future economic and social benefit so that we can relinquish or divest our closed and legacy sites where possible.

Threats

Financial obligations for closure may increase over time due to stakeholders' and community expectations, regulation, standards, technical understanding and techniques.

Exposures at a closed or legacy asset could impact our reputation, our licence to operate globally and the cost of closure. The legacy portfolio continues to retain a level of uncertainty due to the lack of historic information. We are progressively undertaking studies to determine options for future management.

Key exposures

Pilbara near-term closures (including Channar), Gove, Argyle, Energy Resources Australia (ERA) (non-managed), and the Panguna site in Bougainville (legacy).

Risk oversight

The Closure Steering Committee and the Sustainability Committee.

Management's response includes:

- Oversight by the Closure Steering Committee, which recognises the importance of closure to our stakeholders and the significant liability it represents for our business. The Committee is represented by both functions and product groups.
- Implementing the Closure Standard; second line assurance has been completed on three operating and six legacy assets in 2023.
- Updating our Asset Closure Strategy (ACS) at least every five years over the life of our managed assets. This includes a plan and cost estimates. 59% of our active operations have developed an ACS.
- Undertaking closure studies for sites that plan to close in the next ten years.
- Incentivising progressive closure activities by removing approved spend from product group free cash flow from 2024.
- Actively exploring cost-effective solutions to common challenges through targeted research and development projects and improvements in closure planning, studies, execution and legacy management.
- Ensuring capability and diversity within the Closure business unit team, with dedicated CSP, health and safety, and major hazard professionals supporting the closed and legacy assets.
- Developing management plans for tailings facilities across our legacy assets aligned with the GISTM ratings.
- Participating in the Panguna Mine Legacy Impact Assessment which will cover environmental impacts, and directly connected social and human rights impacts, caused by the Panguna mine since cessation of mining. Findings are due in 2024.

6. Building trusted relationships with Indigenous Peoples

Our relationships with Indigenous Peoples play a material role in delivering our operational and strategic goals and in our ability to operate. A breakdown in these critical relationships may have a significant impact on our business. We aim to build respectful and enduring relationships with Indigenous partners and communities, enabling them to realise their goals and aspirations, and to create long term shared benefits.

Strategic alignment	Change vs 2022
Social licence	Stable

Opportunities

We have the opportunity to work closely with Indigenous Peoples to realise long-term socio-economic, cultural and environmental benefits. Our capacity to deliver value to host communities and the Indigenous Peoples of the territories on which we operate supports our current and future growth plans including in the Pilbara, Winu, Weipa, Gove and the Saguenay–Lac-Saint-Jean region, with and existing partnership at Iron Ore Company of Canada.

Threats

Mining activities may strain relationships with Indigenous Peoples, particularly where actual or perceived damage of significant cultural values (cumulative or acute) occurs without consultation and consent. This may result in loss of trust with Indigenous Peoples, impacting our social licence to operate.

Key exposures

Resolution, Pilbara and British Columbia.

Risk oversight

The Risk Management Committee and the Sustainability Committee.

Management's response includes:

- Undertaking an Independent Cultural Heritage Management Audit throughout 2021 and 2022 across 20 Australian assets and 17 non-Australian assets. Releasing ERM's independent report in March 2023 evaluating our performance in cultural heritage management.
- Strengthening the integrated cultural heritage management system through the close-out of the audit findings and embedding social considerations in approvals and decision-making processes at all levels of the organisation.
- Building cultural responsiveness and competence across our leadership teams and workforce.
- Strengthening consultation, meaningful engagement and free, prior and informed consent (FPIC) processes through the finalisation of an internal toolkit.
- Improving the quality of our complaints and grievance processes through training and guidance materials.
- Focusing on improved agreement making and implementation practices across the Group, including agreement modernisation efforts in Western Australia.
- Strengthening Indigenous leadership, employment and economic development efforts.
- Setting clear guidance on how we should conduct our business, no matter where we work or where we are from through our Code of Conduct, *Communities and Social Performance Standard*, and *Human Rights Policy*.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

7. Delivering on our growth projects

Delivering our growth strategy relies on our ability to develop resources faster and more competitively than others, while aiming for impeccable ESG credentials, and on the success of our exploration and acquisition activities to secure those resources. Developing projects requires complex multi-year study and execution plans and carries significant delivery risk.

Strategic alignment	Change vs 2022
Excel in development	Stable

Opportunities

Active and focused exploration and business development efforts have the potential to increase or diversify our commodity resource base. Through operational efficiencies, deployment of new technologies or improved understanding of our orebodies, we may convert a greater proportion of resources to reserves more competitively.

Threats

New high-quality deposits are increasingly scarce and those that are known require advances in processing technology, significant capital investment or may negatively impact our ESG credentials. Additionally, as studies and projects progress, they are susceptible to changes in approvals, societal expectations or changes in underlying commercial or economic assumptions, which could impact economic viability.

Key exposures

Simandou, Pilbara increasing approval time frames, Oyu Tolgoi underground expansion, Rincon, Resolution and Jadar.

Risk oversight

The Investment Committee, the Ore Reserves Steering Committee and the Board.

Management's response includes:

- Focusing on our objective "Excel in development" to deliver inorganic and organic growth through alignment across the Group, leveraging our in-house capabilities (such as exploration, processing at Bundoora, Business Development, Battery Materials team, specialised projects and studies division).
- Progressing our ambition to invest up to $3 billion per annum of growth capital expenditure focused on energy transition commodities, such as copper, battery materials, high-grade iron ore and critical minerals (rhenium, tellurium, scandium and selenium).
- Developing joint venture partnerships to enhance development capabilities and reduce funding requirements such as the joint venture with First Quantum to develop the La Granja project.
- Broadening our scope to include higher-risk jurisdictions and targets (with a few exceptions, such as Russia) and consider minimum viable projects that can grow and create optionality or are a strategic fit for the Group.
- Stage gate approval process (Evaluation and Investment Committees, Board) including in-flight monitoring of project progress, as articulated in our Project Evaluation Standard and Guidance.
- New country entry (NCE) reviews to ensure robust ESG and human rights due diligence during exploration or M&A.

8. Achieving our decarbonisation targets competitively

Ensuring our ability to deliver longer-term strategic objectives, achieve our Scope 1 and 2 targets between now and 2050 and deliver on our focus area of impeccable ESG, while balancing the need to invest for growth, deliver superior shareholder returns and remain competitive.

Strategic alignment	Change vs 2022
Impeccable ESG	Stable

Opportunities

Decarbonising our assets has the potential to enhance our competitive advantage (tariffs and access to markets) as well as embedding a culture of energy efficiency and allowing us to explore economic opportunities that will 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 well placed to be a leading supplier of materials to support the energy transition; for example, aluminium for solar panels and copper for electric vehicles.

Threats

Delays in priority initiatives will threaten our Scope 1 and 2 target delivery and ability to respond proactively and competitively. A key uncertainty is our ability to successfully engage (and partner where appropriate) with governments and other external parties to progress grid decarbonisation. Furthermore, our 2030 targets include new technology that is dependent on timely and successful investment in research and development; for example, hydrogen calcination and BlueSmelting™.

Following our social and human rights standards during implementation of decarbonisation projects will be critical to avoid adversely impacting people and stakeholder relationships. However, this may limit our available sourcing options and lead to delays in meeting our targets (for example, solar panel sourcing).

Key exposures

Rio Tinto Aluminium Pacific Operations (Pacific Ops) repowering and Alumina processing.

Risk oversight

The Risk Management Committee and the Board.

Management's response includes:

- Delivering our targets through six large abatement programs focused on renewables (such as Pilbara, RBM, Pacific Ops), ELYSIS™, alumina processing (Yarwun and Queensland Aluminium Limited [QAL]), mineral processing and diesel; complemented by nature-based solutions and offsets.
- Establishing a dedicated team, Rio Tinto Energy & Climate, to focus on accountability for decarbonisation decision-making, funding and resource prioritisation, data collection and analysis.
- Having our Office of the Chief Scientist support decarbonisation research and development to identify pathways for hard-to-abate areas required to meet our targets.
- Developing partnerships with external parties to leverage broader capabilities and accelerate decarbonisation including:
  - Centre for Future Materials led by Imperial College London to find innovative ways to provide the materials the world needs for the energy transition.
  - Yarwun Hydrogen Calcination Pilot Demonstration Program in partnership with Sumitomo.
  - Pilbara renewables memorandum of understanding with Yindjibarndi Energy Corporation.
  - Battery Electric Haul Truck program pilots in the Pilbara with Caterpillar in 2024 and Komatsu in 2025.

9. Conducting our business with integrity, 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 our obligations. These expectations are outlined in our Group policies, standards and procedures, published on our website at riotinto.com/policies.

Strategic alignment	Change vs 2022
Impeccable ESG	Stable

Opportunities

Good corporate citizens that operate to high ethical standards are known to contribute to a healthy culture, out-perform peers and attract better talent leading to greater success in securing access to resources and investment opportunities.

Threats

A serious breach in our operations or in our value chain of anti-corruption legislation or sanctions, human rights, anti-trust rules, or inappropriate business conduct, could result in serious harm to people and significant reputational and financial damage.

Key exposures

Argentina and Guinea.

Risk oversight

The Group Ethics & Compliance Committee and the Board.

Management's response includes:

- Oversight of principal risk areas and assessment of cultural indicators by the Board and the Group Ethics & Compliance Committee.
- Maintaining management oversight and reporting through risk, assurance and compliance forums with operational and functional teams, supported by ethics and compliance risk management review forums.
- Implementing an effective, risk-informed Business Integrity Compliance Program across the Group.
- Having dedicated legal teams to assist our businesses in identifying, understanding and complying with current and emerging regulatory obligations.
- Having a dedicated Third Party Risk Management team within Ethics & Compliance and a Third Party Risk Management Committee that oversees third party risk management policy and risk appetite decisions at a Group level.
- Having a Litigation & Regulatory team and Areas of Expertise for anti-bribery, corruption and competition.
- Training and building awareness on compliance program requirements and regulatory obligations for both employees working in high-risk roles and high-risk third parties.
- Integrating 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.
- Assuring compliance with our policies, standards and procedures including the Business Integrity standard and procedure, the third-party and human rights due diligence procedures.
- Implementation of the Voluntary Principles on Security and Human Rights and a strong security management framework.
- Looking into all concerns that are raised promptly and in a confidential manner and keeping reporters safe from any retaliation. Our whistleblowing program is managed by our Business Conduct Office.

10. Transforming our culture, enabling us to live our values

Living our values goes to the heart of our Group's performance, prospects and reputation. Sharing and demonstrating our values unlocks opportunities in all that we do, every day. We are focused on building a culture of trust, where all our people feel safe, respected and empowered to be their best selves and help drive change.

Strategic alignment	Change vs 2022
Best operator	Stable

Opportunities

Our reputation and ability to build respectful and trusting partnerships is dependent on our business conduct consistent with our corporate values.

Our corporate values inspire our people to contribute in ways that align with our purpose and strategic direction. It enables us to build a workplace where everyone feels safe, respected and empowered to deliver every day.

Threats

Not living our values will lead to production over safety. As societal expectations change, it is essential that we focus on our commitment to social licence and our values of care, courage and curiosity. The final report of the Western Australia Parliamentary Inquiry into Sexual Harassment in the Mining Industry and our release of the *Everyday Respect Report* on the findings from an independent review of our workplace culture, both in 2022, highlighted the scale of change required internally and across the resources sector.

Risk oversight

The Board.

Management's response includes:

We embarked on a cultural change program led by the refresh of our corporate values in 2021 and have accelerated this since through the Everyday Respect task force. We have also refreshed and updated our Code of Conduct, *The Way We Work*, to be more comprehensive and act as the blueprint of key principles, driving policy position, setting out Rio Tinto's commitments to stakeholders, and clarifying what is expected of all employees.

To support our leaders and teams in living our values, we have focused on:

- Launching our refreshed purpose and values, and a program to support how they are embedded.
- Developing Everyday Respect task force workstreams to address sexual harassment, bullying and racism in our workplace. These have focused on ensuring safe and appropriate facilities and providing a caring, human-centred response to disrespectful and harmful behaviours.
- Undertaking biannual people surveys and presenting annual values scorecards to the Executive Committee and the Board.
- Continuing to develop our internal whistleblowing program (myVoice), open to employees and external stakeholders to report on conduct inconsistent with our values and Code of Conduct.
- Launching Care Hub which are independent care units providing trauma and people-focused support, practical care and alternative resolution options to anyone affected by harmful behaviours.
- Changing our people management processes to create company-wide alignment behind our strategy and increase respectful and transparent behaviour.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

11. Remaining competitive through economic cycles or shocks

Our business model depends on our ability to convert existing resources to reserves available for mining when required. The viability of our orebodies and business is most sensitive to commodity economics which is greatly influenced by macroeconomic and geopolitical developments. We aim to remain competitive, preserve resilience and maintain access to funding by having cost-competitive assets, a diversified commodities portfolio, a strong balance sheet, prudent financial policies and strong ESG credentials.

Strategic alignment	Change vs 2022
Best operator	Stable

Opportunities

Favourable market conditions and strong internal capital discipline allow us to maintain our balance sheet strength, enabling us to invest in growth opportunities, pay down debt and enhance returns to shareholders.

Through operational efficiencies, deployment of new technologies or improved understanding of our orebodies, we may convert a greater proportion of our resources to reserves.

Threats

Deteriorating economic and political environment leading to falling commodity prices (reduced cash flow, limiting profitability), trade actions (increased tariffs, retaliations and sanctions), and governments' efforts to exert more control over their natural resources by changing contractual, regulatory or tax measures. This can impact our key markets, operations or investments and access to funding.

Orebody health remains challenged with Ore Reserve depletion driven by expanded production and ongoing resource development challenges. Failure to secure access and approvals limiting collection of required orebody knowledge 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 Audit & Risk Committee.

Management's response includes:

- Implementing the Safe Production System (SPS) which aims to transform how we operate our assets, manage performance and develop and empower our people. This enables us to consistently deliver outstanding safety and production results and improve our asset and equipment reliability and maintenance.
- The Orebody Knowledge Centre of Excellence maintains and assures compliance with the Group's Resources and Reserves Standard and monitors KPIs to track variations from expected asset production plans.
- Maintaining capital discipline and a strong balance sheet through robust investment governance processes, prudent financial policies and a pay-out-based shareholder returns policy. A strong investment grade credit rating ensures access to diverse funding sources and sufficient liquidity.

12. Preventing material business disruption and data breaches due to cyber events

Manage cybersecurity events to ensure there is no disruption to our operations that could impact how our employees work, or data privacy or sensitive information breach related to customers, contractors or suppliers.

Strategic alignment	Change vs 2022
Best operator	Stable

Opportunities

The value of a robust cybersecurity function extends beyond the protection of our information, productivity and people. Requests for information to substantiate Rio Tinto's cybersecurity capabilities are becoming more frequent and in-depth as our customers look to validate their supply-chain risk. In parallel, the expectations from regulators and ratings agencies are increasing and new obligations for public disclosure of cybersecurity incidents are emerging. This generates opportunity to enhance our ESG credentials and customer value proposition.

Threats

Cyber breaches can arise from malicious external or internal attacks, but also inadvertently through human error and the inconsistent application across functions of controls that are not managed by Information Services and Technology (IS&T). Although the extent and frequency of cybersecurity threats remains in line with growth expectations, attacks have been observed to be more destructive in nature. The ongoing digitisation and transformation of operational technology environments, and the increasing use of AI to inform and automate decisions, amplifies the threat of loss of control systems or hijacking of autonomous functions.

Key exposures

Our greatest exposure continues to be through third parties. There was one notable breach in 2023 with Go Anywhere, a third party, where sensitive Rio Tinto data was exposed. Additionally, the growing reliance on technology to underpin productivity is increasing the breadth and magnitude of operational disruption exposures.

Risk oversight

The Cyber Security Steering Committee (CSSC) and the Board.

Management's response includes:

- The CSSC is our primary governance body and is responsible for our cyber strategy and oversight of Group-wide initiatives.
- In recognition of the role all employees play in keeping our information and systems secure, clear expectations for data privacy, cybersecurity and handling of confidential information are set out in *The Way We Work*.
- Improving mandatory Group-wide cybersecurity training and awareness programs.
- Maintaining business resilience management plans for major incident response and recovery, including cybersecurity events and a dedicated plan for IS&T.
- Maturing third-party risk management through contractual inclusions and proactive compliance assessments.
- Operating a perpetual cybersecurity program of work ensures our controls remain relevant to the evolving threat environment.
- Initiating a program in 2024 to simplify IT governance and improve the integrity, consistency and monitoring of key controls.
- We are investing to strengthen our cybersecurity capabilities, specifically our threat intelligence, which maintains relationships with government, industry, professional bodies and education institutions to ensure we remain vigilant of the threat landscape.
- Ongoing inspection and assurance of the security of our environment, and to an extent, the environment of our suppliers.
- Focused assessment and assurance in collaboration with industry-leading practitioners on our capability and readiness to enhance and extend controls into operational technology environments in response to the increasing exposure.

13. 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	Change vs 2022
Best operator	Stable

Opportunities

Enhanced productivity, innovation and business resilience through investment in critical skills required now and for the future "building" through a focus on early careers and reskilling our people rather than "buying in" talent.

Increased local employment and career pathways supports our social licence to operate.

Creating partnerships including joint ventures to acquire talent.

Threats

Business interruption or underperformance may arise from a lack of access to capability. Tight labour markets and entry into new countries are leading to heightened competition for diverse talent and critical skills, such as climate, energy, decarbonisation, technical mining and processing skills, licence to operate, new commodities and projects.

Changing societal expectations are placing pressure on our corporate and employer brand, that is, who we are and what we stand for. Since the pandemic, people are less inclined to relocate, thus forcing us to rely on local or national recruitment which reduces the market size for sourcing talent.

Key exposures

Safety concerns as turnover rate in Process Safety Management (PSM) roles continue.

Risk oversight

People & Remuneration Committee.

Management's response includes:

- Creating the Rio Tinto Leadership team and ensuring Group-wide succession plans for critical roles, present and future.
- Ramping up our strategic workforce planning capability with a focus on critical roles (PSM) and future capabilities, including decarbonisation.
- Building capability of leaders at all levels through our Leading with Care, Courage and Curiosity development offerings, equipping them to engage, develop and care for their people thus increasing our ability to retain key skills and talent.
- Refreshed approach to talent management ensuring all our people have a meaningful conversation about their performance, motivations and experience, in addition to a quality development plan that will enable them to gain the skills and experience required for the future.
- Ongoing monitoring of the global talent market, developments and trends, including talent mobility coupled with a talent acquisition strategy that targets multiple labour markets and diverse skills.
- Biannual people survey, engagement strategy and retention modelling.
- Group-wide employee value proposition tailored by labour market and talent segment including a remuneration approach that considers CPI and market segments, and an ongoing evolution of employee benefits and incentives.
- Global graduate program and strategic partnerships for mutually beneficial relationships with universities.
- Local trainee (apprenticeship) programs and other future skill-development partnerships.
- Implementation of Workday as our core HR system in Q3 2024 which will provide improved and consistent data on our people, such as effective monitoring of employee movement and retention and understanding of the experience and capabilities that we have in the workforce.

14. Withstanding the impacts of geopolitics on our trade or investments

Geopolitics has the potential to increase trade tensions, undermining rule-based trading systems. Trade actions may impact our key markets, operations or investments, limiting the benefits of being a multinational company with a global footprint. We continue to build reliance through diversification and to identify opportunities for engagement with governments, civil society, industry associations and international bodies.

Strategic alignment	Change vs 2022
Best operator	Stable

Opportunities

Working closely with governments on balanced domestic policy proposals that bring long-term economic and social benefits for the country while supporting growth and investments for us.

Global geopolitical re-alignments include the creation of new strategic alliances between countries that could create partnership and growth opportunities such as security of critical minerals supply.

Threats

Deteriorating economic and political environment leading to falling commodity prices (reduced cash flow, limiting profitability, reducing reserve inventory), trade actions (increased tariffs, retaliations, and sanctions), and governments' efforts to exert more control over their natural resources by changing contractual, regulatory or tax measures. This can impact our key markets, operations or investments.

Key exposures

A highly uncertain and unstable global macro environment, including China-US tensions and the indirect impacts of the war in Ukraine and conflict in the Middle East. The US election in November 2024 may bring multiple geopolitical and economic uncertainties.

Risk oversight

The Financial Risk Management Committee, the Risk Management Committee and the Audit & Risk Committee.

Management's response includes:

- Continuing to further diversify our portfolio of commodities (focused on materials that enable the low-carbon transition), markets and jurisdictions to reduce exposure to specific geopolitical events, such as Rincon lithium project in Argentina, Simandou high-grade iron ore project in Guinea.
- 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, industry associations and international bodies.
- The new country entry Group procedure, which is focused on cross-functional, real-time engagement.
- The Sanctions Standard and Export Control Procedure to mitigate against potential breach of economic sanctions and trade controls. Ongoing monitoring of the political environments where we operate and engagement with government in those areas.
- Capability to settle and receive RMB including management of central bank digital currency transactions to mitigate potential trade tensions impact on key Chinese customers' access to credit and USD.
- Quantifying and managing political/country risk through the country risk premium.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

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 2023 financial statements and notes thereto. The financial statements as included on pages 157–258 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 158.

Rio Tinto Group

Income statement data

For the years ending 31 December Amounts in accordance with IFRS	2023 $m	2022[2] $m	2021[2] $m	2020 $m	2019 $m
Consolidated sales revenue	**54,041**	55,554	63,495	44,611	43,165
Group operating profit[1]	**14,823**	19,933	29,817	16,829	11,466
Profit after tax for the year[2]	**9,953**	13,048	22,597	10,400	6,972
Basic earnings for the year per share (US cents)[2]	**620.3**	765.0	1,304.7	604.0	491.4
Diluted earnings for the year per share (US cents)[2]	**616.5**	760.4	1,296.3	599.8	487.8
Dividends per share					
Dividends declared during the year					
US cents					
– interim	**177.0**	267.0	376.0	155.0	151.0
– interim special	**–**	–	185.0	–	61.0
– final	**258.0**	225.0	417.0	309.0	231.0
– special	**–**	–	62.0	93.0	
UK pence					
– interim	**137.67**	221.63	270.84	119.74	123.32
– interim special	**–**	–	133.26	–	49.82
– final	**203.77**	185.35	306.72	221.86	177.47
– special	**–**	–	45.60	66.77	
Australian cents					
– interim	**260.89**	383.70	509.42	216.47	219.08
– interim special	**—**	–	250.64	—	88.50
– final	**392.78**	326.49	577.04	397.48	349.74
– special	**–**	–	85.80	119.63	
Dividends paid during the year (US cents)					
– ordinary	**402.0**	684.0	685.0	386.0	331.0
– special	**–**	62.0	278.0	–	304.0
Weighted average number of shares basic (millions)	**1,621.4**	1,619.8	1,618.4	1,617.4	1,630.1
Weighted average number of shares diluted (millions)	**1,631.5**	1,629.6	1,628.9	1,628.6	1,642.1
Share buy-back ($ million)		–	–	208	1,552
Balance sheet data					
Total assets	**103,549**	96,744	102,896	97,390	87,802
Share capital/premium	**7,908**	7,859	8,097	8,302	7,968
Total equity/net assets[2]	**56,341**	52,741	57,113	51,903	45,242
Equity attributable to owners of Rio Tinto[2]	**54,586**	50,634	51,947	47,054	40,532

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.
2. Comparative information has been restated to reflect the adoption of narrow scope amendments to IAS12 "Income Taxes".

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

21 February 2024

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 2023, the Rio Tinto Strategic Report 2023 and the Rio Tinto Sustainability Fact Book 2023 for the year ended 31 December 2023, 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 Scope 1 and 2 Greenhouse Gas (GHG) emissions (equity basis) of 31.1 MtCO2-e (Location-Based) and 32.6 MtCO2e (Market-Based) (Scope 1 and 2 GHG Emissions) presented in the Sustainability sections of the Rio Tinto Annual Report 2023, the Rio Tinto Strategic Report 2023 and the Rio Tinto Sustainability Fact Book 2023 for the year ended 31 December 2023, 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 ICMM 10 principles 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 Sustainability risks and opportunities included within the Sustainability section of the Annual Report 2023, the Strategic Report 2023 and the Fact Book 2023.
- Rio Tinto's assertions regarding the existence and status of implementation of systems and approaches used to manage the following selected sustainability risk areas:
  - GHG Emissions
  - Water
  - Communities
  - Culture Heritage
  - Health, Safety and Wellbeing
  - Transparent and Responsible Business
- The following Rio Tinto performance data related to the selected sustainable development risk areas:
  - Total Scope 1 and Scope 2 (Location-Based) GHG Emissions (equity basis)
  - Total Scope 1 and Scope 2 (Market-Based) GHG Emissions (equity basis)
  - Scope 1 & 2 (Location- Based) GHG emissions intensity (equity basis)
  - Total Energy (100% managed basis)
  - Total Scope 3 GHG Emissions (equity basis)
  - Tier 1 Water Targets performance data and assertions
  - Community Contributions
  - Cultural Heritage Disclosures
  - Occupational Illnesses
  - Number of fatalities
  - All injury frequency rate (AIFR)
  - Lost time injury frequency rate (LTIFR)
  - Number of lost time injuries (LTIs)
  - Business Integrity
  - Number of cases reported to the Business Conduct Office
  - ICMM PE self-assessments

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 2023, the Rio Tinto Strategic Report 2023 and the Rio Tinto Sustainability Fact Book 2023 for the year ended 31 December 2023.

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)*, GHG Protocol: *Scope 2 Guidance,* GHG Protocol: *Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2013)* and *Technical Guidance for Calculating Scope 3 Emissions (version 1.0)* and the Basis of Preparation as described and presented within the Scope 1, 2 and 3 Calculation Methodology (2022 Report and 2023 Addendum).

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References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report.*

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 six managed operations and projects being Robe Valley, QAL, Rail Maintenance, ERA Closure, ISAL, and Kennecott;
- substantively tested the GHG Emissions, on a sample basis at corporate and operational level, which included testing a selection of 15 operations being Tom Price, Pilbara Rail Operations, Richards Bay Minerals, Tomago, Oyu Tolgoi, RTM Boron Operations, Kennecott, Queensland Alumina Limited, Gladstone Power Station, RTA Yarwun, Boyne Smelters, Bell Bay Aluminium, RTA Weipa, RTA Alma and RTA Arvida, 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 2023, the Rio Tinto Strategic Report 2023 and the Rio Tinto Sustainability Fact Book 2023 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.

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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 2023, the Rio Tinto Strategic Report 2023 and the Rio Tinto Sustainability Fact Book 2023;
- 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.

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 2023, and to issue an assurance report that includes our conclusions.

Our Independence and Quality Management

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 Australian Professional and Ethical Standards Board, and complied with the applicable requirements of Australian Standard on Quality Management 1 to design, implement and operate a system of quality management.

KPMG

KPMG

21 February 2024

Adrian V. King

Adrian King

Partner
Melbourne, Australia

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Remuneration report

Annual statement by the People & Remuneration Committee Chair

The Committee's overarching purpose is to ensure the people, culture and remuneration policies, frameworks and practices are aligned with the Group's strategy, objectives and values.

Dear shareholders,

On behalf of the Board, I am pleased to present our 2023 Directors' Remuneration report.

Nothing is more important than the health, safety and wellbeing of our people. While we had zero fatalities at our managed operations in 2023, tragically four colleagues died in a plane crash while travelling to our Diavik mine in January 2024.

2023 was another year of solid operational performance. While the external environment remains volatile and challenging, the fundamentals of our business enable us to continue delivering strong financial results. We have a very resilient business with strong free cashflows underpinned by the quality of our assets, our people and strength of our balance sheet. It allows us to systemically address short term issues and build sustainable growth.

Our operational performance has been accompanied by progress towards our strategic objectives of "impeccable environment, social and governance (ESG)", "becoming the best operator", "excelling in development" and "strengthening our social licence". This has seen us accelerate our decarbonisation strategy, improve our culture, safely improve and stabilise production, and diversify in materials enabling the global energy transition.

The resilience of our business has allowed us to continue to invest in 2023. We announced an investment of $1.1 billion to expand our AP60 aluminium smelter in Canada with low-carbon technology. We entered into joint ventures during the year, with First Quantum Minerals at the La Granja copper project in Peru, and with the Giampaolo Group through which Rio Tinto acquired a 50% stake in Matalco, to recycle aluminium products throughout the US and Canada. Good progress was made with our ELYSIS™ technology which has the potential to transformatively decarbonise the way we produce aluminium.

We continued to develop our existing portfolio, particularly at Oyu Tolgoi where we saw the first underground production in the first quarter of 2023, and at the world-class Simandou iron ore project in Guinea, where key infrastructure agreements were concluded during the year. A pre-feasibility study to progress development of the Rhodes Ridge project, one of the best undeveloped iron ore deposits in Western Australia, was approved at the end of the year.

Overview of performance and strategic progress in 2023

Short-term incentive plan

In 2023, we implemented our new Short-term incentive plan (STIP) scorecard which has collective goals at its core. Half of the scorecard for 2023 was based on financial measures of underlying earnings and STIP free cash flow (flexed and unflexed), with the flexed outcome measuring our progress towards "best operator". Outcomes against the other half of the scorecard are linked to strategic goals of "impeccable ESG" covering safety performance, carbon reduction, and diversity and inclusion, "progress on excel in development", and "strengthening our licence to operate". An individual multiplier is in place to be used sparingly in cases of exceptional or underperformance. The STIP scorecard applies consistently across 26,000 eligible employees including the Executive Committee.

The Committee has assessed Group performance against the STIP scorecard and determined the overall outcome is 56% of maximum.

For the financial component of the STIP scorecard, we reported STIP underlying earnings of $10.9 billion and STIP free cash flow of $10.8 billion. This is against a backdrop of higher than planned iron ore and copper prices. Operationally, we achieved slightly lower than expected production, reflecting equipment failures, extended downtime and safety-related disruptions. We also had a build in our working capital in 2023, impacting our cash flow performance. Overall, our reported 2023 financial results were above plan, albeit below target on a flexed basis, resulting in an outcome of 45% of maximum.

The strategic component of the STIP scorecard includes four separate measures. Progress has been made in each area resulting in an overall outcome of 67% of maximum. The outcome against our "impeccable ESG" measure, which includes safety, was above target for the year. 2023 was a fatality-free year, but we regrettably recorded three permanent damage injuries (PDIs) at our sites in Diavik, Guinea and Kennecott. We continue to believe all incidents and injuries are preventable and we remain focused on identifying, managing and, where possible, eliminating risks. As a result of these PDIs, the result for the all-injury frequency rate component has been capped at 50% of maximum.

Progress on decarbonisation and the approval of specific abatement projects accelerated over the year as we continued to shape our roadmap to our 2030 ambition. During the year, we critically reviewed our project portfolio, leading to project commitments equivalent to a 1.9Mt reduction in our expected 2030 emissions.

Our people and culture measures include a gender diversity element and while we added 1,456 women to the workforce the outcome was below the stretching target set for 2023, with room for improvement in 2024. The delivery of our everyday respect learning reached more than 34,000 employees in 2023, which is above our outstanding range.

Overall performance against the "excel in development" measure was above target for the year, reflecting exciting progress in exploration and studies, and continued strong delivery across several projects despite some challenges during the year.

The social licence measure provides an indication of how we are perceived by our community of stakeholders. In 2023, our global reputation score remained broadly consistent with our 2022 baseline, resulting in a target outcome.

The Committee did not apply the individual multiplier for either of the Executive Directors but it has been selectively applied to some Executive Committee members. Further details on each component of the STIP scorecard outcomes, the individual performance and STIP outcomes for the Executive Directors can be found on pages 129-132.

Long-term incentive plan

The performance period for the 2019 Performance Share Award (PSA) concluded in December 2023 and awards will vest on 22 February 2024. The vesting outcome of the 2019 PSA is 94.1% based on our total shareholder return (TSR) of 103.4% over this five-year cycle. This level of TSR performance compares favourably against our mining peers and broader global corporates. The Committee considered the vesting outcome in the context of underlying business performance and the consequence management framework, and was satisfied the outcome was fair and representative of the shareholder experience.

Remuneration Policy

In accordance with the triennial policy cycle, we will be submitting our 2024 Remuneration Policy (the new Policy) to shareholders for their approval at our 2024 annual general meetings (AGMs). Changes being made to our Remuneration Policy (the current Policy) are summarised on page 115 with a full version of the new Policy on pages 119-126.

The Committee fully understands stakeholder expectations that the remuneration of executives should be linked to balanced financial and non-financial performance outcomes, appropriately governed and aligned with delivery against our strategy, supported by sustainable long-term value creation. With these elements in mind, the Committee has undertaken a comprehensive review of our current Policy with primary considerations including:

- **Competitive advantage:** Responding to climate change is critical to our long-term competitive advantage and value creation. There can be an inherent tension between decarbonisation goals and short- to medium-term financial performance. Our intent is to balance this appropriately in how we structure our long-term and short-term incentives. Given the inherent uncertainty, we believe three-year targets are most appropriate for measuring progress against our decarbonisation goals.
- **The global talent market:** Rio Tinto competes for the best talent with the world's largest companies. We need to be competitive to retain and secure the talent required to execute our strategic ambitions.
- **Simplify focus for our global team:** Over the last decade, the complexity of our business has increased, placing greater demands on our leaders. Clear, collective targets that build alignment will reinforce the STIP changes we made last year and help our leaders maintain focus on the most critical objectives.

I met with many of our shareholders and the key UK and Australian advisory bodies to discuss our proposals. I would like to thank those who took part in this consultation.

While views inevitably vary across the stakeholder group, I was pleased to find a sizeable majority of those we met were broadly supportive of the key changes. Following this consultation, the Committee further refined and adapted the proposals in response to feedback.

The main changes proposed to our current Policy relate predominantly to the structure of future long-term incentive plan (LTIP) awards.

As part of the 2021 Policy renewal, the maximum LTIP award level was reduced from 438% to 400% of base salary, while the on-target STIP for the Chief Executive was also reduced from 120% to 100% of base salary. These reductions have impacted our market positioning relative to peers in the talent market.

Given the scale of our strategic ambition and our important role in global decarbonisation, it is vital we secure and retain the talent required to achieve our goals. Our senior executives remain highly attractive to competitors and despite this competition for talent, the Committee is seeking to maintain a measured approach to pay. US-style pay practices continue to be materially higher than in other jurisdictions and we are not seeking to match these award levels in our new Policy. Instead, we have focused on ensuring executives are aligned with similarly sized and globally complex FTSE 10 companies and mining peers.

The Committee proposes future LTIP awards to Executive Directors and other Executive Committee members are capped at 500% of base salary. This would position award levels closer to FTSE 10 peers where the median LTIP maximum award is in excess of 500% of salary, yet still materially below US pay levels. Shareholder alignment will also be enhanced via increased shareholding requirements.

The additional LTIP increment will be directly linked to the achievement of our value accretive climate change strategy. Given the scale and complexity of Rio Tinto's emissions portfolio, our decarbonisation ambitions and the multi-year timeframe for this transition, we are proposing a balanced scorecard approach with four equally weighted elements. This will include input and outcome metrics that incentivise long-term value creation and sustained medium-term performance across multiple performance cycles. Both the scorecard and relative TSR will be measured over three years and awards will be subject to a further two-year holding period. This means that executives will continue to only realise value from awards after five years, consistent with the previous structure. The application of leaver and recovery provisions (malus and clawback) will remain unchanged. This time horizon is consistent with mainstream FTSE practices in the UK, where just under 80% of the Group's shares are listed and is also aligned with the *UK Corporate Governance Code*. While practice on the length of performance periods is more mixed in Australia, the overall time horizon of five years remains towards the upper-end of broader ASX practice.

Ultimately the Committee concluded that a three-year performance period was more appropriate as it enables the setting of more robust and tangible targets for the decarbonisation scorecard where immediate action is required but long-term visibility is limited. It also provides flexibility to cascade the plan to less senior participants on more consistent terms. Relative TSR performance will be measured over the same period for simplicity. Extensive modelling demonstrated that the change in TSR performance did not create a material difference in outcomes. Overall we continue to have a remuneration structure that is more heavily weighted to long-term incentives than many of our peers. Further details are set out on pages 134-135.

The Committee recognises the progress of our decarbonisation strategy will need to be closely monitored to inform how we set our targets and assess performance under this part of the LTIP award. To support this, the Committee will ensure input is obtained from subject matter experts within the business and other Board committees. We also commit to providing enhanced disclosure and independent verification so shareholders can fully understand the basis of any awards vesting. 80% of our LTIP will be driven by relative TSR to align with the interests of shareholders.

The Committee strongly believes our proposals will ensure our executive remuneration arrangements incentivise the delivery of our ambitious strategy with a balanced focus on the short- and long-term. This will also align our reward outcomes with Group performance and shareholder experience. I will continue to proactively engage with shareholders on this subject.

Implementation for 2024

During 2023, the Committee considered extensive benchmarking as part of our new Policy, which shaped our remuneration decisions for 2024. In the shareholder consultations we illustrated material gaps which the Policy changes are aimed at reducing.

The STIP structure introduced in 2023 will be broadly maintained for 2024; however the financial metrics have been refined by replacing earnings with underlying earnings before interest, taxes, depreciation, and amortisation (EBITDA). This is a key measure of our underlying financial performance and is well understood by both internal and external stakeholders.

Executive changes

We welcomed Jérôme Pécresse to the role of Chief Executive Aluminium in October 2023. Jérôme was appointed on terms consistent with our current Policy, and details of his terms are included on page 138.

In June 2023, Ivan Vella resigned from his role as Chief Executive Aluminium, stepping down from the Executive Committee. Ivan was due to leave Rio Tinto in December 2023; however his employment was terminated on 15 November 2023 for actions that did not follow Rio Tinto's requirements for the acceptable management of confidential information. The Committee is continuing to review this matter and will apply the consequence management framework as part of its review.

People

From 2023, the remit of the Committee increased to include talent, capability, and diversity and culture, reflecting the ever-increasing importance of these areas and our commitment to building a more inclusive culture.

During the year, we worked with the Executive Committee to set the direction and tone for a workplace culture that aligns with our purpose, reflects our values, and supports the delivery of our strategy. To that end, we supported the implementation of a new performance management framework that places as much emphasis on how results are delivered as it does on what is achieved. This further builds on our decision to change the STIP scorecard to apply consistently across 26,000 colleagues.

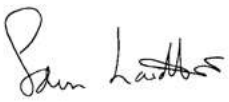
The Committee monitored culture progression through visits to our sites and offices, operational deep-dives, and management presentations, considering trends and findings from our biannual engagement survey, succession and talent plans for our most senior roles as well as our ability to attract and retain a diverse workforce. The overall representation of women in our business remains a key aspect of our broader agenda on diversity and inclusion and will continue to be an area of focus in 2024.

Pay in the broader context

Our focus on pay equity is evident in our gender pay metrics. We have made progress toward eradicating any equal pay and gender pay gap. Further details on equal pay, gender pay gap, and a wider discussion on diversity and inclusion, are provided in the ESG section of this report on pages 73-74.

As always, I welcome shareholder feedback and comments on our 2023 Directors' Remuneration report.

Yours sincerely,



Sam Laidlaw
People & Remuneration Committee Chair

21 February 2024

Single total figure of remuneration (£'000)

Executive Director	Year	Base salary	Benefits	Pension	Total fixed	Incentive – STIP payment: Cash	Incentive – STIP payment: Deferred shares	Value of LTIP awards vesting[1]: Face value	Value of LTIP awards vesting[1]: Share price appreciation	Total variable	Single total figure
Jakob Stausholm (Chief Executive)	2023	1,227	110	172	**1,509**	692	692	4,425	1,132	**6,941**	**8,450**
Jakob Stausholm (Chief Executive)	2022	1,177	130	165	**1,472**	575	576	1,360	1,027	**3,538**	**5,010**
Peter Cunningham (Chief Financial Officer)	2023	726	43	102	**871**	409	410	361	92	**1,272**	**2,143**
Peter Cunningham (Chief Financial Officer)	2022	700	39	98	**837**	320	320	333	251	**1,224**	**2,061**

1. Dividend equivalent shares are applied on the vesting of the LTIP awards, are valued at the grant price for the LTIP awards and included in the face-value figure. The impact of share price change for LTIP awards vesting is included under share price appreciation. The value of the 2022 LTIP awards vesting is restated to reflect the actual vested value.

The LTIP face value for 2023 is based on the number of PSA shares due to vest for the performance period ending 31 December 2023 (including notional dividends accrued throughout the vesting period), valued at the share price on the grant date. Any impact of share price movement over the vesting period is shown under the share price appreciation column. The increase in values for LTIP award vesting for the Chief Executive reflects a full year grant in 2019 compared to a pro-rated grant in 2018.

The 2023 face value and the share price appreciation figures shown above are estimates of both the number of shares that will ultimately vest and the share price on vesting. Once actual values are known these estimates will be restated in the following year. Refer to page 134 for further detail.

Table 1b – Non-Executive Directors' remuneration

Stated in US$'000[1]		Fees and allowances[2]	Non-monetary benefits[3]	Post-employment benefits	Single total figure of remuneration[4]	Currency of actual payment
Chair						
Dominic Barton	**2023**	**908**	**30**	**–**	**938**	**£**
	2022	600	192		792	£
Non-Executive Directors						
Megan Clark	**2023**	**222**	**8**	**24**	**254**	**A$**
	2022	221	2	23	246	A$
Dean Dalla Valle[5]	**2023**	**109**	**6**	**10**	**125**	**A$**
Simon Henry	**2023**	**221**	**3**	**–**	**224**	**£**
	2022	202	4	–	206	£
Kaisa Hietala[6]	**2023**	**163**	**18**	**–**	**181**	**£**
Sam Laidlaw	**2023**	**308**	**5**	**–**	**313**	**£**
	2022	263	5	–	268	£
Susan Lloyd-Hurwitz[5]	**2023**	**114**	**3**	**9**	**126**	**A$**
Simon McKeon	**2023**	**302**	**7**	**–**	**309**	**A$**
	2022	275	3	–	278	A$
Jennifer Nason	**2023**	**202**	**6**	**–**	**208**	**£**
	2022	196	4	–	200	£
Joc O'Rourke[7]	**2023**	**23**	**–**	**–**	**23**	**£**
Ngaire Woods	**2023**	**221**	**5**	**–**	**226**	**£**
	2022	188	9	–	197	£
Ben Wyatt	**2023**	**220**	**10**	**–**	**230**	**A$**
	2022	203	4	4	211	A$

1. Remuneration is reported in US$. The amounts have been converted using the 2023 annual average exchange rates of £1 = US$1.24329 and A$1 = US$0.66441.
2. "Fees and allowances" comprises the total fees for the Chair and all Non-Executive Directors (NED), and travel allowances for the NED. The statutory minimum superannuation contributions required by the Australian superannuation law and paid for the Australia based NED are included in "Fees and allowances".
3. "Non-monetary benefits" include, as in previous years, amounts that are deemed by the UK tax authorities to be benefits in kind relating largely to the costs of directors' expenses in attending Board meetings held at the company's UK registered office (including associated accommodation 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 Dean Dalla Valle and Susan Lloyd-Hurwitz reflect the period of active Board memberships from 1 June 2023 to 31 December 2023.
6. The amounts reported for Kaisa Hietala reflect the period of active Board memberships from 1 March 2023 to 31 December 2023.
7. The amounts reported for Joc O'Rourke reflect the period of active Board memberships from 25 October 2023 to 31 December 2023.

For more information
further details in relation to aggregate compensation for executives, including directors, are included in note 29 (Directors' and key management remuneration).

Summary shareholder information

Financial calendar

2024		
15	January	Fourth quarter 2023 operations review
29	January	Closing date for receipt of nominations for candidates other than those recommended by the board to be elected as directors at the 2024 annual general meetings
21	February	Announcement of results for 2023
7	March	Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs quoted "ex-dividend" for the 2023 final dividend
8	March	Record date for the 2023 final dividend for Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs
26	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 2023 final dividend
4	April	Annual general meeting for Rio Tinto plc, UK
11	April	Dividend currency conversion date
16	April	First quarter 2024 operations review
18	April	Payment date for the 2023 final dividend to holders of ordinary shares and ADRs
2	May	Annual general meeting for Rio Tinto Limited, Australia
15	July	Second quarter operations review 2024
31	July	Announcement of half-year results for 2024
15	August	Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs quoted "ex-dividend" for the 2023 interim dividend[1]
16	August	Record date for the 2024 interim dividend for Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs
5	September	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 2024 interim dividend
19	September	Dividend currency conversion date
26	September	Payment date for the 2024 interim dividend to holders of ordinary shares and ADRs
15	October	Third quarter 2024 operations review

1. Effective 28 May 2024, under the US Security Exchange Commission (SEC) rules, the trade settlement cycle for our ADRs will change from T+2 to T+1. The ex-dividend date and record date will become the same for regular ex-dividend date processing of our ADRs.

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.

References in this report to page numbers beyond 89 are references to pages in the full *2023 Annual Report*.

Contact details

Registered offices

Rio Tinto plc

6 St James's Square
London
SW1Y 4AD
UK
Registered in England No. 719885
Telephone: +44 (0)20 7781 2000
Website: riotinto.com

Rio Tinto Limited

Level 43, 120 Collins Street
Melbourne 3000
Australia

ABN 96 004 458 404

Telephone: +61 3 9283 3333

Website: riotinto.com

Rio Tinto's agent in the US is Cheree Finan, who may be contacted at
Rio Tinto Services Inc.
80 State Street
Albany
NY 12207-2543
US

Shareholders

Please refer queries about shareholdings to the investor centre of the respective registrar.

Rio Tinto plc

Computershare Investor Services PLC
The Pavilions
Bridgwater Road
Bristol
BS99 6ZZ
UK
Telephone:
+44 (0)800 435 021 (in the UK)
+44 (0)370 703 6364 (overseas)
Website: computershare.com

Holders of Rio Tinto American Depositary Receipts (ADRs)
Please contact the ADR administrator if you have any queries about your ADRs.

ADR administrator

J.P. Morgan Chase Bank N.A.
Shareowner Services
PO Box 64504
St. Paul
MN 55164-0504
US residents only, toll free general:
+1 (800) 990 1135
Telephone from outside the US:
+1 (651) 453 2128
US residents only, toll free Global invest direct: +1 (800) 428 4237
Website: adr.com
Email: shareowneronline.com/informational/contact-us/

Rio Tinto Limited

Computershare Investor Services Pty Limited
GPO Box 2975
Melbourne
Victoria 3001
Australia
Telephone: +61 (0) 3 9415 4030
Australian residents only, toll free:
1800 813 292
New Zealand residents only, toll free:
0800 450 740
Website: computershare.com

Former Alcan Inc. shareholders

Computershare Investor Services Inc.
8th Floor
100 University Avenue
Toronto, ON
Canada
M5J 2Y1
Telephone: +1 (514) 982-7555
North American residents only,
toll free: +1 (800) 564-6253
Website: computershare.com

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Rio Tinto plc shareholders

Website: investorcentre.co.uk

Rio Tinto Limited shareholders

Website: www-au.computershare.com/Investor

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RioTinto

Rio Tinto plc
6 St James's Square
London SW1Y 4AD
United Kingdom

Rio Tinto Limited
Level 43, 120 Collins Street
Melbourne VIC 3000
Australia