

RioTinto

Strategic Report 2021





Rio Tinto acknowledges the First Nations custodians
of land where we work and live around the world.
We respect their unique connection to land,
waters and the environment.

Cover | Operations Centre, Perth. Western Australia.
Inside front cover | QIT Madagascar Minerals (QMM).

The photography in this report may not reflect the COVID-19 regulations in place on site at the time of publication.

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Supplementary Information

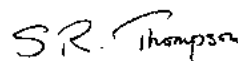
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Navigating through our Strategic Report

3	UK companies are required to include a strategic report within their full annual report. We produce this additional Strategic Report to provide investors with the option of receiving a document that is more concise.
4	
6	
10	The first 131 pages of Rio Tinto's 2021 Annual Report constitute its 2021 Strategic Report. References to page numbers beyond 131 are references to pages in the full 2021 Annual Report – as indicated by this icon  .
14	
18	
20	
23	Copies of Rio Tinto's shareholder documents – the 2021 Annual Report and Strategic Report are available to view on the Group's website 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.
24	
29	
32	
40	Please visit Rio Tinto's website to learn more about the Group's performance in 2021.

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:



Simon Thompson
Chairman

112	
117	23 February 2022
131	The Group's 2021 Strategic Report complies with Australian and UK reporting requirements.
i	The auditors' report on the Group's 2021 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, was also unqualified.
iv	
vii	A copy of the auditors' report on the Group's 2021 Annual report is contained on pages 323 to 342 of that document.
vii	
viii	Reporting currency: We report in US dollars unless otherwise stated. Where specified, A\$ refers to Australian dollars and C\$ refers to Canadian dollars.



Amrun operations, Chith Export Facility. Weipa operations, Australia.

All-injury frequency rate

0.40

(2020: 0.37)

Consolidated sales revenues

\$63.5bn

(2020: \$44.6bn)

Fatalities

Zero

(2020: zero)

Net cash generated from
operating activities**\$25.3bn**

(2020: \$15.9bn)

Scope 1 and 2 greenhouse
gas emissions (equity Mt CO₂e)**31.1Mt**

(2020: 31.5Mt)

Underlying EBITDA²**\$37.7bn**

(2020: \$23.9bn)

People who undertook cultural
awareness training¹**22,400**(2020 comparative dataset is not available due to
programme changes)Profit after tax attributable to owners of
Rio Tinto (net earnings)**\$21.1bn**

(2020: \$9.8bn)

Women in our workforce

21.6%

(2020: 20.1%)

Total dividend per share

1,040 cents

(2020: 557 cents)

1. People who undertook cultural awareness training included employees and contractors. Course content and length varied depending on cultural and operational context.

2. A reconciliation of underlying EBITDA to its closest IFRS measure is presented on page 343 ^{AR}.

2021 at a glance

Our business comprises a portfolio of world-class assets that help meet society's current and future needs and generate strong cash flows through the cycle.

Product groups

Iron Ore

Iron ore is the primary raw material used to make steel. Steel is strong, long-lasting and cost-efficient, making it perfect for everything from wind turbines to skyscrapers and ships.

In the Pilbara region of Western Australia, we produce five iron ore products, including the Pilbara Blend™, the world's most traded brand of iron ore.

Our Dampier Salt operations in Western Australia are the world's largest exporter of seaborne salt, produced from evaporating seawater.

This quality product suite is well positioned to benefit from continued demand across China, Japan and other markets.

Aluminium

Aluminium is one of the world's fastest-growing major metals. Lightweight and recyclable, it is found in everything from solar panels to electric vehicles and smartphones.

Our vertically integrated aluminium portfolio spans high-quality bauxite mines, alumina refineries and smelters which, in Canada, are powered entirely by clean, renewable energy.

Our unique assets allow us to provide responsible aluminium with a low-carbon footprint, traceable from mine to metal.

Our low-cost, hydro-based aluminium smelters will continue to grow their distinct structural advantages as we move towards a net zero world.

Gross product sales

\$39.6bn

(2020: \$27.5bn)

Underlying EBITDA

\$27.6bn

(2020: \$18.8bn)

Gross product sales

\$12.7bn

(2020: \$9.3bn)

Underlying EBITDA

\$4.4bn

(2020: \$2.2bn)

Production (100% basis)

319.7Mt

iron ore

(2020: 333.4Mt)

Production (our share)

54.3Mt

bauxite

(2020: 56.1Mt)

3,151kt

aluminium

(2020: 3,180kt)

CO₂e emissions (our share)

3.0Mt

(2020: 3.0Mt)

All-injury frequency rate

0.67

(2020: 0.53)

CO₂e emissions (our share)

21.9Mt

(2020: 21.8Mt)

All-injury frequency rate

0.33

(2020: 0.34)¹

1. Our Gove operations' closure unit was transferred from Aluminium to Closure, causing change in historical AIFR, previously noted as 0.36 in our 2020 Annual Report.



Iron Ore Company of Canada (IOC), operations.

Copper

Copper is essential to the transition to a low-carbon future as it plays a key role in electrification and power generation, including in renewable energy and electric vehicles.

Our operations span the globe, from Mongolia to Chile to the US, and occupy various stages of the mining lifecycle.

With global decarbonisation goals set to drive growing demand for copper and other key commodities, our pipeline of growth projects strongly positions us as a partner in sustainable growth.

In addition to copper, our product group also includes the Simandou iron ore project in Guinea, the largest known undeveloped high-grade iron ore deposit in the world².

Gross product sales

\$7.8bn

(2020: \$5.0bn)

Underlying EBITDA

\$4.0bn

(2020: \$2.1bn)

Production (our share)

494kt

mined copper

(2020: 528kt)

CO₂e emissions
(our share)

2.2Mt

(2020: 2.6Mt)

All-injury
frequency rate

0.21

(2020: 0.25)

Minerals

Our Minerals product group provides materials essential to a wide variety of industries, ranging from agriculture to renewable energy and 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.

We contribute to Rio Tinto's sustainable growth by unlocking value from our high-grade orebodies and developing new materials.

By reprocessing mining waste to extract valuable by-products, we are expanding our frontiers and meeting the increasing demand for critical minerals, such as lithium and scandium.

Gross product sales

\$6.5bn

(2020: \$5.2bn)

Underlying EBITDA

\$2.6bn

(2020: \$1.7bn)

Production (our share)

1,014kt

titanium dioxide
slag

(2020: 1,120kt)

9.7Mt

iron ore pellets and
concentrates

(2020: 10.4Mt)

CO₂e emissions
(our share)

3.4Mt

(2020: 3.6Mt)

All-injury
frequency rate

0.38

(2020: 0.43)

2. Simandou is an iron ore project but is reported under Copper due to the management structure.

Chairman's statement

In 2021, Rio Tinto focused on rebuilding relationships and strengthening our social licence, while producing record financial results as the developed world and China recovered strongly from the economic dislocation caused by the COVID-19 pandemic.

During the first half of 2021, the Board appointed Jakob Stausholm as Chief Executive and Peter Cunningham as Chief Financial Officer, and nine members of the Executive Committee also took up new roles. After this unprecedented period of management change, consolidation and planning for the future were the major focus during the remainder of the year.

Following extensive engagement with management and the Board, the new team led by Jakob established four objectives – to become the best operator; achieve impeccable environmental, social and governance (ESG) credentials; excel in development; and secure a strong licence to operate. In addition, we introduced three new values – care, courage and curiosity – and a new strategy, including significantly more ambitious targets to address climate change.

With the new leadership team and a clearly articulated strategy in place, in 2022 we will focus on delivering the strategy, in collaboration with our partners and other stakeholders.

Safety and wellbeing

Rio Tinto achieved zero fatalities for a third consecutive year in 2021. This reflects the hard work and dedication of our employees and contractors worldwide. Sadly, however, people are still getting injured at work, so we must remain vigilant and focused.

While some countries are gradually adapting to life with COVID-19, the pandemic continues to exact a heavy toll, particularly in developing countries, including Mongolia, South Africa and India, and at our non-managed operations in South America. I am very proud of the care shown by our employees and contractors, for each other and for their local communities, by prioritising safety controls, supporting vaccination programmes and setting up vaccination clinics near many of our operations.

Recognising that our responsibility for ensuring the wellbeing of our employees and contractors extends beyond the traditional areas of health and safety, Rio Tinto launched the Everyday Respect initiative in 2021. The objective is to create a safer, more respectful and inclusive environment by preventing, and improving how we respond to, unacceptable behaviour in the workplace.

I am grateful to Elizabeth Broderick, formerly the Australian sex discrimination commissioner, for advising the Everyday Respect task force that we set up to drive this initiative, and to the more than 10,000 employees and contractors worldwide who participated in listening

sessions and surveys as part of the discovery phase. The findings of the Everyday Respect task force were published in February 2022 and made confronting reading. Having established and acknowledged the extent of the problem, we are urgently implementing the recommendations set out in the report.

Financial performance, economic contribution and dividend

Our operating and project development performance in 2021 was adversely impacted by COVID-19-related travel restrictions and labour shortages, and the transition to improved communities and heritage management processes in the Pilbara and elsewhere.

Nevertheless, the Group achieved record financial results, with underlying earnings of \$21.4 billion (2020: \$12.4 billion) and net cash generated from operating activities of \$25.3 billion (2020: \$15.9 billion). Profit after tax attributable to owners of Rio Tinto was \$21.1 billion (2020: \$9.8 billion) and our balance sheet remains exceptionally strong with net cash of \$1.6 billion (2020: net debt of \$0.7 billion). These results reflect the quality of Rio Tinto's assets and strong commodity prices, particularly during the first half of 2021.

The Group's direct economic contribution to the countries where we operate, including payments to employees, suppliers, governments and shareholders, amounted to \$66.6 billion (2020: \$47 billion). Corporate tax paid in 2021 was \$8.5 billion (2020: \$5.3 billion), which when combined with royalties and other taxes, and with our share of taxes and royalties paid by equity accounted units, resulted in payments to governments of over \$13 billion (2020: \$8.4 billion), including over \$11 billion (2020: \$6.8 billion) paid in Australia.

In recognition of this strong performance, the Board is recommending a final dividend of 417 US cents (2020: 309 US cents) and a special dividend of 62 US cents per share (2020: 93 US cents), taking total dividends declared to shareholders this year to a new record of \$16.8 billion.

Environmental, social and governance (ESG) credentials

Climate change is the defining issue of our time. In October 2021, Jakob and I travelled to Glasgow for COP26, the UN Climate Change Conference, to meet governments, civil society organisations, financiers and business leaders seeking solutions to the common goal of tackling climate change.



While the UN conference achieved some important breakthroughs, it also underlined the urgent need for greater action if the world is to meet its commitments under the Paris Agreement and achieve a just transition to a low-carbon economy.

Just two weeks before COP26, we announced our new strategy, setting out our plans for growth in materials, such as copper and lithium, that are essential for the energy transition, as well as significantly more ambitious carbon reduction targets in our operations. We have accelerated our target of a 15% reduction in absolute Scope 1 and 2 emissions from 2030 to 2025, and established a challenging new target to achieve a 50% reduction by 2030.

To thrive in the long-term, we need to be part of net zero value chains, particularly for steel and aluminium production, so we also have ambitious plans to work in collaboration with our customers and suppliers to reduce our indirect Scope 3 emissions. In 2019, we established our flagship partnership with China Baowu and Tsinghua University, followed by our partnership with Nippon Steel Corporation in 2020. In 2021 we added two new steel decarbonisation partnerships with POSCO in South Korea and BlueScope in Australia. Our efforts to decarbonise aluminium smelting include scaling-up the breakthrough ELYSIS™ technology, for commercialisation by 2024. We also have the ambition to reduce our shipping emissions intensity by 40% by 2025 and to reach net zero by 2050.

One of the themes at COP26, and the earlier G7 meeting, was an increasing awareness that constraints in the supply of critical raw materials, such as copper, lithium and certain rare earth elements, potentially threaten to delay the transition to a low-carbon economy. We were disappointed to hear recent announcements by the Government of Serbia in relation to the Jadar lithium project. While the benefits of projects like Jadar are significant and global in enabling the energy transition, we acknowledge the concerns of the local community and have worked hard to mitigate local impacts while maximising the potential social and economic benefits to Serbia. Taken together with the responsible development of the Resolution Copper project in the US, our growing lithium portfolio has the potential to strengthen the resilience of supply chains serving the renewable energy sector and electric vehicle manufacturers.

We are also evaluating the use of our landholdings to develop verifiable, nature-based carbon offsets for those parts of our business where abatement is technologically challenging or prohibitively expensive. These carbon offset projects also have the potential to deliver significant biodiversity, community and water management benefits. In addition, we are participating in two early-stage carbon mineralisation research projects, in Iceland and the US.

In September 2021, we published an interim report on our communities and social performance commitments, as we continue to implement the recommendations arising from the Juukan Gorge tragedy. We have initiated numerous other workstreams to strengthen our relations and build mutually beneficial partnerships with Traditional Owners and other Indigenous peoples around the world. Further details are set out on pages 94-95 of this report.

Leadership, culture and values

Following his appointment as Chief Executive on 1 January 2021, Jakob moved rapidly to appoint his new leadership team and to roll out a new development programme for our top managers, designed to achieve a more collaborative, inclusive and effective senior leadership team. Over the coming months, over 400 General Managers will join a similar programme. Their leadership will be crucial as we seek to embed the desired values and behaviours.

Stakeholder and workforce engagement

Despite the travel restrictions imposed by the pandemic, Board members engaged extensively with stakeholders throughout the year, including having regular updates with shareholders, governments, local communities, and Traditional Owners, and hosting three civil society roundtables, in Australia, Europe and North America.

The Board expanded its engagement with the workforce, through site visits, in-person and virtual town halls, podcasts, videos, and listening sessions. Feedback from these events suggests that our employees are generally optimistic about the future and the changes taking place across the Group. There is good support for the new leadership team, our new strategy and values, and the Everyday Respect initiative, coupled with a realistic acknowledgement that cultural change takes time and the leadership team will be judged by their actions, not their words.

Sadly, we are seeing increasing staff turnover, and usage of our Employee Assistance Programme remains high, reflecting the pressures, both at home and at work, that many of our employees are experiencing, in part because of the pandemic.

Board and Executive Committee

It is a testament to the strength of Rio Tinto's talent pool and succession planning that all but two of the positions created by the significant management changes that were necessary at the start of 2021, were filled with internal candidates. The new team, under Jakob's leadership, has worked tirelessly to ensure a smooth transition and to co-create our new strategy and values. I am very grateful to them and to all our employees and contractors for their hard work and commitment during another challenging, but successful, year.

We were delighted to welcome Ben Wyatt to the Board in September. Ben's knowledge of finance, public policy, trade and Indigenous affairs has already proved to be invaluable. As previously announced, I will step down as Chairman following the Australian annual general meeting in May 2022. I am delighted that the Board has announced the appointment of Dominic Barton as Chair-designate. Dominic has extensive business and international relations knowledge as well as deep understanding of the linkages between business, governments and society. I wish him every success.

Reflections and outlook

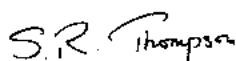
As I reach the end of my eight years on the Board, it has been a privilege to be part of the leadership team of this great company and I am proud of the direction that Rio Tinto is taking and of the talent, resilience and enthusiasm of our employees and contractors around the world.

Our third successive fatality-free year underlines our commitment to safety and strengthens a mindset where zero fatalities has become the expectation, not the exception. The Group's response to COVID-19 has also been exemplary. We have kept all our managed operations worldwide running safely and smoothly, protecting thousands of jobs at our suppliers and customers, while safeguarding our employees, contractors and local communities. In many ways, the pandemic brought out the best of Rio Tinto. It was inspiring to see how the organisation pulled together to support each other and their communities.

We have emerged from the challenges of the last few years with a firm commitment to become a more inclusive, respectful and caring company that values genuine partnerships with all our stakeholders. Our purpose remains to produce minerals and metals essential to human progress, and we have set out a new strategy that seeks to re-establish Rio Tinto as a leader in an industry that has a uniquely important and challenging role to play in creating a sustainable and prosperous future for people and the planet. The strategy is designed to achieve a 50% reduction in our greenhouse gas emissions by 2030 and net zero by 2050, including breakthrough technology to decarbonise the production of aluminium, one of the most energy-intensive industrial processes in the world.

We have also increased the diversity of our workforce, our management team and the Board, and have taken important steps to ensure that all our operations provide a safe, inclusive workspace, where everyone can achieve their full potential. And last, but not least, we have produced record financial results.

Let me finish by thanking my colleagues on the Board, and especially Jakob, for their hard work, commitment and dedication to Rio Tinto over the past year and for their insights, advice and support during my time as Chairman.



Simon Thompson

Chairman

23 February 2022



Statement from Dominic Barton, Chair-designate

It is a great honour to succeed Simon Thompson as Chair of Rio Tinto, starting on 5 May 2022.

I am delighted to be joining the Board of this great, long-standing company of almost 150 years. Rio Tinto truly is a global business, with a dedicated and talented workforce, world-class assets, safe and well-run operations, and a strong balance sheet.

Importantly, Rio Tinto has the opportunity to make a significant contribution to society at a pivotal moment in history – by effectively facilitating the transition to a lower-carbon economy. Through our products, people, partnerships and technologies, we aim to help enable a decarbonising world, while maintaining our focus on capital discipline, pursuing growth, and delivering attractive returns to shareholders.

Building even stronger relationships with our customers, partners and local communities will be an important part of this journey, and something that I am particularly passionate about. I am also keen to ensure that we create a safe, respectful and inclusive work environment. I welcome the proactive commissioning and subsequent publication of the recent review into workplace culture at Rio Tinto, and I fully support Jakob and the management team in implementing the recommendations.

There is much work ahead as we navigate a shifting competitive landscape, grapple with the ongoing pandemic and other societal challenges, reset and strengthen relationships, progress our growth projects, and embed a change in mindset and behaviours throughout the organisation in line with Rio Tinto's new values.

I am encouraged by the company's resolve as it seeks to realise these opportunities, and I look forward to working closely with Jakob Stausholm, Peter Cunningham and my Board colleagues as we implement our strategy. With the new strategic direction that we have set in 2021, I am really excited about the opportunities that lie ahead to deliver sustainable growth for Rio Tinto, our shareholders and our wider stakeholders.

Dominic Barton

Chair-designate

23 February 2022

An aerial photograph of a large concrete dam with multiple spillways, situated in a lush green forest. The sun is setting behind the dam, creating a warm orange glow across the sky and reflecting on the water. The foreground shows a rocky area with some water, and the background is a dense forest of green trees.

We have set out a new strategy that seeks to re-establish Rio Tinto as a leader in an industry that has a uniquely important and challenging role to play in creating a sustainable and prosperous future for people and the planet.

Simon Thompson
Chairman

Chief Executive's statement

2021 was a defining year as we set a new direction to take Rio Tinto forward.

When I began leading this company as Chief Executive, it quickly became clear that we needed to reset the dial with a clearer sense of purpose – putting respect for people, communities and land at the heart of our contribution. Building on our strengths and learning from our past, we are determined to shift the way we see ourselves and the world and ensure that Rio Tinto thrives in the decades to come.

Some of my first actions were to stabilise our company, start to rebuild damaged relationships, and set the overall direction to make Rio Tinto stronger. We implemented the biggest management change in our corporate history and rallied our efforts around four objectives: being the best operator, achieving impeccable environmental, social and governance (ESG) credentials, excelling in development, and strengthening our social licence.

The four objectives are underpinned by the launch of our Rio Tinto Safe Production System (RTSPS), our new strategy, and a set of simple values that connect us all as human beings – care, courage and curiosity. I am proud of the depths of talent, energy and commitment in our organisation as well as the progress we made in 2021. I know there is still much to do, and we are all committed to making Rio Tinto an even better company.

Safety above all

Safety is at the core of how we operate each and every day. Nothing matters more than the safety and wellbeing of our employees and contractors, and I am pleased that we have experienced our third consecutive year with no fatalities at our managed operations. While this is good news, being able to go home to one's family at the end of a shift should be a given, not an achievement.

I was extremely saddened when a colleague from Richards Bay Minerals (RBM) was tragically killed this year in a violent incident off-site. To ensure the safety of our team in South Africa, we made the decision to curtail operations at the site for a number of months.

Our all-injury frequency rate (AIFR) increased slightly in 2021, and we are still seeing situations where colleagues could have died, most often from falling objects or falling from heights. While we have made some safety improvements and are on the right path, every injury is one too many. We fundamentally believe that all incidents and injuries are preventable.

The ongoing pandemic has touched all of us in some way, affecting both our physical and our mental wellbeing. Sadly, we have lost colleagues around the world to this virus. Many of us also lost family and friends, saw people close to us battling COVID-19, or experienced it ourselves. Our thoughts and condolences go out to the families, co-workers and friends of all those who left us in 2021.

Over the last two years, we have continued to prioritise the safety, health and wellbeing of our people, their families and the communities where we operate. I am grateful for the incredible teamwork, resilience and care across Rio Tinto – prioritising controls, supporting government vaccination campaigns, setting up vaccination clinics near our operations, and working tirelessly to help our colleagues and communities with vital supplies and safety protection, such as in India and South Africa. I am also thankful for all those who sacrificed time away from family for extended periods as a result of COVID-19 restrictions, to help us keep the business running and deliver the products our customers need.



A strong financial performance

Despite challenging operating conditions from prolonged COVID-19 disruptions, we achieved record financial results in 2021, with net cash generated from operating activities of \$25.3 billion (2020: \$15.9 billion), which flowed through to free cash flow of \$17.7 billion (2020: \$9.4 billion). Profit after tax attributable to owners of Rio Tinto was \$21.1 billion (2020: \$9.8 billion) and our balance sheet remains exceptionally strong with net cash of \$1.6 billion (2020: net debt of \$0.7 billion).

As a result, the Board has recommended a final ordinary dividend of 417 US cents per share and a special dividend of 62 US cents per share, resulting in total shareholder returns declared this year of \$16.8 billion. This is our highest total dividend ever. We recognise that these strong results were supported by the recovery of the global economy and driven by industrial production, which resulted in significant price strength for our major commodities.

Best operator

One of our key objectives is restoring Rio Tinto's reputation as the best operator in the business. We are one of the safest mining companies to work for, with pockets of operational excellence across the business, but we know that we can do better. Through RTSPS, we want to further sharpen the consistency of our performance and unlock real and sustainable improvements at each of our assets.

This is not a one-off improvement programme, but rather a journey. It is being led by our Chief Operating Officer, Arnaud Soirat, whose extensive experience is invaluable. We have begun developing and implementing RTSPS, which leverages all of our people, empowering them to develop and share sustainable, best practice solutions to define the way we work safely and optimally at Rio Tinto.

In 2021, we launched RTSPS at five different sites – our copper concentrator at Kennecott; Yandicoogina Fixed Plant and drill and blast at West Angelas, both in the Pilbara; the casthouse system at Grande-Baie in the Saguenay; and the concentrator at Iron Ore Company of Canada (IOC). We supplemented these deployments with a series of rapid improvement projects targeting short-term bottlenecks.

We are very excited about where RTSPS will take us, and we will be launching it at many more of our sites over the coming months. It has a long-term focus as we want to build momentum and ensure we facilitate deployment, maximise value and properly embed the gains for the future.

Impeccable ESG credentials

If anything became clear in the past year, it is that we must align our business priorities with society's expectations and ensure all of our stakeholders benefit from our success.

Society is demanding a greater commitment on climate change. I was fortunate to attend COP26, the UN Climate Change Conference, in Glasgow, where engaging conversations with civil society organisations, governments and other companies convinced me more than ever that Rio Tinto is an integral part of the solution. We produce materials that are necessary to the world today – and even more so for the transition to a lower-carbon planet. We recognise that we have a major carbon footprint, with significant Scope 1 and 2 emissions and very material indirect Scope 3 emissions. This is a major challenge but also a major opportunity to urgently decarbonise our business and be part of the solution the world is looking for.

In 2021, we launched our new business strategy, with the low-carbon transition at its heart. This prioritises the opportunity for growth in the materials that will enable the energy transition and accelerates the decarbonisation of our assets. We brought forward our 15% reduction target for our own Scope 1 and 2 emissions from 2030 to 2025, and we more than tripled the target for 2030, seeking to reduce our carbon footprint by 50%.

To achieve these targets, we will need to switch to renewable power, electrify processing and run electric mobile fleets, and we intend to invest about \$7.5 billion in climate-related projects from now to 2030. These projects deliver a range of returns but overall are positive at a modest carbon price. Most importantly, they safeguard the integrity of our assets over the longer term and reduce the risk profile of our cash flows. Our long-term ambition remains to reach net zero by 2050.

We recognise that processing our products also generates very material indirect Scope 3 emissions. Over 90% of these Scope 3 emissions are generated in countries that have carbon neutrality pledges and 28% of our iron ore sales are directly to steel producers who have set public targets for their Scope 1 and 2 (our Scope 3) emissions, and have ambitions to reach net zero by around mid-century. In 2022, we commit to engage with all our direct iron ore customers to share information on our respective climate change goals and roadmaps, and actively seek areas of mutual collaboration on pathways to net zero.

Decarbonisation partnerships will be key – and we have seen some great examples in 2021, including with BlueScope and POSCO, to explore low-carbon steelmaking pathways. In addition, we have committed to increasing our research and development spend to speed up the development of technologies to enable our customers to decarbonise.

Culture is key to delivering on our strategy. In 2020, reflecting on how we want to think and act, we began to evolve our culture, striving to become a more outward-looking, humble and humane company. In 2021, we launched new values that we can all stand by as individuals and as a company – showing care for people, communities and the planet, having the courage to stand up for what we believe in, and being curious and open to diverse ideas and learning continuously.

“Our society and our company are both at a pivotal moment in history, with challenges and lots of hard work still ahead. But we are excited about the future.”

As a company, we have made mistakes and are continuing to learn from these. We believe we can and will do better. That starts with making sure that everyone at Rio Tinto can count on a safe, respectful and inclusive workplace. In 2021, we asked experts Elizabeth Broderick & Co. to conduct an independent study to understand the experiences of our workforce and make recommendations on how we can prevent and respond to harmful behaviours such as bullying, sexual harassment, racism and other forms of discrimination in our business. At the beginning of 2022, we published the findings in a comprehensive report – these findings are deeply disturbing and I offer my heartfelt apology to every team member, past and present, who has suffered as a result of these behaviours. This is not the kind of company we want to be. The report also contained 26 detailed recommendations, all of which we will implement. I am determined that by implementing appropriate actions to address the recommendations, and with the management team's commitment to a safe, respectful and inclusive Rio Tinto in all areas, we will make positive and lasting change and strengthen our workplace culture for the long term.

We also launched an innovative, company-wide leadership programme focused on developing our most senior leaders to be the best versions of themselves. And in 2022, we have started to extend this programme to the next level of leaders throughout the company. Unlocking their full potential will help foster a high-achieving and caring culture and will be critical in achieving the business objectives and strategy we have set.

Excel in development

Our strategy also focuses on growing in materials required to support the energy transition, such as copper, lithium, aluminium and high-quality iron ore. This will ensure our portfolio remains relevant and is well-placed to meet the commodity needs of future generations.

Our ambition is to increase our investment in growth capital expenditure to up to \$3 billion annually by 2023 to 2024, and to prioritise our investments in commodities that are essential for the drive to net zero. We will look for new options and innovative ways of bringing projects on stream faster, but we will only do this in line with our ESG standards and while maintaining our absolute commitment to capital discipline.

Included in the growth capital expenditure is the \$2.4 billion committed to funding the Jadar lithium-borates project in Serbia. This project remains subject to receiving all relevant approvals, permits and licences. In January 2022, the Government of Serbia cancelled the Spatial Plan for the Jadar Project and required all related permits to be revoked. We acknowledge concerns from the local communities and are committed to exploring all options. We are reviewing the legal basis of the decision and the implications for our activities and people in Serbia.

In support of our commitment to the battery materials sector, in December 2021, we entered into a binding agreement to acquire the Rincon lithium project in Argentina from Rincon Mining, for \$825 million. This acquisition is strongly aligned with our strategy to prioritise growth capital in commodities that support decarbonisation and to continue to deliver attractive returns to shareholders. This project holds the potential to deliver a significant new supply of battery-grade lithium carbonate, to capture the opportunity offered by the rising demand driven by the global energy transition.

We also began to broaden our approach to developing our pipeline of growth options, organic and inorganic. To support our focus on excelling in development, we will further strengthen the capabilities in project development, evaluation and execution required to create the portfolio for the next decade and beyond.

Social licence

None of our other objectives described above would be possible without trust, meaningful relationships and mutually beneficial partnerships. This is our social licence to operate. It is judged by others and is essential for our long-term future.

The 24th of May 2021 marked one year since the destruction of the rock shelters at Juukan Gorge in Western Australia. Earlier in the year, I was very grateful to meet with the Puutu Kunti Kurrama and Pinikura (PKKP) people on their land and personally express my sincere regret for the damage. Being there with them had a profound impact on me. At the end of 2021, the relationship between the PKKP leadership and Rio Tinto Iron Ore is constructive and considered. Together, we are charting new territory. This takes time, but we are moving forward on a model which is respectful and looks to provide certainty of protection for cultural heritage and mining.

Throughout the year, my colleagues and I reflected on how we interact with others, and we invested significant time and effort in resetting relationships and developing stronger connections. In my first year as Chief Executive, despite COVID-19 restrictions, I met many external stakeholders, including in Australia, Canada, the US, Serbia, Mongolia, New Zealand and Guinea – I have a deep appreciation for the importance of relationships and genuinely finding out what is on the minds of various stakeholders.

We continued to work hard to elevate our approach to social performance to the same level as we do with health, safety and environment. And we remained focused on shaping a shared future and ensuring that Indigenous communities and cultural heritage sites, wherever we operate, are treated with the care they deserve.

These efforts include growing Indigenous leadership, building cultural awareness capability and competency across the Group as well as a number of other actions to strengthen our cultural heritage approach, processes and performance more broadly and increase transparency. In 2021, we released our Communities and Social Performance Commitments Disclosure Interim Report, Rio Tinto's first report dedicated to sharing the progress on these actions.

We appreciate there is still more work to do. We know this is a long journey, and we are dedicated to working with and earning the trust of our hosts in every region where we operate worldwide.

Looking ahead

It has been an intense and extraordinary time on many levels. Our society and our company are both at a pivotal moment in history, with challenges and lots of hard work still ahead. But we are excited about the future.

We have a clear direction and strategy centred on the transition to a low-carbon economy. We are rebuilding relationships and evolving our culture, supported by simple, human values. We have world-class assets, high-quality products and a strong balance sheet. And in my travels in 2021 to our operations such as in Australia, the US and Canada, I was tremendously impressed by our talented and dedicated people, all of whom want to make a difference.

As we look ahead to our 150th anniversary in 2023, I want to thank our thousands of employees and contractors as well as host governments and communities, our customers, our shareholders and our partners. You make our success possible, and we are determined to do the right things to succeed together well into the next 150 years.



Jakob Stausholm
Chief Executive

23 February 2022

Strategic context

Our strategy is informed by a deep analysis and understanding of global megatrends across key dimensions related to geopolitics, society and technology. These trends set the context for our industry and influence commodity choices for the future of our business as well as expectations about how we produce them.

Geopolitical tensions

Economic responses to COVID-19 have differed widely and the past year has been marked by supply chain disruptions as returning demand in some jurisdictions occurred concurrently with pandemic-related production losses and logistical issues. This has resulted in uncertainty in the supply of goods and services and considerable price inflation and volatility.

In recent years, we have witnessed an evolution in the global geopolitical context, marked by an erosion of global trust in elites and institutions and a backlash in some quarters against globalisation. Despite this, we saw some renewed momentum on global collaboration to tackle climate change around the UN Climate Change Conference (COP26) in 2021.

Tensions between the US and China continue to evolve, but their economies remain closely intertwined, resulting in a mix of competition and cooperation dependent on the issues at hand, from technology leadership to climate change. Balancing our relationships with our host country governments and other stakeholders, alongside those with China as a key customer, partner and shareholder, is a strategic priority.

Climate action

Many countries and companies have announced long-term pledges to achieve net zero emissions. However, these commitments fall short of what is required to limit the global temperature rise to 1.5°C above pre-industrial levels. In recognition of this, and faced with increasing societal demands, governments are setting more ambitious targets and creating policies to support the development of low-carbon economies.

Efforts to contain a global temperature rise will create challenges and opportunities for the mining sector, and companies will need to set aside capital to tackle their carbon footprints. This is also important for our customers attempting to reduce their carbon emissions. Failure to achieve targets on time and within budget, coupled with increasing carbon prices and environmental regulations, could result in an erosion of profit, licence to operate and investor confidence.

Increasing electrification and the construction of renewable energy infrastructure will drive demand for several commodities critical for the energy transition, including lithium, copper, aluminium, green steel and related high-grade iron ore. Meanwhile, demand for fossil fuels is expected to decline as governments and companies strive to meet their carbon emissions reduction targets.

Sustainable value chains

While a lot of focus has been on reducing carbon emissions, there has been a more holistic shift towards increasingly transparent, sustainable and circular value chains. This is encouraging companies to improve their performance across a broad range of sustainability metrics and map their contributions towards the UN Sustainable Development Goals (UN SDGs).

An emerging theme in the development of more sustainable value chains is the circular economy, which is built around the principles of designing out waste and pollution, keeping products and materials in use, and regenerating natural systems. The concept offers a transition away from linear “take-make-use-dispose” value chains to building more sustainable and resilient supply ecosystems.

The circular economy presents a risk to primary metal demand growth in some markets, but it also offers unique growth opportunities, from scrap recycling to the monetisation of waste streams. It could also provide a pathway to greatly reduce the environmental and social impacts of metal value chains, while increasing supply security for customers. An increasing number of downstream participants are actively participating in responsible sourcing initiatives (such as the Aluminium Stewardship Initiative and the European Battery Alliance) to help create more ethical and sustainable metal supply chains.

Convergence of technologies

The continued development and cost reduction of low-carbon technologies is an ongoing trend that is accelerating many global movements, including the global energy transition and potentially future climate outcomes.

2021 saw unprecedented investment in emerging technologies that could significantly improve the sustainability of the mining sector. These include innovative carbon capture technologies, novel metal-extraction processes (for full-value mining and tailings reuse), innovative electrolyser technologies (for green hydrogen production), biofuels and environmental monitoring solutions.

The pandemic has also accelerated the use of digital solutions, such as offering customers the opportunity to buy products and conduct end-to-end digital transactions using blockchain technology. This is continuing to improve the efficiency and transparency of global value chains.

In the mining sector, technology is playing an important role in addressing productivity, growth and sustainability challenges. To find solutions, companies will increase investment in research and development in partnerships with suppliers, technology providers, start ups and other stakeholders across the value chain and other sectors.

Our strategy

In 2021, we announced a new integrated strategy bringing together a set of new commitments across three pillars of activity with four objectives guiding how we seek to improve our business. We have positioned climate change and the low-carbon transition at the heart of our strategy to strengthen our resilience and pursue new growth opportunities and partnerships. Our culture, underpinned by our new values of care, courage and curiosity, will be a key enabler in the successful execution of our new strategy and the delivery of superior returns to our shareholders and contributions to society.

The energy transition will create additional demand for our commodities – such as copper, lithium and aluminium. Iron ore will also continue to be an essential raw material for the production of steel, not only for ongoing urbanisation, but also in the development of the infrastructure needed for the low-carbon transition. We expect steel, particularly green steel, to have a bright future as the steel industry decarbonises, supporting stronger demand for high-quality iron ore. Crucially, there are often no alternatives to the commodities we produce.

At the same time, we are also part of the climate challenge. We have a major carbon footprint with significant Scope 1 and 2 emissions and very material indirect Scope 3 emissions. This needs to change and we are addressing this with urgency, deploying large-scale renewable energy and working in partnerships to develop new low-carbon technologies for both our operations and those of our customers, across our value chains.

Our new strategy has three key elements:

	Accelerate the decarbonisation of our assets	Develop products and technologies that help our customers decarbonise	Grow in materials enabling the energy transition
Commitments	To strengthen our alignment with the Paris Agreement and our long-term ambition of achieving net zero emissions by 2050: – We are bringing forward to 2025 our previous 2030 target of a 15% reduction in Scope 1 and 2 carbon emissions. – We are more than tripling our previous 2030 target from a 15% reduction to a 50% reduction in our Scope 1 and 2 emissions against our 2018 equity baseline.	Our products are essential today as enablers of the energy transition and in a net zero world, but we recognise that the processing of our products is resulting in very material indirect Scope 3 emissions. We have a role to play in the decarbonisation of the supply chains we are part of, particularly the steel value chain. We will step up our customer engagements to help them meet their Scope 1 and 2 emissions goals and will continue to work towards our 2050 ambition of net zero emissions from the shipping of our products.	The pursuit of the Paris Agreement goals will create additional demand for materials such as copper, lithium, aluminium and high-quality iron ore. These are essential enablers of the energy transition and the development of infrastructure for a low-carbon world. Our ambition is to increase our growth capital to \$3.0 billion annually in 2023 to 2024, depending on opportunities, while continuing to provide attractive returns to our shareholders.
Actions	To achieve our raised decarbonisation ambition and targets, we will switch to renewables at scale, with a priority focus in the Pilbara. We will accelerate the electrification of our mobile equipment and processes, and empower our people to think differently about energy solutions. We expect to invest an estimated \$7.5 billion in decarbonisation projects this decade, including around \$500 million in each of the next three years. In parallel, we will continue to review and enhance the resilience of our assets to physical climate risk.	We will increase our investment in research and development to speed up the development of products and technologies that will enable our customers to decarbonise. This includes the continued development of ELYSIS™ for aluminium, finding future pathways for Pilbara ores as the industry transitions to green steel, and studying a hydrogen-based hot briquetted iron (HBI) plant in Canada. Our effort will require deep collaboration across our industry and beyond, including partnerships with customers, technology providers, research institutes, governments and other stakeholders.	We will seek to grow further in copper and battery materials, and to bring additional tonnes of high-grade iron ore to market from the Iron Ore Company of Canada (IOC) and the Simandou project in Guinea. We will continue to align our exploration spend to supplement our existing growth pipeline.

Our four objectives

We recognise that our success is based on our ability to build and strengthen our resilience and form partnerships that enable us to adapt rapidly to future realities and opportunities. Delivering on our strategy depends on four objectives set out at the start of 2021: to be the best operator, to achieve impeccable environmental, social and governance (ESG) credentials, to excel in development, and to protect our social licence. These essential components will help improve productivity and reduce capital intensity, and assist us in becoming a partner of choice globally.



Best operator

Improving the consistency of the safety and operational performance across our assets is the foundation of our business. We will become the best operator by replicating capabilities from existing pockets of excellence and empowering our people.

Impeccable ESG credentials

We must ensure all our stakeholders benefit from the success of Rio Tinto. We will achieve impeccable ESG performance by aligning our business priorities with society's expectations. This is essential to the future of our business.

Excel in development

Our portfolio is well-placed to meet the commodity needs of future generations, but we also need to build a pipeline of organic and inorganic growth opportunities and establish a strong track record of capital-efficient delivery.

Social licence

Our social licence to operate is essential and will be judged by all our stakeholders. We know we need to be more responsive and humble, building meaningful relationships with our stakeholders by listening, learning and respecting diverse perspectives.

	Best operator	Impeccable ESG credentials	Excel in development	Social licence
Objective	Strong safety performance remains our first priority – we will never be complacent. We are developing and implementing the Rio Tinto Safe Production System (RTSPS) as a new, people-centric approach to engage our workforce to develop and share best practice solutions across our assets in a sustainable way.	We are integrating sustainability at the core of our business strategy, from our community work to addressing climate change. We are striving to be a responsible and trusted steward of resources and are committed to making meaningful contributions towards addressing some of the world's most urgent challenges, as captured in the United Nations Sustainable Development Goals (UN SDGs).	We are broadening our approach to developing our pipeline of growth options and are testing innovative ways of bringing projects online faster. Through it all, we will maintain our absolute commitment to capital discipline and only pursue opportunities that create value. We are also focused on further building our capabilities in business development and project execution.	We are stepping up our external engagements to develop deeper connections with all stakeholders and build mutually beneficial partnerships. We are building cultural capability and competency across the Group to ensure that we fully understand, value and partner with our host communities.
2021 Highlights	We created a new Chief Operating Officer role. We completed extensive performance benchmarking of our assets. We deployed RTSPS at five sites, supplemented by a series of rapid improvement projects (kaizens) targeting short-term bottlenecks.	We launched new Scope 1 and 2 carbon reduction targets for 2025 and 2030. We established a Communities and Social Performance (CSP) Area of Expertise and created an end-to-end CSP leadership team from all parts of our business to drive best practice, standards and assurance. We set a new standard in transparency and traceability for the aluminium industry with the launch of START™, a “nutrition label” for responsible aluminium.	We announced the aim to increase our growth capital, while maintaining our well-established capital allocation policy and discipline. We entered into a binding agreement to acquire the Rincon lithium brine project in Argentina. We announced an investment to increase low-carbon aluminium production with 16 new smelting pots at our AP60 smelter in Quebec, Canada.	We continued on our journey to improve our engagement with Traditional Owners to better understand their priorities and concerns, minimise our impacts, and responsibly manage Indigenous cultural heritage within our operations – moving to a co-management of Country model. We continued to deliver a dedicated programme to increase Indigenous leadership and employment in our business. Building on the learnings from the Australian programmes, we established a steering group in North America to develop a plan to lead, coordinate and boost Indigenous recruitment, inclusion and retention.

Our values

Reflecting on the past, how we want to evolve and how we want to think and act, we introduced a new set of values expressed in three simple words: care, courage, curiosity.

Our values connect us as human beings and guide how we work and treat each other. They are essential to build meaningful relationships and deliver on our purpose and strategy.

Care

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

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

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

Courage

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

We are not afraid to try new things.

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

Curiosity

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

We are continuously learning and developing ourselves, and looking for better and safer ways of doing things.

We draw inspiration from others and the world around us.

As a company, we know we may not always get it right, but we are committed to learning and improving. And through it all, safety – the essence of caring – remains our number one priority.



Our culture

Our culture is a product of Rio Tinto people's collective mindsets and beliefs, and the processes and decision-making architecture that sit across all levels of the organisation.

This culture helped us achieve zero fatalities for the third year in a row. It also underpins the resilience, commitment and teamwork of our people during the global pandemic, in supporting colleagues and host communities while delivering high-quality products to our customers.

At the same time, we know that we did not always meet expectations and aspects of our culture do not fully reflect who we aspire to be. We need to continuously evolve our culture, guided by our new values and strategy.

In particular, everyone deserves to be in a workplace free of bullying, sexual harassment, racism and other forms of discrimination – without exception. In 2021, we initiated a comprehensive, independent review of our workplace culture to better understand, prevent and respond to harmful behaviours in the workplace. The Board and Executive Committee fully endorse the recommendations set out in the report and we are grateful to everyone who came forward to share their experiences to help inform this work.

A change in mindset and behaviours is being embedded throughout the organisation. We are changing the way that we lead by investing in developing our senior leaders to be their best. Similarly, through the Rio Tinto Safe Production System (RTSPS), we are empowering and upskilling our frontline people to be more effective leaders, bringing out the best in their teams to become the safest and best operator in the industry.

We also continue to elevate our approach to social performance, including respect for cultural heritage, to the same level as we do with health, safety and environment. And we remain committed to engaging respectfully and meaningfully with Indigenous communities in every region where we operate worldwide.

A cultural shift takes time. Together, we will ensure that our values of care, courage and curiosity are reflected in all that we do – so that we can become the company we want to be and contribute to a better future for society.



Our stakeholders

Our business touches the lives of many people around the world. Partnerships and collaboration are essential to the long-term success of our business; they give us a competitive edge and allow us to work more thoughtfully and responsibly. We work with technology experts, universities, suppliers, governments, community groups, industry leaders and civil society organisations at all stages of the mining lifecycle, from exploration to rehabilitation and closure. By continuously engaging with our stakeholders and listening to their views, we can make a more meaningful contribution to society while becoming a more valuable company for our shareholders.

Workforce

In 2021, we focused on providing support and care to our people as we continued to face challenges and fatigue due to the ongoing COVID-19 pandemic and associated disruptions.

We also made progress in our efforts to create a more respectful workplace by changing the way we engage, interact and operate. Our people are driving the operational and cultural change that we need to become the best operator.

In 2021, we launched our new values and strategy, with our people at the centre. We believe that our values of care, courage and curiosity will drive superior performance by enabling our people and guiding our decisions and behaviours. We recognise that embedding our values will not happen overnight, and that it is part of a cultural shift that will take time. This will be a main focus for 2022.

Empowered and engaged people are key to our success. In 2021, we spent a lot of time listening and reflecting on how we can do better. To understand people's experiences of sexual harassment, bullying and racism in the workplace, we launched the Everyday Respect task force and initiated a comprehensive, independent review of our workplace culture. Following the feedback from more than 10,000 of our people, we have set out an action plan to address these issues. This will, over time, contribute to a safer, more respectful and inclusive work environment.

In our most recent employee survey, conducted in October and November, we saw that many employees like our new strategy. Our new values of care, courage and curiosity also resonated for many, who felt they have more human connection and show the type of company we want to be. However, our employee satisfaction (eSAT) score has gone down from 73 to 71. This is the first decline since 2017, and it happened across most levels, geographies and parts of the business. This is consistent with what Glint, our survey provider and expert in engagement, is seeing across organisations. After a broad increase in eSAT during the first year of the pandemic, there is a general decline across many organisations as fatigue and workload have increased. We are using these insights to guide our actions to support our colleagues and restore employee satisfaction.

Our priorities for our people focus on improving overall safety performance and health; transforming our culture to make it more inclusive and welcoming; finding ways to simplify work and make it more efficient; developing our leaders; offering competitive pay and benefits; and ensuring work-life balance, including a focus on strengthening mental health.

Communities

Communities are the places where we operate, live, work and call home – from the Pilbara, Western Australia, to KwaZulu-Natal, South Africa, to Saguenay–Lac-Saint-Jean, Quebec, Canada. Our communities are made up of people – employees, Indigenous peoples, suppliers and neighbours – with whom we strive to build long-term, positive partnerships. Our strength is built upon their strength and we want everyone to have a stake in our success.

We recognise that, in parts of our business, we have work to do to meet our own standards on open, transparent engagement. We continue to strive to engage consistently and honestly with communities on issues such as jobs and local procurement as well as the impact of our operations on the local environment.

Our Communities and Social Performance (CSP) Area of Expertise has been set up and follows the same model as our well-established Health, Safety, Environment and Security (HSES) function. The CSP Area of Expertise supports and complements our asset-based teams by monitoring external societal trends, developing standards, systems and risk and assurance processes, building capability, and providing strategic and technical subject matter advice. Operational leaders within the product groups now have direct responsibility for building and maintaining relationships with their host communities, including Indigenous peoples, ensuring that they have a voice in our mine planning and decision making.

In 2021, we continued our work to rebuild trust and strengthen the relationships that were damaged by the destruction of the rock shelters at Juukan Gorge in May 2020. We are engaging with Traditional Owners in the Pilbara to modernise and improve agreements. We are also moving to an informed, consultative approach to mine development, together with a broader partnership which will enhance the protection of heritage and provide better outcomes for both Indigenous peoples and our business. More information can be found on pages 94–95.

Civil society organisations

Civil society organisations play an important role in society. They raise awareness of key issues, advocate for social change, provide input to policy development, and help to hold businesses and governments accountable for their actions. We believe that preventing and addressing the world's many complex and multifaceted environmental, social and governance challenges, such as climate change, human rights violations and bribery and corruption, can only be achieved through genuine dialogue with civil society organisations and other stakeholders. As a result, we regularly engage with civil society organisations and, although our opinions may differ from time to time, we respect their views and value the challenges they set for us to be better across different areas of our business.

Since 2018, we have held annual roundtables with civil society organisations to listen, learn and understand how we can improve. The roundtables provide an opportunity for us to explore and discuss key social, environmental and economic issues facing society and our business. They also provide an important touch point to sense check the issues that matter most to society and help us to better understand evolving expectations. The roundtables are attended by senior Rio Tinto leadership, including members of the Board and Executive Committee. In late 2021, we held three roundtables across Australia, Europe and the UK, and North America. A wide range of topics was discussed, including climate change, biodiversity and water management, human rights, Indigenous engagement and cultural heritage and transparency. A number of agreements were made regarding information-sharing and follow-up meetings, including smaller sessions where more issue and thematic focused dialogues could take place to advance progress on specific shared challenges. More information can be found on page 141 [AB](#).

Governments

Governments – federal, state and provincial, and local – are important stakeholders for our business. We regularly engage with officials at all levels on matters including how we explore, mine and process ore; conditions of land tenure; health, safety and environmental issues, including climate change; securities; taxation; intellectual property; competition and foreign investment; data privacy, conditions of trade and export; and infrastructure access.

We are proud of the economic contribution our business makes to governments around the world. We were the first company in our industry to disclose our payments to governments in detail, and we have been reporting on our taxes and royalties paid, and our economic contribution, in increasing detail, for more than a decade. Over the past ten years, we have paid \$74 billion in taxes and royalties globally, of which 78%, or \$58 billion, was paid in Australia. Corporate tax paid in 2021 was \$8.5 billion (2020: \$5.3 billion), which when combined with royalties and other taxes, and with our share of taxes and royalties paid by equity accounted units, resulted in payments to governments of over \$13 billion (2020: \$8.4 billion), including over \$11 billion (2020: \$6.8 billion) paid in Australia. This is important because our businesses' economic contribution to governments and communities supports the basic infrastructure of society – bridges and roads, schools and hospitals – as well as other local development priorities, like job creation and skills training.

At the global level, we engage with multilateral organisations such as the World Bank, the International Finance Corporation, the United Nations, and the Organisation for Economic Co-operation and Development (OECD). We also engage with multi-stakeholder initiatives in which governments participate, such as the Extractive Industries Transparency Initiative (EITI) and the Voluntary Principles on Security and Human Rights. These bodies help to define the industry's operating environment and contribute to joint problem solving.

Investors

Our investors include pension funds, global fund managers, bondholders, and tens of thousands of individuals around the world, including approximately 25,000 Rio Tinto employees who own shares in the company primarily through myShare, our global employee share plan. They have trusted us with their investment, and in return, they expect their investment to grow. They are also increasingly focused on how that return is made, with a shift toward supporting companies that consider long-term sustainability as part of their operations, and behave responsibly across environmental, social and governance (ESG) measures.

We engaged with current and potential investors through virtual forums for the majority of 2021, providing an opportunity for meetings with our Executive Committee, the Chairman and Non-Executive Directors. Additionally, our two annual general meetings (AGMs) in the UK and Australia provided an opportunity for all investors to question and engage with the Board. Given the growing importance of issues such as climate change, governance, social performance and environment, we present and engage regularly on these topics.

In March, we held an investor sustainability seminar focused on our approach to cultural heritage. The Chair of the Sustainability Committee, members of the Executive Committee and subject matter experts provided an update on the actions we are taking to improve the Traditional Owner partnerships and cultural heritage aspects of our business, including in the Northern Territory, Western Australia and Canada. In October, we hosted our Capital Markets Day, with the Executive Committee setting out our long-term vision, including how we will deliver value-adding growth, accelerate the decarbonisation of our portfolio, and continue to pay attractive dividends to our shareholders. In 2022, we will hold further environmental, social and governance forums in response to growing investor interest in the company's progress in a number of areas, including climate change, heritage and communities, closure and environment.

This stakeholder section, together with our stakeholder pages in the governance section, explains how the Board takes account of stakeholder interests, our "section 172(1) Statement".

Customers

The world's journey towards achieving the goals of the Paris Agreement will require nothing less than a green-energy revolution. The minerals and metals we produce and sell to our customers are vital ingredients in meeting this challenge.

The needs of our customers are central to our operational decision making. Using the insights generated from everything we buy, sell and move around the world, our Commercial team works closely with customers to ensure that we deliver industry-leading products that meet their specific requirements. Our new offering, START Responsible Aluminium, which is the first sustainability label for aluminium using blockchain technology, is just one example of our responsiveness to customer requirements.

Building trust with our customers is critical, and it requires us to deliver on our promises consistently, and to act with care, courage and curiosity. For the third year, we asked our customers for their feedback via a survey. The insights from this survey are helping us deliver new and better products and initiatives.

Suppliers

Engaging with suppliers is an important way in which we can have a positive impact on communities. In the areas where we operate, we work hard to partner with and develop local businesses so they can share in our success. In 2021, we spent \$19.4 billion with suppliers globally, including almost A\$8 billion in Western Australia.

We increased our spend with Indigenous suppliers in Australia by 40% from 2020 to 2021 to A\$400 million. In Mongolia, between 2010 and the end of 2021, Oyu Tolgoi spent \$4.1 billion on national procurement*.

Quality relationships with our suppliers are vital to ensure that we remain at the forefront of technological and market developments, and we continually strive to improve our supplier experiences. As with our customers, we ask our suppliers to participate in a yearly survey to ensure we capture their feedback for improvement. To further support our suppliers, in 2021, we introduced new faster payment terms in Australia to ensure Indigenous, small and regional suppliers are paid more quickly.

We also continue to engage with both customers and suppliers on innovative climate change partnerships, including with BlueScope in Australia, China Baowu in China, Nippon Steel Corporation in Japan and POSCO in South Korea, to tackle emissions across the steel value chain. On the supplier side we are partnering with Komatsu and Caterpillar on zero-emissions haul trucks. More information on some of these partnerships can be found in the Innovation pages 70-71.

*Oyu Tolgoi's (OT) national procurement figure represents spend with suppliers registered in Mongolia and more than 50% owned by Mongolian citizens. It relates to the OT operations only, and does not include the underground project.

Time off in Broome. Fly-in, fly-out (FIFO) programme. Western Australia.



Our business model

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



Underpinned by disciplined capital allocation

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

Key performance indicators

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

Alignment to our four objectives



All-injury frequency rate (AIFR)

per 200,000 hours worked

2017	0.42
2018	0.44
2019	0.42
2020	0.37
2021	0.40

Definition

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

Alignment to our four objectives Associated risks

- Best operator
 - Impeccable ESG credentials
 - Operational
 - ESG
- (see page 117)

Relevance to strategy and executive remuneration

Our global workforce is the foundation of our business. Supporting our people and their safety is our number one priority; and essential to everything we do. We are committed to having a safe work environment for all our people. We focus on maintaining zero fatalities, preventing catastrophic events and reducing safety risk everywhere we work. We are a learning organisation enabling a safe, responsible and productive business that protects and cares for people. We continue to implement our safety maturity model which brings together the key elements to building a strong safety culture and leadership maturity. Our facilities developed improvement plans and continued to enhance their safety maturity throughout the pandemic-related challenges faced during 2021. We are focused and committed to strengthening our partnerships with industry and associated committees (eg ICMM), contracting partners and local communities with the priority of learning and sharing to protect everyone's health, safety and wellbeing.

Link to executive remuneration

Included as a performance metric in the safety component of the short-term incentive plan (see pages 175–176) ^{AR}.

Our performance in 2021

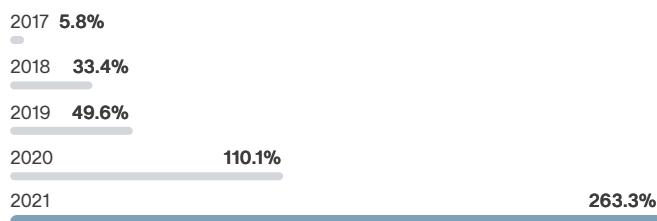
We achieved a third year in a row of zero fatalities and we had zero permanent damage injuries. Our all-injury frequency rate (AIFR) slightly increased to 0.40 from 0.37 in 2020. Fatigue, labour shortages and other pressures from COVID-19 have presented new challenges in our day-to-day operations and remind us that there is no room for complacency.

Forward plan

- Continue our critical risk management programme
- Implement enhancements to the safety maturity model programme
- Continue to implement our major hazard standards, including process safety, underground safety and tailings, and apply strong assurance processes
- Innovate to reduce exposure to safety and health risks

Total shareholder return (TSR)¹

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



Definition

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.

Alignment to our four objectives Associated risks

- | | |
|------------------------------|----------------|
| – Best operator | – Strategic |
| – Impeccable ESG credentials | – Economic |
| – Excel in development | – ESG |
| – Social licence | (see page 117) |

Relevance to strategy and executive remuneration

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

Link to executive remuneration

Reflected in the long-term incentive plan, measured equally against the EMIX Global Mining Index and the MSCI World Index (see pages 181–182 ^{AR}).

Our performance in 2021

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

Forward plan

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

Underlying earnings and underlying EBITDA

\$ millions

2017	
Underlying earnings	8,627
Underlying EBITDA	18,580
2018	
Underlying earnings	8,808
Underlying EBITDA	18,136
2019	
Underlying earnings	10,373
Underlying EBITDA	21,197
2020	
Underlying earnings	12,448
Underlying EBITDA	23,902
2021	
Underlying earnings	21,380
Underlying EBITDA	37,720

Definition

Underlying earnings represent net earnings attributable to the owners of Rio Tinto, adjusted to exclude items which do not reflect the underlying performance of the Group's operations. These items are explained in note 2 ^{AR} of the financial statements.

Underlying EBITDA represents profit before tax, net finance items, depreciation and amortisation. It excludes the EBITDA impact of the items mentioned above.

For more information please refer to Alternative Performance Measures on pages 343–347 ^{AR}.

Alignment to our four objectives Associated risks

- | | |
|-----------------|----------------|
| – Best operator | – Economic |
| | – Operational |
| | – ESG |
| | (see page 117) |

Relevance to strategy and executive remuneration

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

Link to executive remuneration

Underlying earnings are reflected in the short-term incentive plan; in the longer term, both measures influence TSR, which is the primary measure for the long-term incentive plan (see pages 180–182 ^{AR}).

Our performance in 2021

Underlying earnings of \$21.4 billion were \$8.9 billion higher than in 2020. Underlying EBITDA of \$37.7 billion was \$13.8 billion higher than in 2020. The 58% increase in underlying EBITDA resulted from higher iron ore, aluminium and copper prices, partly offset by lower sales volumes and higher energy costs.

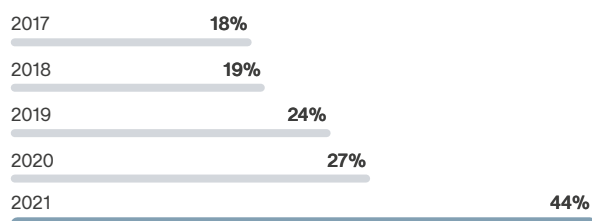
Forward plan

We will continue to drive superior margins and returns through our focus on becoming the best operator and unlocking full potential across our value chains.

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

Underlying return on capital employed (ROCE)

%



Definition

Underlying return on capital employed ("ROCE") is defined as underlying earnings excluding net interest divided by average capital employed (operating assets). For more information please refer to Alternative Performance Measures on pages 343-347 ^{AR}.

Alignment to our four objectives

- Best operator
- Excel in development

Associated risks

- Strategic
- Economic
- Operational
- ESG

(see page 117)

Relevance to strategy and executive remuneration

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

Link to executive remuneration

Underlying earnings, as a component of underlying ROCE, is included in the short-term incentive plan. In the longer term, underlying ROCE also influences TSR, which is included in the long-term incentive plan (see pages 180-182 ^{AR}).

Our performance in 2021

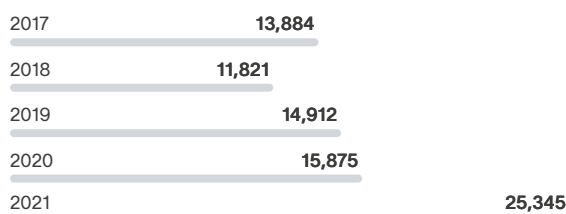
Underlying ROCE increased 17 percentage points to 44% in 2021, reflecting the increase in underlying earnings driven by higher commodity prices, partially offset by an increase in capital employed due to capital expenditure.

Forward plan

We will continue to focus on maximising returns from our assets over the short, medium and long-term. We will also maintain our disciplined and rigorous approach and invest capital only in projects that we believe will deliver returns that are well above our cost of capital.

Net cash generated from operating activities

\$ millions



Definition

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.

Alignment to our four objectives

- Best operator

Associated risks

- Economic
- Operational
- ESG

(see page 117)

Relevance to strategy and executive remuneration

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

Link to executive remuneration

Included in the short-term incentive plan; in the longer term, the measure influences TSR, which is included in the long-term incentive plan (see pages 180-182 ^{AR}).

Our performance in 2021

Net cash generated from operating activities of \$25.3 billion was 60% higher than 2020. This was primarily due to higher commodity prices, partially offset by higher taxes paid, higher dividends paid and an increase in working capital.

Forward plan

We will focus on effectively converting earnings into cash, underpinned by operational and commercial excellence, including our careful management of working capital.

Free cash flow

\$ millions

2017	9,540
2018	6,977
2019	9,158
2020	9,407
2021	17,664

Definition

Free cash flow is defined as net cash generated from operating activities minus purchases of property, plant and equipment and intangibles and payments of lease principal, plus proceeds from the sale of property, plant and equipment and intangible assets. For more information please refer to Alternative Performance Measures on pages 343–347 ^{AR}.

Alignment to our four objectives

- Best operator
- Excel in development

Associated risks

- Strategic
- Economic
- Operational
- ESG

(see page 117)

Relevance to strategy and executive remuneration

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

Included in the short-term incentive plan; in the longer term, the measure influences TSR, which is included in the long-term incentive plan (see pages 180–182 ^{AR}).

Our performance in 2021

Free cash flow increased by \$8.3 billion to \$17.7 billion in 2021, primarily due to the increase in net cash generated from operating activities. This was partially offset by an increase in replacement and development capital expenditure as we ramp up our projects.

Forward plan

We will focus on effectively converting earnings into cash, underpinned by operational and commercial excellence, including our careful management of working capital.

Net cash/(debt)

\$ millions

2017	(3,845)
2018	255
2019	(3,651)
2020	(664)
2021	1,576

Definition

Total borrowings plus lease liabilities less cash and cash equivalents and other liquid investments, adjusted for derivatives related to net cash/(debt) (see note 23 ^{AR} of the financial statements). For more information please refer to Alternative Performance Measures on pages 343–347 ^{AR}.

Alignment to our four objectives

- Best operator
- Excel in development

Associated risks

- Strategic
- Economic
- Operational
- ESG

(see page 117)

Relevance to strategy and executive remuneration

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

Link to executive remuneration

Net cash/(debt) is, in part, an outcome of free cash flow, which itself is reflected in the short-term incentive plan. In the longer term, net cash/(debt) influences TSR, which is reflected in the long-term incentive plan (see pages 180–182 ^{AR}).

Our performance in 2021

Net debt decreased by \$2.2 billion to a net cash position of \$1.6 billion. This reflects \$17.7 billion of free cash flow in 2021, partially offset by \$15.4 billion of cash returns to shareholders through dividends.

Forward plan

We will focus on effectively converting earnings into cash, underpinned by operational and commercial excellence, including our careful management of working capital.

Scope 1 and 2 greenhouse gas emissions

(equity Mt CO₂e)

2018 ¹	32.5
2019	31.5
2020	31.5
2021	31.1

Prior to 2018 we reported our greenhouse gas emissions on a 100% managed basis.

1. The 2018 figure is the baseline for our 2025 and 2030 emissions targets and has been adjusted for acquisitions and divestments.

Definition

Equity greenhouse gas emissions: equity share of Scope 1 and 2 emissions from managed and non-managed operations expressed in million metric tonnes of carbon dioxide equivalent.

Alignment to our four objectives Associated risks

- | | |
|------------------------------|----------------|
| – Best operator | – Strategic |
| – Impeccable ESG credentials | – ESG |
| – Excel in development | (see page 117) |
| – Social licence | |

Relevance to strategy and executive remuneration

Climate risks and opportunities have formed part of our strategic thinking and investment decisions for over two decades. We have put the net zero transition at the heart of our business strategy; combining actions to reduce greenhouse gas emissions from our assets with investments in commodities that enable the energy transition, so that we can provide products that will help our customers to decarbonise.

Link to executive remuneration

Climate change is included in our ESG metrics for executive remuneration with a weighting of 5% of the short-term incentive plan. In 2021, the business achieved the approval of 0.26Mt CO₂e of abatement projects and exceeded the total 0.5Mt CO₂e targeted for 2020 and 2021. For more information, see page 177 ^{AR}.

Our performance in 2021

Our absolute emissions in 2021 were 31.1Mt CO₂e, 4% below our 2018 equity emissions baseline. The reductions achieved since 2018 are primarily the result of switching to renewable electricity contracts at Kennecott in the US and the Escondida mine in Chile (managed by BHP; Rio Tinto owns 30%), and also relate to unplanned operational disruptions in 2021 at Richards Bay Minerals in South Africa and the Kitimat aluminium smelter in Canada.

Forward plan

As part of our new Group strategy, we announced new targets in 2021 and aim to reduce absolute emissions by 15% by 2025 and by 50% by 2030. We are committed to reaching net zero emissions by 2050. Our decarbonisation roadmap to meet these targets is detailed in the Climate Action Plan section of our 2021 Climate Change Report, which can be found at riotinto.com/climate-report.

Gender diversity

Representation of women within our workforce

2017	18.0%
2018	17.7%
2019	18.4%
2020 ²	19.0%
2020 ²	20.1%
2021	21.6%

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

Definition

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

Alignment to our four objectives Associated risks

- | | |
|------------------------------|----------------|
| – Best operator | – Strategic |
| – Impeccable ESG credentials | – ESG |
| – Social licence | (see page 117) |

Relevance to strategy and executive remuneration

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 2021, our target was to increase the proportion of women in our workforce by 2%. This target is included in our ESG metrics for executive remuneration, with a weighting of 5% of the short-term incentive plan. For more information, please see page 177 ^{AR}.

Our performance in 2021

In 2021, we increased our representation of women by 1.5%, from 20.1% to 21.6%. This falls short of our 2% target. However, it is the largest increase in gender diversity in the past five years. The increases were distributed across all levels of the organisation, with senior leaders increasing from 26.1% to 27.4% and managers increasing by 1.7% to 31.9%.

Forward plan

Our target to increase the proportion of women in our workforce by 2% year on year will continue in 2022. We will keep promoting initiatives to support this target, including the Everyday Respect task force recommendations. For more information, please see page 101.

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.



Chief Financial Officer's statement

We have an outstanding foundation of long-life assets, producing vital commodities for a decarbonising world.

Net cash generated from operating activities

\$25.3bn

(2020: \$15.9bn)

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

\$21.1bn

(2020: \$9.8bn)

Underlying earnings

\$21.4bn

(2020: \$12.4bn)

Robust financial results

The recovery of the global economy resulted in significant price strength for our major commodities. We maintained our financial discipline throughout 2021 and were able to capture around 80% of the price uplift, achieving record financial results, with net cash generated from operating activities of \$25.3 billion, underlying earnings of \$21.4 billion and net earnings of \$21.1 billion.

Our financial position is strong and stable and we ended the year with a net cash position of \$1.6 billion. However, we are not satisfied with our operating performance and progress on our capital projects has been challenging. Our teams continue to adapt to difficult conditions with COVID-19 still prevalent, creating significant restrictions on the availability of labour and supply chains. The Rio Tinto Safe Production System has a long-term focus to ensure we properly embed any gains for the future, including enhancing operating and leadership capabilities. However, we are not ignoring the near term and are already rolling out this significant improvement programme.

Disciplined allocation of capital remains at our core

There is one thing that will not change at Rio Tinto, and that is our approach to capital discipline. Our aim is to invest consistently through the cycle, balancing near-term returns to shareholders with reinvestment and de-risking future cash flows. It involves carefully testing all opportunities and taking controlled risks.

"Over the last six years, we have paid out at the top end of the range for the ordinary dividend at 60% of underlying earnings."

We are focusing on the highest risk areas and ensuring that all capital is deployed with discipline. Essential capital expenditure to maintain future cash flows remains our priority for capital allocation. It includes sustaining capital to ensure the integrity of our assets, high-returning replacement projects and investment to increase and accelerate decarbonisation. This latter investment is set to rise in line with our strategic priorities, with our focus over the next three years on repowering the Pilbara with renewables.

Our next priority is the ordinary dividend within our well-established returns policy. We then test investment in compelling growth against debt management and additional cash returns to shareholders.

In 2021, we increased our capital expenditure overall by 19% to \$7.4 billion, targeting disciplined investment in key projects and commodities. This was comprised of \$0.6 billion of growth capital, \$3.3 billion of replacement and \$3.5 billion of sustaining capital. Our most significant growth project remains the Oyu Tolgoi copper/gold underground mine in Mongolia where we invested around \$0.6 billion, on a 100% basis as we fully consolidate Oyu Tolgoi. Much of the 2021 increase in capital relates to our Pilbara replacement iron ore mines as we ramped up the pace of construction.

Attractive dividends remain paramount

Our shareholder returns policy dates back to 2016. We have committed to returning 40 to 60% of underlying earnings on average through the cycle, with additional returns in periods of strong earnings and cash generation. It is tried and tested and has resulted in record returns. It is a variable policy, in terms of the absolute number, with the denominator moving up and down, mostly in line with commodity prices.

We have paid out at the top end of the range for the ordinary dividend at 60% of underlying earnings. Overall, due to our strong cash flows, we have consistently exceeded the policy, with a total payout ratio averaging 74% over the last six years, when you include special dividends and share buy-backs and exclude divestment proceeds. For 2021, we are returning 79% of underlying earnings to shareholders. This is comprised of the full year ordinary dividend of 793 US cents per share and special dividend of 247 US cents per share, bringing the total dividend to 1,040 US cents, or \$16.8 billion. While encouraged by growth prospects in the coming year, we remain vigilant in relation to potential disruption from new COVID-19 variants and geopolitical tensions.

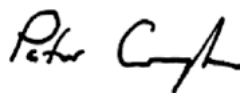
We see the dividend as paramount for maintaining discipline. Our financial strength means that we can reinvest for growth, accelerate our decarbonisation and continue to pay attractive dividends through the cycle.

Strong foundation for growth, decarbonisation and shareholder returns

We have an outstanding foundation of long-life assets, producing vital commodities for a decarbonising world. Our balance sheet is stronger than ever and we have a world-class pipeline of projects.

This means that we have the financial capacity for our ambition to double investment in value-adding growth and accelerate the decarbonisation of our portfolio, while continuing to pay attractive dividends in line with our policy.

By accelerating our own decarbonisation transition, we will de-risk the company, generate growth, maintain our financial discipline and enhance our competitive advantage.



Peter Cunningham
Chief Financial Officer

23 February 2022



“We have the financial capacity for our ambition to double investment in value-adding growth and accelerate the decarbonisation of our portfolio, while continuing to pay attractive dividends in line with our policy.”

Financial review

Non-GAAP measures

In addition to IFRS measures, management uses non-GAAP measures internally to assess performance. Full reconciliations are provided on pages 343–347 ^{4B}. These measures are highlighted with the symbol: •

At year end	2021	2020	Change
Net cash generated from operating activities (US\$ millions)	25,345	15,875	60%
Purchases of property, plant and equipment and intangible assets (US\$ millions)	7,384	6,189	19%
Free cash flow ¹ (US\$ millions) •	17,664	9,407	88%
Consolidated sales revenue (US\$ millions)	63,495	44,611	42%
Underlying EBITDA ¹ (US\$ millions) •	37,720	23,902	58%
Profit after tax attributable to owners of Rio Tinto (net earnings) (US\$ millions)	21,094	9,769	116%
Underlying earnings per share ¹ (EPS) (US cents) •	1,321	770	72%
Ordinary dividend per share (US cents)	793.0	464.0	71%
Special dividend per share (US cents)	247.0	93.0	166%
Total dividend per share (US cents)	1,040.0	557.0	87%
Net cash / (debt) ¹ (US\$ millions) •	1,576	(664)	
Underlying return on capital employed (ROCE) ¹ •	44%	27%	

Our financial results are prepared in accordance with International Financial Reporting Standards (IFRS). Footnotes are set out on page 35.

Key financial highlights

- \$25.3 billion net cash generated from operating activities was 60% higher than 2020 driven by higher prices. This flowed through to 88% higher free cash flow¹ of \$17.7 billion, which included a 19% rise in capital expenditure to \$7.4 billion.
- \$21.1 billion of net earnings, 116% higher than 2020, reflected the higher prices, the impact of closure provision increases at Energy Resources of Australia (ERA) and other non-operating sites, \$0.5 billion of exchange and derivative gains and \$0.2 billion of impairments². Effective tax rate on net earnings of 27.7% compared with 33.1% in 2020.
- \$37.7 billion underlying EBITDA¹ was 58% above 2020, with an underlying EBITDA margin¹ of 57%.
- \$21.4 billion underlying earnings¹ (underlying EPS¹ of 1,321.1 US cents) were 72% above 2020 with a 28.0% effective tax rate on underlying earnings¹, compared with 29.5% in 2020.
- \$1.6 billion of net cash¹ at year end, compared with net debt¹ of \$0.7 billion at the start of the year, reflected the free cash flow¹ of \$17.7 billion, partly offset by \$15.4 billion of cash returns to shareholders.
- \$16.8 billion full-year dividend, equivalent to 1,040 US cents per share and 79% of underlying earnings, includes \$6.7 billion record final ordinary dividend (417 US cents per share) and \$1.0 billion final special dividend (62 US cents per share) declared today.

\$16.8 billion* of dividends declared for 2021: payout ratio averages 74% over past six years

Ordinary dividend	US\$ billion	US cents per share
Interim ordinary dividend paid in September 2021	6.1	376
Final ordinary dividend to be paid in April 2022	6.7	417
Full-year ordinary dividend represents 60% payout	12.8	793
Additional returns		
Special dividend paid in September 2021	3.0	185
Special dividend to be paid in April 2022	1.0	62
Combined total is 79% of 2021 underlying earnings	16.8	1,040

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

Strong cash flow from operations

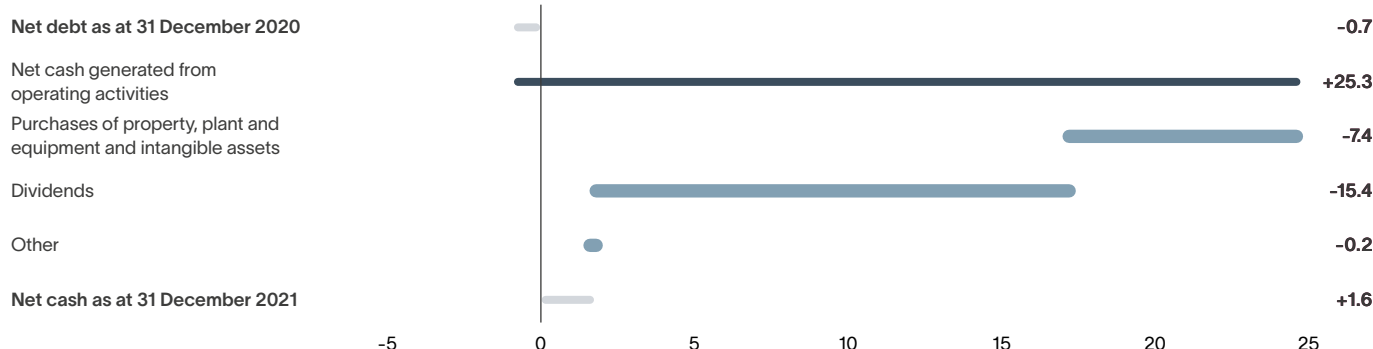
	2021 US\$m	2020 US\$m
Net cash generated from operating activities	25,345	15,875
Purchases of property, plant and equipment and intangible assets	(7,384)	(6,189)
Sales of property, plant and equipment	61	45
Lease principal payments	(358)	(324)
Free cash flow ¹	17,664	9,407
Disposals	4	10
Dividends paid to equity shareholders	(15,357)	(6,132)
Share buy-backs	—	(208)
Other	(71)	(90)
Decrease in net debt¹	2,240	2,987

Footnotes are set out on page 35.

- \$25.3 billion in net cash generated from operating activities, 60% higher than 2020, primarily driven by higher prices for our major commodities, which also led to an increase in dividends received from equity accounted units and paid to joint venture partners. It is net of an increase in taxes and royalties paid in line with higher profits and a rise in working capital, primarily due to higher iron ore portside inventories following higher volumes of SP10 and constrained availability of high-grade blending stocks in the fourth quarter.
- \$7.4 billion capital expenditure was comprised of \$0.6 billion of growth capital, \$3.3 billion of replacement capital and \$3.5 billion of sustaining capital. In 2021, we funded our capital expenditure from operating activities and expect to continue funding our capital programme from internal sources, except for the Oyu Tolgoi underground development, which is currently project-financed.
- \$15.4 billion of dividends paid in 2021 was comprised of the 2020 final paid in April 2021 (\$6.4 billion) and the 2021 interim paid in September (\$9.0 billion, including foreign exchange impacts).
- As a result of the above, net debt¹ improved by \$2.2 billion in 2021, ending the year with net cash¹ of \$1.6 billion.

Net debt turned into net cash at 2021 year-end

(\$ billion)



Our projects and development options

- We increased our exploration and evaluation spend by 16% to \$726 million in 2021, as we advanced our evaluation projects, progressed our greenfield exploration programmes and unlocked new opportunities.
- Commissioning and ramp-up of Pilbara growth and brownfield mine replacement projects has been impacted by ongoing COVID-19 restrictions, including labour access and supply chain quality issues. The latter have been exacerbated by an inability to conduct pre-delivery quality assurance and control at international steel and equipment manufacturers due to limitations on travel.
- The \$2.6 billion³ Gudai-Darri greenfield iron ore mine in Western Australia is advancing. The first train was loaded from the mobile crushing and screening facilities in December and first production from the main plant is expected in the second quarter of 2022, subject to the continuing impacts of COVID-19. This first phase of Gudai-Darri, with a 43 million tonne annual capacity, will replace depleting orebodies and provide some incremental capacity.
- The \$0.9 billion³ (Rio Tinto share) investment in the Robe River Joint Venture replacement iron ore mines is progressing. First ore at West Angelas (C and D deposits) was achieved in June and are now fully commissioned. First ore at Robe Valley (Mesa B, C, H) was achieved in August. Ongoing Mesa A wet plant construction and commissioning challenges have impacted production ramp-up. New wet plant components are on order and production will operate at a reduced capacity until repairs are completed.
- The \$0.8 billion³ Western Turner Syncline phase 2 mine, which will also replace existing iron ore production, achieved first ore in October, following commissioning of the autonomous mining truck fleet. Some residual brownfield plant works are due to be complete during mid-year shutdowns.
- Underground operations are now under way at the Oyu Tolgoi underground copper/gold project in Mongolia, following the comprehensive agreement reached with our partners on 25 January 2022. Sustainable production is expected in the first half of 2023, with the capital forecast at \$6.925 billion, including \$175 million of estimated COVID-19 impacts to the end of 2021⁴.
- The \$0.9 billion first phase of the south wall pushback at Kennecott in the US, extending mine life to 2026, is now complete and we are gradually accessing higher copper grades. Stripping for the \$1.5 billion second phase, extending operations to 2032, remains on track. In July, we announced a \$108 million investment for underground characterisation studies: potential underground mining would occur concurrently with open pit operations and result in increased output.
- At the Jadar lithium-borates project, we committed \$2.4 billion of funding in July, subject to receiving all relevant approvals, permits and licences. In January 2022, the Government of Serbia cancelled the Spatial Plan for the Jadar project and required all related permits to be revoked. We are disappointed by this announcement and are committed to exploring all options and are reviewing the legal basis of the decision and the implications for our activities and people in Serbia.
- The Zulti South project at Richards Bay Minerals (RBM) in South Africa remains on full suspension.
- At the Winu copper-gold project in Western Australia, there has been progress towards securing consent from the Traditional Owners to the Project Agreement in advance of submitting the necessary environmental and regulatory approvals. Drilling, fieldwork and study activities continue to progress to schedule.
- At the Resolution Copper project in Arizona, we continue to work with the US Forest Service to secure approval of the Final Environmental Impact Statement. In parallel, mine studies and engagement with the Native American tribes and local communities continue to progress.
- At the Simandou iron ore project in Guinea, we continue to engage with key stakeholders in-country including the Government of Guinea. We remain committed to an inclusive partnership, seeking mutual and sustainable benefits by developing our project in line with international social and environmental standards. A new drilling programme has commenced, and expressions of interest are being sourced for construction and early development works expected to be carried out in 2022.

Underlying EBITDA and underlying earnings by product group

	Underlying EBITDA			Underlying earnings		
	2021	2020 Adjusted	Change	2021	2020 Adjusted	Change
Year ended 31 December	US\$m	US\$m	%	US\$m	US\$m	%
Iron Ore	27,592	18,837	46%	17,323	11,398	52%
Aluminium	4,382	2,152	104%	2,468	471	424%
Copper	3,969	2,084	90%	1,579	754	109%
Minerals	2,603	1,710	52%	888	580	53%
Reportable segment total	38,546	24,783	56%	22,258	13,203	69%
Other operations	(28)	24	(217)%	(84)	(48)	75%
Inter-segment transactions	42	(94)	(145)%	19	(32)	(159)%
Product group total	38,560	24,713	56%	22,193	13,123	69%
Central pension costs, share-based payments, insurance and derivatives	110	117	(6)%	133	118	13%
Restructuring, project and one-off costs	(80)	(133)	(40)%	(51)	(108)	(53)%
Other central costs	(613)	(545)	12%	(585)	(455)	29%
Central exploration and evaluation	(257)	(250)	3%	(215)	(216)	—%
Net interest				(95)	(14)	579%
Total	37,720	23,902	58%	21,380	12,448	72%

The financial information by Product group has been recast in accordance with the organisational restructure announced on 28 January 2021. See page 320 ^{AR} for further information. Underlying EBITDA and underlying earnings are non-GAAP alternative performance measures ("APMs") used by management to assess the performance of the business, and provide additional information which investors may find useful. APMs are reconciled to directly comparable IFRS financial measures on pages 343 to 347 ^{AR}.

Continuing to prioritise our central exploration programmes

We have a strong portfolio of exploration projects with activity in 18 countries across seven commodities in early exploration and studies stages, reflected in our pre-tax central spend of \$257 million. All projects have followed government COVID-19 requirements, while focusing on protecting the wellbeing and health of local communities. In 2021, we continued to prioritise our exploration portfolio, with a particular focus on copper projects in Australia, Canada, United States, Kazakhstan and Zambia and increased activity on greenfield nickel projects in Canada and Finland. We continue to partner with other companies in all regions where we explore: examples are our agreement with KoBold Metals for copper and nickel exploration and our agreement with Western Copper and Gold Corporation, where we made a strategic investment to advance exploration on the Casino copper-gold project located in Yukon, Canada. We also signed a mineral investment contract with the Republic of Angola and Endiama to explore for diamonds, and continued mine-lease exploration at our managed businesses including Pilbara Iron in Australia and Diavik in Canada. We renewed our exploration technology strategy and further invested in technology to support our exploration teams on the ground.

Commentary on financial results

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

	US\$m
2020 underlying EBITDA	23,902
Prices	17,464
Exchange rates	(606)
Volumes and mix	(583)
General inflation	(690)
Energy	(398)
Operating cash unit costs	(1,051)
Higher exploration and evaluation spend	(101)
Non-cash costs/other	(217)
2021 underlying EBITDA	37,720

Strong financial results driven by significant momentum from higher prices

We have continued to safely run our world-class assets and are working hard to improve our operational performance, despite challenging operating conditions from prolonged COVID-19 disruptions. The recovery of the global economy resulted in significant price strength for our major commodities: we maintained our financial discipline in 2021 and were able to retain around 80% of the benefit from higher prices, achieving record financial results.

The strong commodity prices drove a \$17,464 million uplift in underlying EBITDA compared with 2020. This was primarily from the strength in the Platts index for 62% iron fines, partially offset by a higher proportion of lower quality products (+\$11,589 million). Higher London Metal Exchange (LME) prices were the main driver for a significant price uplift for copper (+\$1,896 million) and for our Aluminium business (+\$3,027 million). We have included a table of prices and exchange rates on page 418 ^{AP}.

The 2021 monthly average Platts index for 62% iron fines converted to an FOB basis was 45% higher on average compared with 2020. There was a strong resurgence in demand for iron ore, with global crude steel production estimated to have grown by 6%. Chinese demand strength was most apparent in the first half of 2021 while the recovery in demand for steel and iron ore in developed and other emerging economies maintained its momentum. At the same time, seaborne iron ore supply recovered, albeit at a slower than anticipated rate.

The average LME price for copper was 50% higher, while the LME aluminium price was 46% higher, compared with 2020. The gold price rose 2%.

The mid-west premium duty paid for aluminium in the US averaged \$584 per tonne, 119% higher than in 2020.

Australian and Canadian dollars strengthened during 2021

Compared with 2020, on average, the US dollar weakened by 9% against the Australian dollar, by 7% against the Canadian dollar and by 11% against the South African rand. Currency movements lowered underlying EBITDA by \$606 million relative to 2020.

Lower iron ore sales volumes impact underlying EBITDA

Lower sales volumes and changes in product mix across the portfolio reduced underlying EBITDA by \$583 million compared to 2020. This was mostly attributable to a 3% decline in iron ore shipments from the Pilbara, as a result of above average rainfall in the first half of the year, our focus on cultural heritage management and delays in growth and brownfield mine replacement tie-in projects. Other key variances included lower volumes at Iron Ore Company of Canada (labour and equipment availability challenges) and reduced copper sales volumes at Escondida (prolonged COVID-19 impact leading to lower recoveries and throughput). These were partly offset by higher product premiums in our Aluminium business, increased gold sales from Oyu Tolgoi (the significant improvement in grades is expected to reverse in 2022) and higher refined copper sales at Kennecott despite a furnace failure in September 2021 (2020 was significantly impacted by an earthquake and a major smelter maintenance shutdown).

1. This financial performance indicator is a non-GAAP Alternative Performance Measure (APM). It is used internally by management to assess the performance of the business and is therefore considered relevant to readers of this document. It is presented here to give more clarity around the underlying business performance of the Group's operations. APMs are reconciled to directly comparable IFRS financial measures on pages 343 to 347 ^{AP}.
2. Refer to page 243 ^{AP} for pre-tax analysis of impairment charge.
3. Potential for capital cost to rise by around 15% due to ongoing COVID-19 restrictions on commissioning and ramp-up of Pilbara growth and brownfield mine replacement projects, including labour access and supply chain quality issues. The latter has been exacerbated by an inability to conduct pre-delivery quality assurance and control at international steel and equipment manufacturers due to limitations on travel.
4. These estimates exclude any impacts of delays to work schedules caused by restricted approved budgets since the start of 2021. This, together with any ongoing COVID-19 impacts, will be assessed following the commencement of underground operations with further updates provided to the market in due course. Panels 1 and 2 studies will be ongoing throughout 2022. Further study work is also under way to assess the extraction methodology and ultimate recovery of the Panel 0 recoverable pillars.

Impact of rising inflation and rebound in energy prices

Average movements in energy prices compared with 2020 reduced underlying EBITDA by \$398 million, mainly due to higher diesel prices for our trucks, trains and ships and an increase in power costs at Kennecott. Rising general price inflation across our global operations resulted in a \$690 million reduction in underlying EBITDA.

Focus on cost control

We remained focused on cost control throughout the year, in particular maintaining discipline on our long-run fixed costs: however, a rise in our operating cash unit costs reduced underlying EBITDA by \$1,051 million (on a unit cost basis) compared with 2020. This reflects fixed cost inefficiencies from the reduction in volumes, along with temporary cost pressures over and above general inflation, reflecting higher market-linked prices for raw materials and the constraints that COVID-19 has placed on resourcing and supply chains. We also made targeted investments in our ESG and CSP teams in 2021, in order to advance our social licence priorities. Unit costs at our Pilbara iron ore operations rose to \$18.6 per tonne (\$19.1 per tonne including COVID-19 costs) contributing to the variance, reflecting: higher input prices, including labour and explosives, an increase in the mine work index, operational readiness costs for our growth and brownfield mine replacement tie-in projects and fixed cost inefficiencies from lower volumes. At our Aluminium business, we incurred cyclical cost increases for coke, pitch and alloys, while our Bauxite business in Queensland experienced higher maintenance costs following overruns on planned shutdowns. These cost pressures were partly offset by fixed cost efficiencies at Oyu Tolgoi in line with higher copper and gold production.

Increasing our global exploration and evaluation activity

We increased our exploration and evaluation spend by \$101 million, or 16%, to \$726 million. This was focused on our greenfield programmes across 18 countries and our highest value evaluation projects, particularly the Winu copper-gold project in Western Australia, Resolution Copper in Arizona, Simandou iron ore in Guinea and Jadar lithium-borates in Serbia.

Non-cash costs/other

Movements in non-cash costs, one-off and other items lowered underlying EBITDA by \$217 million compared with 2020. This mainly reflected the impact of community disruption at RBM in 2021 (-\$162 million); reduced capacity at the Kitimat aluminium smelter (-\$280 million) following the strike which commenced in July, with agreement reached in October; and additional provisions (-\$218 million), mainly environmental, for our legacy operations and Pacific Aluminium smelters. This was partly offset by the non-recurrence of the pot failures at Kitimat in 2020 (\$206 million) and the impact of community disruption at RBM in 2020 (\$91 million). COVID-19 costs across the Group were \$39 million lower than in 2020.

Net earnings

\$21.1bn

116% increase

Net earnings

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

	US\$m
2020 net earnings	9,769
Total changes in underlying EBITDA	13,818
Increase in depreciation and amortisation (pre-tax) in underlying earnings	(372)
Decrease in interest and finance items (pre-tax) in underlying earnings	(100)
Increase in tax on underlying earnings	(3,574)
Increase in underlying earnings attributable to outside interests	(840)
Total changes in underlying earnings	8,932
Changes in exclusions from underlying earnings:	
Movement in net impairment charges	918
Gain on recognition of a new wharf at Kitimat, Canada	336
Movement in exchange differences and gains/losses on debt	1,810
Movement in closure estimates (non-operating and fully impaired sites)	(671)
2021 net earnings	21,094

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

The depreciation and amortisation charge was \$372 million higher than 2020, mainly due to the impact of the stronger Australian and Canadian dollars against the US dollar.

Lower interest and finance items (pre-tax) were reflective of a lower level of net debt on average during the year, in part due to repayment of \$526 million of Euro Bonds, which matured in May 2020. It also reflected more of our debt being at floating interest rates and lower LIBOR rates.

The 2021 effective corporate income tax rate on underlying earnings, excluding equity accounted units, was 28.0%, compared with 29.5% in 2020, mainly due to the re-recognition of deferred tax assets in Australia. The effective tax rate on underlying earnings in Australia was 30% in 2021 compared with 32% in 2020. We anticipate an effective tax rate on underlying earnings of approximately 30% in 2022.

Items excluded from underlying earnings

Net impairment charges decreased by \$918 million compared with 2020. In 2021, we impaired the value of the Kitimat aluminium smelter by \$197 million: as a result of a workforce strike in mid-2021, output was reduced to 25% and ramp-up to full capacity will extend through 2022, giving rise to an impairment test. In 2020, we recognised \$1,115 million of impairment charges, consisting of \$472 million related to three of our Pacific Aluminium smelters (NZAS, Bell Bay and Boyne), \$131 million related to the ISAL smelter in Iceland, \$220 million for the Sohar smelter in Oman and \$292 million related to our interest in the Diavik Diamond Mine.

There is a detailed explanation of the impairment process on pages 243 to 245 [📄](#).

On 3 December, we gained control over a new wharf at Kitimat, Canada that was built and paid for by LNG Canada. The \$336 million gain on recognition has been excluded from underlying earnings on the grounds of materiality and linkage to the impairment.

In 2021, we recognised non-cash exchange and derivative gains of \$546 million. This was mainly on US dollar debt in non-US dollar functional currency Group companies, intragroup balances, and the revaluation of certain derivatives which do not qualify for hedge accounting. These gains compared with a 2020 loss of \$1,264 million, giving rise to a positive year-on-year movement of \$1,810 million. The exchange gains are largely offset by currency translation losses recognised in equity. The quantum of US dollar debt is largely unaffected and we will repay it from US dollar sales receipts.

In 2021, we recognised a \$671 million increase in closure costs relating to the Diavik Diamond Mine, Gove refinery, ERA and some of our legacy sites, where the environmental impact preceded our ownership. The adjustments at ERA and the Gove refinery have been recognised in the income statement as these are non-operating sites, and excluded from underlying earnings due to the magnitude of the individual updates and materiality when aggregated. In 2020, we initially recognised an increase in the Diavik closure provision based on

our preliminary findings from the pre-feasibility study. On completion of the study in 2021 a true-up was recorded and has been excluded, in line with the treatment of the initial increase in 2020, which was excluded from underlying earnings as Diavik was fully impaired during the year. Other closure costs excluded in 2020 were the increase in the Gove refinery provision offset by a decrease in the Argyle mine provision on completion of pre-feasibility studies at each site. These are included in Movement in closure estimates. Further analysis can be found on page 240 ^{AB}.

Profit

Net earnings and underlying earnings refer to amounts attributable to the owners of Rio Tinto. The net profit attributable to the owners of Rio Tinto in 2021 was \$21.1 billion (2020: \$9.8 billion). We recorded a profit after tax in 2021 of \$22.6 billion (2020: \$10.4 billion) of which a profit of \$1.5 billion (2020: \$0.6 billion) was attributable to non-controlling interests.

Net earnings and underlying earnings

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

	2021 US\$m	2020 US\$m
Underlying earnings	21,380	12,448
Items excluded from underlying earnings		
Impairment charges net of reversals	(197)	(1,115)
Gain on recognition of a new wharf at Kitimat, Canada	336	—
Foreign exchange and derivative gains/(losses) on net debt and intragroup balances and derivatives not qualifying for hedge accounting	546	(1,264)
Net losses from movements to closure estimates (non-operating and fully impaired sites)	(971)	(300)
Net earnings	21,094	9,769

On page 240 ^{AB} there is a detailed reconciliation from underlying earnings to net earnings, including pre-tax amounts and additional explanatory notes. The differences between Profit after tax and underlying EBITDA are set out in the table on page 343 ^{AB}.

Balance sheet

Net debt reduced by \$2.2 billion in 2021, resulting in a net cash position of \$1.6 billion at 31 December 2021. This reflected our strong free cash flow, partly offset by dividend payments of \$15.4 billion.

Our net gearing ratio (net (cash) / debt to total capital) improved to -3% at 31 December 2021 (31 December 2020: 1%).

Our total financing liabilities excluding net debt derivatives at 31 December 2021 (see page 256 ^{AB}) were US\$13.5 billion (31 December 2020: \$13.8 billion) and the weighted average maturity was around 11 years. At 31 December 2021, approximately 85% of these liabilities were at floating interest rates (94% excluding leases).

On 28 October, we issued \$1.25 billion 30-year fixed rate SEC-registered bonds with a coupon of 2.75%. The proceeds of the new issuance were used to fund the early redemption and extinguishment of the company's \$1.20 billion 3.75% bonds due to mature in June 2025. The maximum amount within non-current borrowings maturing in any one calendar year is \$1.4 billion, which matures in 2024.

We had \$15.2 billion in cash and cash equivalents plus other short-term cash investments at 31 December 2021 (31 December 2020: \$12.9 billion). In November, we took advantage of strong market conditions and completed the renewal of our \$7.5 billion of fully committed Revolving Credit Facilities with 26 participating banks.

The Facilities remained undrawn throughout the period, mature in November 2026 (previously November 2023) and include two consecutive one-year extension options.

Provision for closure costs

At 31 December 2021, provisions for close-down and restoration costs and environmental clean-up obligations were \$14.5 billion (31 December 2020: \$13.3 billion). The principal movements during the year were weaker Australian and Canadian currencies (-\$0.5 billion), increases in existing and new provisions adjusted to mining properties (\$0.5 billion) and charged to profit (\$1.5 billion), partly offset by utilisations of the provision through spend (-\$0.5 billion). Of the \$14.5 billion in provisions, \$10.7 billion relates to operating sites and \$3.8 billion is for legacy sites. Remaining lives of operations and infrastructure range from one to over 50 years with an average for all sites, weighted by present closure obligation, of around 16 years (2020: 17 years).

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

In 2022, we expect to utilise around \$0.7 billion of the provisions as we advance our closure activities at Argyle, ERA, Gove alumina refinery and legacy sites.

We have disclosed further information, including the composition of the provision by cost category and by geography, on pages 258 to 259 ^{AB}.

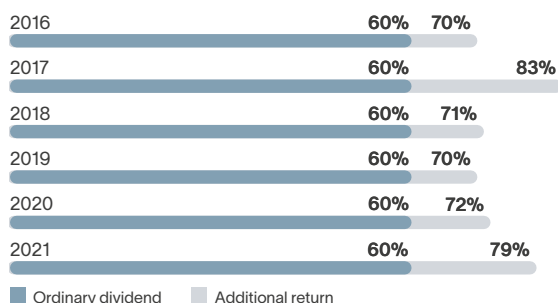
Our shareholder returns policy

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.

Our payout ratio has averaged 74% over the past six years



Record cash returns* declared: 74% average payout over past six years

	2021 US\$ billion	2020 US\$ billion
Ordinary dividend		
Interim	6.1	2.5
Final	6.7	5.0
Full-year ordinary dividend	12.8	7.5
Additional returns		
Special dividend announced in July 2021, paid in September 2021	3.0	n/a
Special dividend announced in February, paid in April of the following year	1.0	1.5
Total cash returns to shareholders declared for each year	16.8	9.0
Combined total as % of underlying earnings	79%	72%

*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 2021 final dividend has been converted at exchange rates applicable on 22 February 2022 (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	2021 dividends	2020 dividends
Rio Tinto Group		
Interim (US cents)	376.00	155.00
Final (US cents)	417.00	309.00
Full-year (US cents)	793.00	464.00
Rio Tinto plc		
Interim (UK pence)	270.84	119.74
Final (UK pence)	306.72	221.86
Full-year (UK pence)	577.56	341.60
Rio Tinto Limited		
Interim (Australian cents)	509.42	216.47
Final (Australian cents)	577.04	397.48
Full-year (Australian cents)	1,086.46	613.95

Special dividend per share declared	2021 dividends	2020 dividends
Rio Tinto Group		
Interim (US cents)	185.00	—
Final (US cents)	62.00	93.00
Rio Tinto plc		
Interim (UK pence)	133.26	—
Final (UK pence)	45.60	66.77
Rio Tinto Limited		
Interim (Australian cents)	250.64	—
Final (Australian cents)	85.80	119.63

The 2021 final ordinary dividend and the special 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 21 April 2022, we will pay the 2021 final ordinary dividend and the special dividend to holders of ordinary shares and holders of ADRs on the register at the close of business on 11 March 2022 (record date). The ex-dividend date is 10 March 2022.

Rio Tinto plc shareholders may choose to receive their dividend in Australian dollars, and Rio Tinto Limited shareholders may choose to receive theirs in pounds sterling. Currency conversions will be based on the pound sterling and Australian 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 29 March 2022.

We will operate our Dividend Reinvestment Plans for the 2021 final dividend – see our website riotinto.com for details. Rio Tinto plc and Rio Tinto Limited shareholders' election notice for the Dividend Reinvestment Plans must be received by 29 March 2022. 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

Projects (Rio Tinto 100% owned unless otherwise stated)	Total approved capital cost (100% unless otherwise stated)	Status/Milestones
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Completed in 2021

Investment in the Greater Tom Price operations (Western Turner Syncline phase 2) to sustain iron ore production capacity in the Pilbara region of Western Australia. The investment includes construction of a new crusher and a 13-kilometre conveyor.	\$0.8bn	Approved in November 2019, the investment will enable us to sustain production of our Pilbara Blend™ and facilitate mining of existing and new deposits around Tom Price. The project achieved first ore in October, in line with previous guidance.
Investment in the south wall pushback, to extend mine life at Kennecott, Utah, US, from 2019 to 2026.	\$0.9bn	Funding for the continuation of open pit mining via the push back of the south wall: the transition to the south wall is complete, with copper head grade exceeding 0.5% in the second half of 2021.

Ongoing and approved

Iron Ore

Investment in the Robe River Joint Venture (West Angelas C and D and Mesa B, C and H at Robe Valley) in the Pilbara to sustain production capacity. (Rio Tinto share)	\$0.9bn	Approved in October 2018, the investments will enable us to sustain production of our Pilbara Blend™ and Robe Valley products. First ore at West Angelas (C and D) was achieved in June 2021. At Robe Valley, the autonomous mining truck fleet has been commissioned: since achieving first ore in August, ongoing wet plant construction and commissioning challenges have impacted production ramp-up¹.
Investment in Gudai-Darri, a new production hub in the Pilbara region of Western Australia. The investment incorporates a processing plant and infrastructure including a 166-kilometre rail line connecting the mine to our existing network. Once complete, the mine will have an initial annual capacity of 43 million tonnes.	\$2.6bn	Approved in November 2018. Labour shortages have impacted both steel fabrication and site construction activities in 2021. The railway is operational with the first train loaded from the mobile crushing and screening facilities in December. First production from the main plant is now expected in the second quarter of 2022, subject to the continuing impacts of COVID-19¹.

Aluminium

Investment in a second tunnel at the 1000MW Kemano hydropower facility at Kitimat, British Columbia, Canada, which will ensure the long-term reliability of the power supply to the Kitimat smelter.	\$0.8bn	The project was first approved in 2017, with \$155 million of additional capital approved in 2020 and a further \$132 million approved in July 2021. Works resumed at full capacity in 2021 first half and tunnel boring excavation is now complete. The project is scheduled to complete in the second half of 2022, subject to there being no further COVID-19 delays.
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Ongoing and approved

Copper

Phase two of the south wall pushback to extend mine life at Kennecott by a further six years.	\$1.5bn	Approved in December 2019, the investment will further extend strip waste rock mining and support additional infrastructure development. This will allow mining to continue into a new area of the orebody between 2026 and 2032.
Development of the Oyu Tolgoi underground copper/gold mine in Mongolia (Rio Tinto 34%), which is expected to produce (from the open pit and underground) an average of ~500,000 tonnes² of copper per year from 2028 to 2036 and an average of ~350,000 tonnes² of copper per year for a further five years, compared with 163,000 tonnes in 2021 (open pit).	\$6.925bn³	The project was originally approved in May 2016 for \$5.3 billion, with an additional \$1.45 billion approved by the Rio Tinto Board in December 2020, following completion of the Definitive Estimate. It now includes \$175 million of estimated COVID-19 impacts to the end of 2021³. First sustainable production is expected in the first half of 2023, following the comprehensive agreement between the Oyu Tolgoi partners announced in January 2022.

Minerals

Development of the Zulti South project at Richards Bay Minerals (RBM) in South Africa (Rio Tinto 74%).	\$0.5bn	Approved in April 2019 to underpin RBM's supply of zircon and ilmenite over the life of the mine. The project remains on full suspension.
Development of the greenfield Jadar lithium-borates project in Serbia. The development will include an underground mine with associated infrastructure and equipment, including electric haul trucks, as well as a beneficiation chemical processing plant.	\$2.4bn	The Board committed the funding in July 2021, subject to receiving all relevant approvals, permits and licences. First saleable production was expected in 2027 with ramp-up to full production of 58,000 tonnes of battery-grade lithium carbonate, 160,000 tonnes of boric acid (B₂O₃ units) and 255,000 tonnes of sodium sulphate per year.⁴ In January 2022, the Government of Serbia cancelled the Spatial Plan for the Jadar project and required all related permits to be revoked. We are disappointed by this announcement and are committed to exploring all options and are reviewing the legal basis of the decision and the implications for our activities and people in Serbia.

Future growth options

Iron Ore: Pilbara brownfields

The capacity of our Pilbara system over the medium term is between 345 and 360 million tonnes per annum. To reach and sustain the upper end of the range will require the next tranche of replacement mines to be approved and brought onstream.

Key projects include Western Range, Bedded Hill Top and Hope Downs 2 as well as Brockman Syncline 1 to be delivered between 2025 and 2027. We continue to engage with and work closely with our communities, Traditional Owners, and governments to seek approval for the new mining projects.

Aluminium: ELYSIS

The ELYSIS™ inert anode technology eliminates all direct greenhouse gases from aluminium smelting, and instead produces oxygen.

With the current development pathway, ELYSIS aims to have its technology available for installation from 2024 and the production of larger volumes of carbon-free aluminium approximately two years later.

Copper: Resolution

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

We continue to work with the US Forest Service to secure approval of the Final Environmental Impact Statement. In parallel, mine studies and engagement with the Native American tribes and local communities continue to progress.

Copper: Winu

In late 2017, we discovered copper-gold mineralisation at the Winu project in the Paterson Province in Western Australia. In 2020, we declared a Maiden Inferred Mineral Resource.

There has been progress towards securing consent from the Traditional Owners to the Project Agreement in advance of submitting the necessary environmental and regulatory approvals. Drilling, fieldwork and study activities continue to progress to schedule.

Iron Ore: Simandou

The Simandou resource in Guinea contains one of the world's largest and richest high-grade iron ore deposits, demand for which is increasing as steelmakers look to reduce carbon emissions. It complements the long-term attractiveness of our Pilbara Blend™.

We continue to engage with key stakeholders in-country and remain committed to an inclusive partnership, seeking to develop the project in line with international social and environmental standards. A new drilling programme has commenced, and market engagement has been initiated for construction and early development works expected to be carried out in 2022.

Lithium: Rincon

In December, we entered into a binding agreement to acquire the Rincon lithium project in Argentina. The transaction is expected to be complete in the first half of 2022, subject to approval by Australia's Foreign Investment Review Board.

Located in the heart of the lithium triangle in Salta Province, Rincon is a long-life, scaleable resource capable of producing battery-grade lithium carbonate. It also has the potential to have one of the lowest carbon footprints in the industry.

1. Potential for capital cost to rise by around 15% due to ongoing COVID-19 restrictions on commissioning and ramp-up of Pilbara growth and brownfield mine replacement projects, including labour access and supply chain quality issues. The latter has been exacerbated by an inability to conduct pre-delivery quality assurance and control at international steel and equipment manufacturers due to limitations on travel.
2. The 500ktpa target (stated as recovered metal) for the Oyu Tolgoi underground and open pit mines is underpinned 17% by Proved Ore Reserves and 83% by Probable Ore Reserves for the years 2028-2036. The 350ktpa production target for the following five years is underpinned 18% by Proved Ore Reserves and 82% by Probable Ore Reserves. These production targets have been scheduled from current mine designs by Competent Persons in accordance with the requirements of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves, 2012 Edition (the JORC code).
3. These estimates exclude any impacts of delays to work schedules caused by restricted approved budgets since the start of 2021. This, together with any ongoing COVID-19 impacts, will be assessed following the commencement of underground operations with further updates provided to the market in due course. Panels 1 and 2 studies will be ongoing throughout 2022. Further study work is also underway to assess the extraction methodology and ultimate recovery of the Panel 0 recoverable pillars.
4. These production targets are reported in a release to the Australian Securities Exchange (ASX) dated 23 February 2022, "Rio Tinto updates Ore Reserves and Mineral Resources at Jadar". All material assumptions underpinning the production targets continue to apply and have not materially changed.

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 (WA), we operate a network of 17 iron ore mines, four port terminals and a rail network spanning nearly 2,000 kilometres. Steel remains essential for ongoing urbanisation and will support the global shift to decarbonise.

We produce five mainstream iron ore products in WA, including the Pilbara Blend™, the world's most traded brand of iron ore. Our Iron Ore product group includes Dampier Salt – also in WA – the world's largest exporter of seaborne salt.

Our fully integrated portfolio of quality assets, highly valued product suite and committed people allow us to export our products to our customers safely, reliably and efficiently.

We continue to transform our safe operating performance by implementing the Rio Tinto Safe Production System (RTSPS). RTSPS will become the blueprint for how we continuously improve our business. In 2021, two of our iron ore operations started RTSPS pilot projects.

We are focused on building new mines for a better future. In 2021, we progressed the replacement of around 40% of our mine capacity with brownfield mines at Robe Valley, West Angelas and Western Turner Syncline Phase 2, and continued the construction of our most technologically advanced mine, Gudai-Darri. This is the largest mine replacement programme in our history, safely progressed during the pandemic, and it will enable us to continue to deliver the product blends the market needs.

We commissioned more autonomous haul trucks in 2021 than in any prior year, which means that around 80% of our fleet will be autonomous in 2022. In addition, AutoHaul™, our automated train network, has delivered benefits beyond expectations.

We are on a pathway to decarbonising our business with plans to electrify our Pilbara operations. The delivery of one gigawatt of renewables in the Pilbara will support abatement of about one million tonnes of our CO₂ emissions. Two-thirds will come from the displacement of power generation gas emissions, and one-third from providing electricity to enable the transition away from diesel.

With people at the heart of everything we do, nothing is more important than the physical and psychological safety of our people. We are committed to creating a workplace that is safe, respectful and inclusive for everyone, everywhere, and we are taking a number of actions to make this a lived reality for our people.

The destruction of the rock shelters at Juukan Gorge in May 2020 was a clear breach of our values. We have redesigned our planning and operational practices to protect heritage sites. This includes removing 100 million tonnes of reserves from our mine plans in the past two years and continuing a process to modernise and strengthen our agreements with Traditional Owners to ensure the destruction of a site of such exceptional cultural and archaeological significance never happens again. We have placed the accountability for Traditional Owner relationships with senior leaders of our Pilbara assets, to create direct partnerships. Read more about our communities and social performance commitments on pages 94 and 95.

We are committed to continuing to engage with our partners and build the business we need for the future.



Working together for a better future

17

integrated
mines in
Western
Australia

4

port terminals

13,000

employees

5

mainstream iron
ore products

3

solar salt
operations

3.0Mt

CO₂e emissions
(our share)

Snapshot of the year

0.67

AIFR
(2020: 0.53)

76%

Pilbara
underlying FOB
EBITDA margin
(2020: 74%)

\$27.6bn

underlying
EBITDA
(2020: \$18.8bn)

\$39.6bn

gross product
sales
(2020: \$27.5bn)

\$19.2bn

net cash
generated from
operating
activities
(2020: \$13.2bn)

\$3.9bn

capital
expenditure
(2020: \$2.9bn)

Pilbara iron ore operations, Western Australia.

Iron Ore

2021 year-end results	2021	2020	Change
Pilbara production (million tonnes – 100%)	319.7	333.4	(4)%
Pilbara shipments (million tonnes – 100%)	321.6	330.6	(3)%
Salt production (million tonnes – Rio Tinto share) ¹	5.8	4.9	20%
Gross product sales (US\$ millions)	39,582	27,508	44%
Average realised price (US\$ per dry metric tonne, FOB basis)	143.8	98.9	45%
Underlying EBITDA (US\$ millions)	27,592	18,837	46%
Pilbara underlying FOB EBITDA margin ²	76%	74%	
Underlying earnings (US\$ millions)	17,323	11,398	52%
Net cash generated from operating activities (US\$ millions)	19,177	13,218	45%
Capital expenditure (US\$ millions) ³	(3,947)	(2,941)	34%
Free cash flow (US\$ millions)	15,172	10,233	48%
Underlying return on capital employed ⁴	100%	74%	

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

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

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

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

Enabling the low-carbon transition

Iron ore is an essential ingredient of steel, one of the most efficient construction materials in the world. In many applications, there is no viable substitute for steel. The challenge is to remove carbon from the steel manufacturing process, enabling green steel to play a critical role in reducing global carbon emissions. We are committed to developing the technology needed to prepare Pilbara iron ore for a green-steel future.

The Pilbara, with its natural advantages in solar and wind, is at the forefront of our global plans to decarbonise. We are on a pathway to decarbonise our business through multiple initiatives:

- We are electrifying our Pilbara operations, including haul trucks, mobile equipment and rail operations, replacing existing emissions-heavy diesel fleets with battery or hydrogen technology, while continuing to produce iron ore for the world's energy transition.
- A key focus for the Iron Ore product group will be deploying one gigawatt of renewable energy to power our mining operations and communities in the Pilbara.
- The Group's estimated \$7.5 billion in capital expenditure to decarbonise our business has a focus on renewable power for iron ore, and we have applications for new tenure to support potential wind power initiatives.
- The construction of our first 34MW solar plant at the Gudai-Darri mine is an important step in reducing our carbon footprint in the Pilbara. The average annual emissions savings (battery and solar combined) are equivalent to powering about 6,000 homes.
- We are partnering with Komatsu and Caterpillar to fast-track the development and implementation of zero-emission haulage solutions, including haul trucks. To support these partnerships, we are also collaborating with the industry more broadly on the Charge On Innovation Challenge, an innovative problem-solving partnership to develop mobile fleet charging solutions.

Immediate reductions across our iron ore operations will not occur overnight, as research and development, and the deployment of these technologies will take some years.

In 2021, Iron Ore's absolute greenhouse gas emissions were 3.0Mt CO₂e (on an equity basis), an increase of 0.34Mt CO₂e compared to the 2018 emissions baseline, driven largely by an increase in diesel emissions due to increased haul distances, pre-strip ratios and material movement.

Safety and wellbeing

In 2021, the number of potentially fatal incidents (PFIs) increased by 25% compared to 2020. We are focusing on impactful actions stemming from incident investigations, to ensure learnings are embedded across the business, and we have allocated dedicated resources to address specific critical risks such as falling objects.

The rate of injuries also increased with our all-injury frequency rate (AIFR) at 0.67 for 2021 compared to 0.53 for 2020. The rate of injuries was higher in our contractor workforce than our employees. A tight labour market and onboarding challenges (particularly for our contract partners) contributed to this increase.

Specific focus areas for 2022 include the safety of our onsite contractors, improving our first line assurance, reducing fatigue risks, and fostering a healthy workplace. We continue to implement the safety maturity model and our mental wellbeing framework to achieve our objective of creating a physically and mentally healthy workplace for our employees and contractor partners.

In 2021, we conducted planned health and hygiene monitoring for known workplace exposures such as noise and dust. We also continued to assess the individual health status of exposed workers for the purpose of early detection and intervention including hearing and lung function screening. A new periodic medical programme was trialled across two locations, to proactively identify and manage non-work related health conditions with potential safety impacts.

In October, the WA Government announced COVID-19 vaccinations would be mandatory for workers in the resources industry. As such, all employees, contractors and visitors accessing a Rio Tinto workplace in Western Australia are required to have up-to-date COVID-19 vaccinations.

In 2021, we worked with the WA Government to boost vaccination rates across Western Australia. In partnership with the State Government, we set up vaccination clinics at Perth Airport and regional locations, including Tom Price, Paraburdoo and Pannawonica, helping to vaccinate more than 10,000 of our workforce and community members.



Leveraging our success to create value for others

In 2021, we spent almost A\$8 billion on goods and services with more than 2,000 Western Australian businesses, including nearly A\$300 million with local Indigenous businesses.

Learn more about how we are working with local businesses at riotinto.com/stories.

Financial performance

Our Pilbara iron ore shipments decreased by 3% compared with 2020. Shipments were impacted by lower mined production due to above-average rainfall in the first half of 2021, cultural heritage management and delays in growth and brownfield mine replacement tie-in projects.

Underlying EBITDA of \$27.6 billion was 46% higher than 2020, driven by higher prices (\$10.3 billion), with a 45% rise in the monthly average Platts index for 62% iron fines adjusted to an FOB basis compared with 2020. This more than compensated for the impact from reduced shipments and rising unit costs.

2021 Pilbara unit cash costs, which were \$18.6 per tonne (excluding COVID-19 costs of \$0.5 per tonne), marginally exceeded guidance of \$18.0 to 18.5 per tonne and compared with \$14.8 per tonne in 2020 (excluding COVID-19 costs of \$0.6 per tonne). Unit cost performance was driven by higher input prices including labour, explosives and energy, a 9% stronger Australian dollar, an increase in the mine work index, operational readiness costs for our growth and brownfield mine replacement tie-in projects and fixed cost inefficiencies from lower volumes.

We have continued investing in productivity and automation: around 80% of the haul truck fleet is now autonomous.

Our Pilbara operations delivered an underlying FOB EBITDA margin of 76%, compared with 74% in 2020.

We price the majority of our iron ore sales (77%) by reference to the average index price for the month of shipment. In 2021, we priced approximately 11% of sales with reference to the prior quarter's average index lagged by one month with the remainder sold either on current quarter average, current month average or on the spot market. We made approximately 72% of sales including freight and 28% on an FOB basis.

We achieved an average iron ore price of \$132.3 per wet metric tonne on an FOB basis (2020: \$91.0 per wet metric tonne) across our product suite. This equates to \$143.8 per dry metric tonne, assuming 8% moisture (2020: \$98.9 per dry metric tonne), which compares with the monthly average Platts index for 62% iron fines converted to an FOB basis of \$146.9 per dry metric tonne (2020: \$101.3 per dry metric tonne). The slightly lower realised price compared to the Platts index was due to the higher proportion of SP10 volumes and the increased discounts for lower grade products, particularly in the second half of 2021.

Gross product sales for our Pilbara operations included freight revenue of \$2.7 billion (2020: \$1.5 billion).

Net cash generated from operating activities of \$19.2 billion was 45% higher than 2020, in line with the movement in underlying EBITDA. Free cash flow of \$15.2 billion was 48% higher than 2020, due to a 34% increase in capital expenditure to \$3.9 billion, relating to construction of growth and brownfield mine replacement tie-in projects.

Review of operations

Pilbara operations produced 319.7 million tonnes (Rio Tinto share 266.8 million tonnes) in 2021, 4% lower than 2020, for the reasons mentioned above. Ongoing COVID-19 restrictions and a tight labour market have further impacted our ability to access experienced contractors and particular skill sets.

Production from the new greenfield mine at Gudai-Darri and brownfield mine replacement project at Robe Valley was delayed due to the COVID-19 impact on labour availability and other factors, including an inability to conduct pre-delivery quality assurance and control at international steel manufacturers due to limitations on travel. First ore from Gudai-Darri was railed in December from the modular crushing and screening plant installed to supplement production and mitigate commissioning delays. Robe Valley production was significantly impacted by the Mesa A wet plant commissioning delays.

2021 shipments of 321.6 million tonnes (Rio Tinto share 267.9 million tonnes) included 36.6 million tonnes of lower grade SP10 products, 11% of shipments, on a 100% basis (2020: 3%). As growth and replacement mines ramp up through the first half of 2022, we expect to see a gradual decrease in SP10 over the medium term.

We continue to increase our iron ore portside sales in China, with a total of 14.0 million tonnes in 2021 (2020: 5.5 million tonnes). We experienced increased inventory levels of Pilbara product at the port at December (2021: 8.8 million tonnes, 2020: 1.7 million tonnes), due to higher volumes of SP10 and constrained availability of high grade blending stocks in the fourth quarter. Our portside operation handles product from the Pilbara and Canada as well as third-party product, and provides blending and screening capabilities. Approximately 81% of portside sales in 2021 were either blended or screened in Chinese ports.

Our principal projects and growth options

Commissioning and ramp-up of Pilbara growth and brownfield mine replacement projects have been impacted by ongoing COVID-19 restrictions, including labour access and supply chain quality issues. The latter have been exacerbated by an inability to conduct pre-delivery quality assurance and control at international steel and equipment manufacturers due to limitations on travel.

Mining and operational readiness activities are progressing at the \$2.6 billion¹ Gudai-Darri mine and the railway is operational. The first train was loaded from the mobile crushing and screening facilities in December and first production from the main plant is now expected in the second quarter of 2022, subject to the continuing impacts of COVID-19. This new production hub will be our most technologically advanced, incorporating a processing plant and infrastructure including an airport, camp and a 166-kilometre rail line connecting the mine to our existing network. Once fully commissioned, this first phase will have an annual capacity of 43 million tonnes, replacing depleting orebodies and providing some incremental capacity.

Our \$0.8 billion¹ investment in the Western Turner Syncline phase 2 mine, part of Greater Tom Price operations, will facilitate mining of new deposits and includes construction of a new crusher and a 13-kilometre conveyor. The project achieved first ore in October, following commissioning of the autonomous mining truck fleet. Some residual brownfield plant works are due to be complete during mid-year shutdowns.

We are also investing \$1.7 billion¹ with our joint venture partners, Mitsui and Nippon Steel Corporation (our 53% share is \$0.9 billion), at the Robe Valley and West Angelas operations. First ore at West Angelas C and D was achieved in June, and the mines are now commissioned. At Robe Valley (Mesa B, C, H), the autonomous mining truck fleet has been commissioned. Since achieving first ore in August, ongoing Mesa A wet plant construction and commissioning challenges have impacted production ramp-up. New wet plant components are on order and production will operate at a reduced capacity until repairs are completed.

Our people

In 2021, building on the work of the Everyday Respect task force, we took steps towards fostering a psychologically safer work environment.

In addition to the task force's listening sessions and survey, we further opened up discussions with our teams through the Stop for Respect initiative, where we took the unprecedented step to stop all of our WA operations and projects for at least 30 minutes, allowing people time to reflect on what a respectful workplace is, share stories, and commit to actions to become more respectful and inclusive.

We also announced our plans to partner across industry, education, government and subject matter experts to design education awareness packages to increase awareness of bullying, sexual harassment, and racism – collectively referred to as Psychosocial Awareness. In time, these packages will be made available across broader industries and shared in other parts of Australia.

We still have much more to do in this space and we are committed to taking further action on the findings and recommendations outlined in the Everyday Respect report and Inquiry recommendations.

1. Potential for capital cost to rise by around 15% due to ongoing COVID-19 restrictions on commissioning and ramp-up of Pilbara growth and brownfield mine replacement projects, including labour access and supply chain quality issues. The latter has been exacerbated by an inability to conduct pre-delivery quality assurance and control at international steel and equipment manufacturers due to limitations on travel.

Iron ore is an essential ingredient of steel, one of the most efficient construction materials in the world. We are working with our stakeholders to remove carbon from the steel manufacturing process, enabling green steel to play a critical role in the energy transition.



Aluminium

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

The aluminium industry is highly energy-intensive and contributes significantly to the world's carbon emissions. Around 60% of the world's smelters currently use coal-based electricity. Decarbonising the industry, therefore, represents significant challenges and opportunities.

We produce some of the highest-quality, lowest-carbon footprint aluminium in the world. The greenhouse gas emissions intensity of our Canadian smelters is more than 80% lower than the industry average. This is possible in part to our hydro facilities, which we have operated for almost 100 years.

Our ELYSIS partnership with Alcoa, supported by Apple and the Governments of Canada and Quebec, is scaling up a technology with the potential to transform the aluminium industry through a significant reduction in its carbon footprint. In 2021, ELYSIS achieved a key milestone by successfully producing carbon-free aluminium at the Industrial Research and Development Centre in Saguenay.

Work is now focused on accelerating the scale-up of the zero carbon ELYSIS™ technology towards the demonstration of even larger commercial-size cells in 2023. Construction of the first commercial-scale prototype cells using ELYSIS™ inert anode technology has now begun at our Alma smelter in Saguenay–Lac-Saint-Jean, Quebec, Canada.

In November, we announced an \$87 million investment to increase our low-carbon aluminium production in Canada with 16 new smelting cells at our AP60 smelter, in the Saguenay–Lac-Saint-Jean region. The project is expected to be completed by the end of 2023.

We continue to partner with governments, organisations and communities to further decarbonise the aluminium supply chain. In 2021, we developed partnerships in Australia to find ways to repower our smelters and to study the use of green hydrogen to replace natural gas in our alumina refineries.

Our structurally advantaged integrated business includes bauxite mines, alumina refineries and smelters producing aluminium certified as responsible. Managing the process from mine to metal allows us to independently deliver fully traceable products to our customers, reliably and efficiently. In 2021, we launched START, the first sustainability label for aluminium, which is being delivered to customers using blockchain technology.

Working together for a better future

4

bauxite mines in Australia, Brazil and Guinea¹

14

aluminium smelters in Canada, Australia, New Zealand, Iceland and Oman¹

7

hydropower plants generating most of the electricity we use in Canada

4

alumina refineries in Australia, Brazil¹ and Canada

14,000

employees

2.17t

CO₂e/ t Al emissions intensity of our managed Atlantic smelters

Snapshot of the year

0.33

AIFR
(2020: 0.34)²

38%

underlying EBITDA margin (integrated operations)
(2020: 26%)

\$4.4bn

underlying EBITDA
(2020: \$2.2bn)

\$12.7bn

gross product sales
(2020: \$9.3bn)

\$3.6bn

net cash generated from operating activities
(2020: \$1.9bn)

\$1.3bn

capital expenditure
(2020: \$1.0bn)

Boyne Smelters Limited. Queensland, Australia.

1. Non-managed joint ventures.

2. Our Gove operations' closure unit was transferred from Aluminium to Closure, causing change in historical AIFR, previously noted as 0.36 in our 2020 Annual Report.

Aluminium

2021 year-end results	2021	2020	Change
Bauxite production (000 tonnes – Rio Tinto share)	54.3	56.1	(3)%
Alumina production (000 tonnes – Rio Tinto share)	7.9	8.0	(2)%
Aluminium production (000 tonnes – Rio Tinto share)	3.2	3.2	(1)%
Gross product sales (US\$ millions)	12,695	9,314	36%
Average realised aluminium price (US\$ per tonne)	2,899	1,946	49%
Underlying EBITDA (US\$ millions)	4,382	2,152	104%
Underlying EBITDA margin (integrated operations)	38%	26%	
Underlying earnings (US\$ millions) ¹	2,468	471	424%
Net cash generated from operating activities (US\$ millions)	3,606	1,930	87%
Capital expenditure – excluding EAUs (US\$ millions) ²	(1,300)	(1,009)	29%
Free cash flow (US\$ millions)	2,272	892	155%
Underlying return on capital employed ³	16%	3%	

1. Underlying earnings includes a \$0.2 billion benefit for the recognition of previously written down deferred tax assets in Australia (2020: \$0.2 billion charge for the partial de-recognition of deferred tax assets in Australia).
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.

Enabling the low-carbon transition

Aluminium is one of the world's fastest-growing major metals. We produce some of the highest-quality, lowest-carbon footprint aluminium in the world. The Scope 1 and 2 greenhouse gas emissions intensity of our Canadian smelters is less than one-fifth of the industry average.

Our Aluminium business supports our pathway to zero emissions through several initiatives:

- Construction of the first commercial-scale prototype cells of ELYSIS™ inert anode technology has now begun at our Alma smelter in Saguenay–Lac-Saint-Jean.
- We signed a Statement of Cooperation with the Queensland Government, agreeing to work together to help the Central Queensland region decarbonise. This includes finding the best pathway to repower our Australian smelters to make them more competitive and sustainable.
- We are partnering with Carfbix to capture carbon and permanently store it underground at our ISAL aluminium smelter in Iceland.
- We began construction of a new 4MW solar farm and battery storage at Weipa. This will triple the local electricity network's solar generation capacity and help provide cleaner power to our operations.
- We partnered with the Australian Renewable Energy Agency (ARENA) to research the potential for using green hydrogen to replace natural gas in the calcination process of alumina refining at Yarwun. We partnered with Sumitomo Corporation on a study into building a hydrogen pilot plant at Yarwun.

More information on Carfbix, ELYSIS and our Yarwun hydrogen partnerships can be found in our Innovation pages 70–71.

In 2021, our Aluminium business's absolute greenhouse gas emissions (21.9Mt CO₂e) were 1% lower than the 2018 equity baseline (22.1Mt CO₂e). This reduction includes improvements in processing efficiency, an increased use of hydroelectric boilers in refining, instead of natural gas boilers, and a reduction of production at the Kitimat smelter due to a strike. The 2021 emissions intensity of our managed Atlantic smelters, powered by hydroelectricity, was 2.17t CO₂e per tonne of aluminium. Our Vaudreuil alumina refinery has the lowest carbon footprint of any alumina refinery in the world today.

Safety and wellbeing

In 2021, the number of potentially fatal incidents (PFIs) more than doubled compared with 2020. Increased incident identification and proactive learning from each has been a positive improvement in the safety culture. Given that falling objects accounted for 60% of the PFIs, a work programme was undertaken at our sites to address overhead asset maintenance. A robust monthly PFI-sharing meeting was also introduced to encourage our people to share learnings across our sites and leverage technical support to the sites as needed.

We ended 2021 with an all-injury frequency rate (AIFR) of 0.26 among our employees and 0.44 among our contractors. While our overall AIFR decreased to its lowest ever at 0.33, we saw a slight regression for employees when compared to 2020 (0.20) and an improvement for contractors when compared to 2020 (0.57).

While 2021 marked the seventh consecutive fatality-free year for our managed operations, sadly a non-managed operation, Compagnie des Bauxites de Guinée, experienced three fatalities. We are working closely with the teams on-site to ensure process safety and incident prevention.

We continued to improve the safety maturity of our sites by emphasising leadership coaching and critical risk management. In 2021, we completed over 215,000 verifications on critical controls, including more than 39,000 verifications specific to COVID-19.

Aluminium has the largest number of water and tailings dams in the company. In 2021, we implemented a telemetry programme across our tailings and water storage facilities to collect measurements and data from remote points and automatically transmit them for monitoring. This work, to be completed by the first quarter of 2022, will ensure that all our major water and tailings facilities have real-time monitoring. We have also begun implementing the new Global Industry Standard in Tailings Management (GISTM), with a particular focus on the community engagement and dam design safety elements.

In partnership with local governments, we administered more than 18,000 vaccines against COVID-19 to employees, contractors, families and the community at Aluminium-supported vaccination centres in Kitimat and Saguenay, Canada; Queensland, Northern Territory and Tasmania, Australia; and New Zealand.



Meeting growing demand for transparency and traceability

START Responsible Aluminium sets the standard for sustainable aluminium production through transparency, traceability and technology. Key information is provided for ten Rio Tinto Aluminium sustainability criteria, from mine to metal.

Learn more about START at riotinto.com/stories.

In 2022, we will continue to improve our safety culture and performance by emphasising a psychologically safe environment that encourages employees to raise safety issues and concerns. This will improve the rigour in our incident investigations to drive to systemic root causes, ensuring that our critical risk controls are regularly and thoroughly verified. Our daily visible leadership in the field will also continue to build trusting, transparent relationships and reinforces safe work behaviours.

Financial performance

In 2021, aluminium prices rallied to multi-year highs, following a firm recovery in global demand and extensive power-related supply disruptions in China, which led to a global market deficit. This rebound in sales prices, together with increased demand for value-added product (VAP), were the key drivers for our aluminium business to more than double underlying EBITDA and deliver a substantial increase in cash flow.

Underlying EBITDA of \$4.4 billion, which was 104% higher than 2020, benefited from the stronger pricing environment, in particular for primary metal and alumina, and higher product premiums for primary metal. This was only partly offset by the impact of stronger local currencies, lower bauxite and alumina shipments and cyclical cost inflation for coke, pitch and alloys. This increased our industry-leading underlying EBITDA margin to 38%.

We achieved an average realised aluminium price of \$2,899 per tonne, 49% higher than 2020 (\$1,946 per tonne). This comprised the LME price, a market premium and a product (VAP) premium. The cash LME price averaged \$2,480 per tonne, 46% higher than 2020, while in our key US market, the midwest premium duty paid increased by 119% to \$584 per tonne (2020: \$267 per tonne). Our VAP sales represented 50% of the primary metal we sold (2020: 43%) and generated product premiums averaging \$230 per tonne of VAP sold (2020: \$213 per tonne).

We generated \$3.6 billion in net cash from operating activities, reflective of the higher underlying EBITDA achieved, net of a \$0.5 billion build in working capital, driven by the higher pricing environment and supply chain constraints. Free cash flow increased by 155% to \$2.3 billion.

Review of operations

Bauxite production of 54.3 million tonnes was 3% lower than 2020 due to severe wet weather in the first quarter impacting system stability throughout the year, equipment reliability issues and overruns on planned shutdowns at our Pacific operations.

We shipped 37.6 million tonnes of bauxite to third parties in 2021, 4% lower than the same period of 2020 due to the major weather events in the first quarter causing shipment delays. In 2021, gross product sales for bauxite declined 4% to \$2.2 billion: this includes freight revenue of \$462 million (2020: \$423 million).

Alumina production of 7.9 million tonnes was 2% lower than 2020, as a result of outages during the year at the Yarwun refinery in Queensland, Australia and at Vaudreuil refinery in Quebec, Canada. Production at the Queensland refinery remained stable year on year.

Aluminium production of 3.2 million tonnes was 1% lower than 2020 due to reduced capacity at our Kitimat smelter in British Columbia following a strike which commenced in July. Agreement was reached with the labour union and employees in October, with a gradual restart in 2022 and full capacity expected to be reached by December 2022. The reduced capacity was partly offset by a robust performance across the remaining smelting portfolio.

Our principal projects and growth options

At the Kemano project in Kitimat, British Columbia, where we are constructing a second tunnel to de-risk our 100% owned hydropower facility, the tunnel boring machine is being dismantled and removed following breakthrough in October. Although COVID-19 continues to affect the workforce, completion remains on schedule for the second half of 2022. Total approved capital stands at \$0.8 billion.

In December 2021, we opened a newly extended wharf that will increase the capacity of our port facilities in Kitimat and support economic diversification in Northern British Columbia. The new wharf will be used for imports of alumina, anodes and other supplies, and for exports of low-carbon aluminium made at our BC Works smelter in Kitimat. As the wharf was built and paid for by LNG Canada, when we gained control over it in December we recognised a \$336 million gain, which has been excluded from underlying earnings on the grounds of materiality and linkage to the impairment recognised in 2021.

ELYSIS, our joint venture with Alcoa, supported by Apple and the Governments of Canada and Quebec, is developing a breakthrough technology that eliminates all direct greenhouse gases from the aluminium smelting process. In 2021, ELYSIS successfully produced aluminium at its Industrial Research and Development Center in the Saguenay, Quebec. Construction of the first commercial-scale prototype cells of ELYSIS™ inert anode technology has now begun at our Alma smelter. These prototype cells are expected to become operational in 2023. ELYSIS aims to have its technology available for installation from 2024 and production of larger volumes of carbon-free aluminium approximately two years later.

We announced an \$87 million investment to increase aluminium production with 16 new smelting cells at our AP60 smelter, in the Saguenay. Production will rise by around 45%, or 26,500 tonnes of primary aluminium per year, to a capacity of 86,500 metric tonnes.

We announced a number of investments to sustain our assets in the Saguenay, including C\$92 million to refurbish the Isle-Maligne hydroelectric power station, the oldest in our network, commissioned 95 years ago, and C\$105 million to modernise the Port-Alfred port facilities.

At our Weipa bauxite mine in northern Queensland, construction of a new 4MW solar farm and 4MW/4MWh battery storage commenced, which will triple the local electricity network's solar generation capacity. The new facility will be built, owned and operated by EDL and will complement the existing 1.6MW solar farm at Weipa, which was completed in 2015.

We partnered with the Australian Renewable Energy Agency to research the potential for using clean hydrogen to replace natural gas in the calcination process of alumina refining at Yarwun. We are also partnering with Sumitomo Corporation to study the construction of a pilot plant at Yarwun, which could produce hydrogen for the Gladstone Hydrogen Ecosystem.

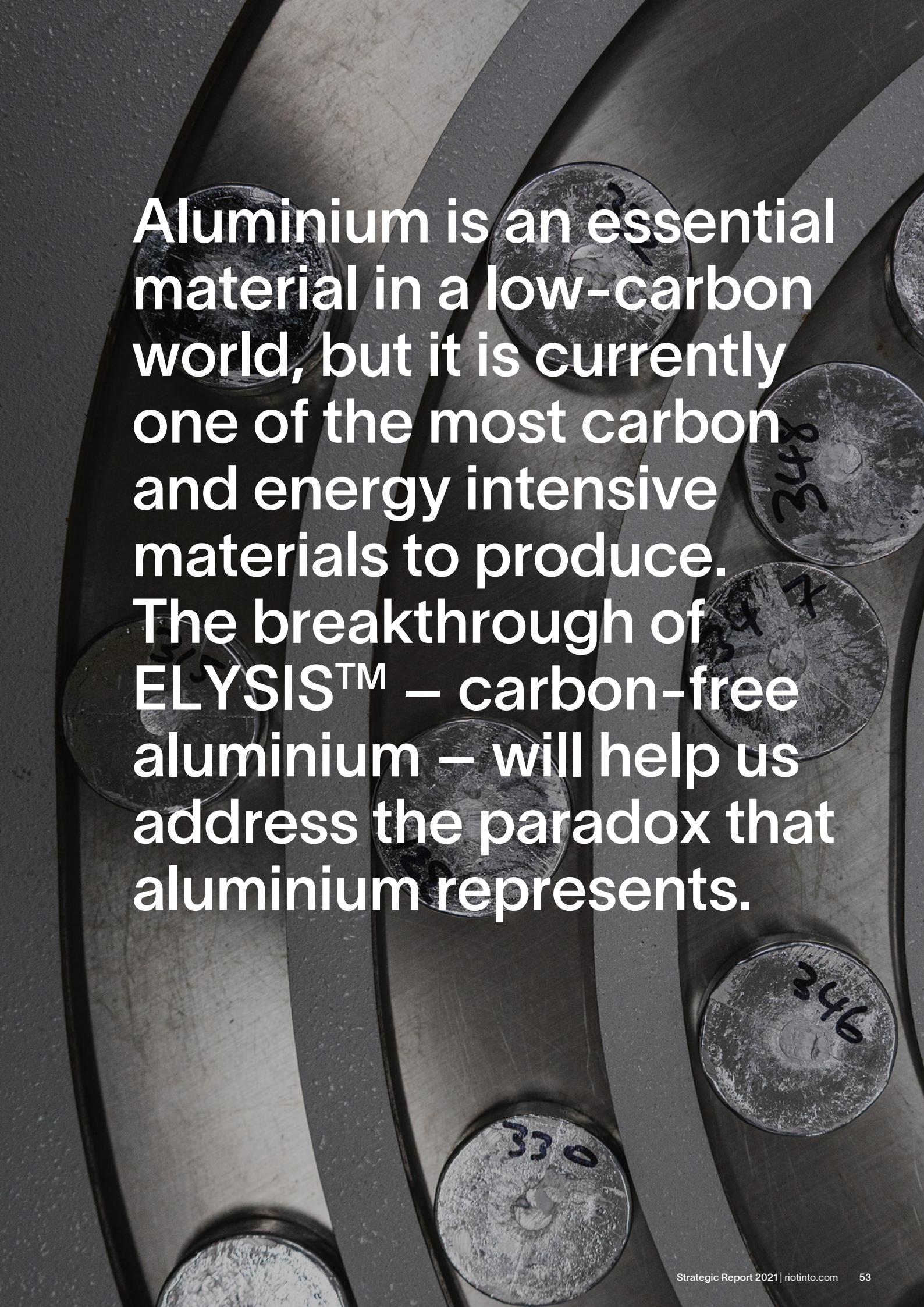
Our people

Our priority is to be a people-centric organisation where all employees have a sense of purpose, responsibility and empowerment to make decisions regarding our business. We continue to invest in enhancing the skills and leadership capabilities that influence safety and business performance. In parallel, we are embedding our new core values — care, courage and curiosity — to assist in creating an environment where everyone feels comfortable to speak up and challenge.

The strike and situation in Kitimat is a case where we have a large gap to close. We are committed to implementing a new way of working based on trust where the entire workforce feels listened to and cared for. The cultural reset is under way and has included a reorganisation of the BC Works leadership team. Beyond this, the team is focusing on training, redesigning some operational processes and more structured engagement with the workforce and union leaders.

We also continued our focus on inclusion and diversity. In 2021, we increased our workforce gender balance by 1.6%, to 16.4%. Over 40% of our senior leadership positions are held by women. Specific actions occurred on all sites across our Atlantic and Pacific operations to increase attraction, development and retention of a diverse workforce at all levels. Our sites in Gladstone introduced a female leadership development pilot to build career pathways and develop the capability of our female talent in frontline leader roles. Our Alma smelter, in partnership with the USW Alma union in Quebec, conducted a pilot to increase female representation by understanding women's experiences, addressing issues and incorporating mechanisms to better integrate and retain them in operations.

In 2021, our leadership across the organisation committed to improving the psychological safety and wellbeing of our employees through collegiality, feedback and everyday respect. This will remain a focus for the coming years.



Aluminium is an essential material in a low-carbon world, but it is currently one of the most carbon and energy intensive materials to produce. The breakthrough of ELYSIS™ – carbon-free aluminium – will help us address the paradox that aluminium represents.

Copper

Copper is essential to modern life and plays a fundamental role in creating a sustainable, low-carbon world. Rapid electrification and an increasing adoption of renewable energy sources, like wind and solar, are set to drive greater demand for copper. With assets spanning the globe, we are well-positioned to deliver on this potential.

We are building on over 100 years of history and experience, with world-class deposits and operations as the bedrock for future growth. Kennecott, our US operation based in Salt Lake City, Utah, has been mining and processing minerals since 1903, with the largest open pit mine in operation in the world and one of only two copper smelters in the US. Kennecott's long history of innovation is set to continue as we explore growth projects for this valuable asset. Building on this experience, we are developing the equally transformational Oyu Tolgoi copper and gold mine in the South Gobi Desert of Mongolia, a project that is almost unrivalled in the industry in its complexity and scale - where we are building one of the largest block cave mines in the world to access an orebody nearly the size of Manhattan island.

At every site and asset, we maintain a strong focus on innovation and responsible production. We delivered strong safety and financial performance despite significant challenges in 2021, from managing the varying and complex impacts of the COVID-19 pandemic across our global footprint, to major geotechnical issues at Oyu Tolgoi and Kennecott. Our team demonstrated resilience and technical capability in keeping our assets running and our people safe.

We also continued our focus on safety and wellbeing outside of our operations, strengthening our partnerships with communities, stakeholders and Indigenous peoples with ancestral connections neighbouring our assets – by providing critical support in areas ranging from food security to wildfire response.

As the world's demand for copper grows, we are ready to grow with it, with a pipeline of growth projects at various stages of development. In Arizona, US, the Resolution Copper project continues to progress through comprehensive and independent social and environmental regulatory reviews. In parallel, we advanced our consultation and partnerships with neighbouring communities and Native American tribes throughout 2021. Of particular note is our partnership with Western Apache tribes and the US Forest Service to implement the Emory Oak Collaborative Tribal Restoration Initiative, centred on advancing Indigenous Traditional Ecological Knowledge.

Management of Winu, our copper-gold discovery in Western Australia, transitioned from the Exploration group to Copper. Over the year, we have focused on engaging Traditional Owners on project plans, agreements and regulatory approvals while continuing drilling activities. Importantly, we successfully piloted our approach for Net Zero Pathway studies, and developed an assessment methodology for physical resilience to climate change risks, which will be replicated across other assets.

In addition to copper, our product group also includes the Simandou project in Guinea, the largest known undeveloped high-grade iron ore deposit in the world. High-grade iron ore is a key pillar for the decarbonisation of the steelmaking process, and a critical priority as the world progresses on the road to a low-carbon future.

Working together for a better future

3

copper operations in the US, Mongolia and Chile

3

copper growth projects in the US, Australia and Mongolia

2

Copper Mark certifications, verifying responsibly produced copper from Kennecott and Oyu Tolgoi

1

high-grade iron ore growth project in Guinea

7,000

employees

2.2Mt

CO₂e emissions (our share)

Snapshot of the year

0.21

AIFR
(2020: 0.25)

59%

underlying EBITDA margin (product group operations)
(2020: 50%)

\$4.0bn

underlying EBITDA
(2020: \$2.1bn)

\$7.8bn

gross product sales
(2020: \$5bn)

\$2.6bn

net cash generated from operating activities
(2020: \$1bn)

\$1.3bn

capital expenditure
(2020: \$1.7bn)

Kennecott copper mine. Utah, US.

Copper

2021 year-end results	2021	Adjusted ⁵ 2020	Change
Mined copper production (000 tonnes – Rio Tinto share)	494	528	(7)%
Refined copper production (000 tonnes – Rio Tinto share)	202	155	30%
Gross product sales (US\$ millions)	7,827	4,969	58%
Average realised copper price (US cents per pound) ¹	424	283	50%
Underlying EBITDA (US\$ millions)	3,969	2,084	90%
Underlying EBITDA margin (product group operations)	59%	50%	
Underlying earnings (US\$ millions)	1,579	754	109%
Net cash generated from operating activities (US\$ millions) ²	2,634	982	168%
Capital expenditure – excluding EAUs ³ (US\$ millions)	(1,328)	(1,659)	(20)%
Free cash flow (US\$ millions)	1,295	(687)	289%
Underlying return on capital employed (product group operations) ⁴	14%	8%	

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 \$246 million (2020: \$182 million).
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. Following a reorganisation of the management team in 2021, the Diamonds business is reported within Minerals and the Simandou iron ore project in Guinea is reported within Copper. 2020 comparatives have been adjusted accordingly.

Enabling the low-carbon transition

Copper plays a key role in electrification and power generation, including renewable energy and electric vehicles. A single 1MW offshore wind turbine uses more than six tonnes of copper, and electric vehicles have a copper intensity three to four times higher than traditional combustion engine vehicles. Across our own operational footprint, we are developing pathways to zero emissions through multiple initiatives, supported by a cross-functional team responsible for identifying a pipeline of emissions reduction projects.

- In partnership with ENGIE, we completed an emissions reduction pilot study at Winu in early 2021 to better understand existing and emerging technologies for improving renewable power to our operations. Having evaluated the emissions profile and current demands at one of our projects, plans are under way to apply this approach across all Copper assets, expected to be completed in 2022.
- At Kennecott, we are updating eight haul trucks with lower emission engines, as well as conducting a trial to understand the potential for using renewable diesel, for completion in 2022. We also received approval for a 30MW solar power plant to be constructed in two phases: 5MW to be completed by 2023, expanding to 30MW by 2025.
- Following the closure of Kennecott's coal-fired power plant in 2019, the annual 1.5MWh Renewable Energy Certificates (RECs) acquired far exceeded Kennecott's requirements. In 2021, we transferred excess RECs from Kennecott to Resolution Copper, resulting in zero carbon emissions from electricity for both assets.
- At Oyu Tolgoi, we are working on several initiatives to reduce energy consumption and introduce renewable solutions. Studies on the use of solar power to provide energy to camp areas and other ancillary buildings will be initiated in 2022. In addition, the opportunity for wind-based renewable energy is being explored via a wind feasibility assessment.
- At Winu, we piloted a new risk assessment methodology delivered by EY to assess business resilience to potential physical impacts of climate change. The assessment included key climatic variables relevant to the mine site, transportation routes and key infrastructure. The methodology and lessons learned from the Winu pilot will be replicated across our sites and operations on a priority basis beginning in 2022.

In 2021, our Copper product group's greenhouse gas emissions were 2.2Mt CO₂e, a reduction of 1.2Mt CO₂e or approximately 35% compared to our 2018 emissions baseline*.

Safety and wellbeing

Our operations recorded a third fatality-free year, but there was a slight deterioration in other key safety metrics, including a doubling of reported potentially fatal incidents (PFIs) to 18, due in part to improving the culture around reporting and transparency. We ended 2021 with all-injury frequency rates (AIFRs) of 0.25 among employees and 0.17 among our contractors, compared to 0.21 and 0.28 respectively in 2020.

In addition, we achieved a significant improvement in the effectiveness of our controls through critical risk elimination and engineering actions. Despite COVID-19 challenges, we completed over 200,000 critical risk management verifications, including over 41,000 COVID-19 verifications.

Our people continued to sustain our operations through the pandemic and we recognise the personal and professional challenges that many have experienced. In line with the Group health and wellbeing frameworks, we built on existing resources to deliver tailored and integrated approaches to improving safety and wellbeing dialogue among our workforce at each of our assets.

COVID-19 continues to present challenges and our workforce has become fatigued – this was made clear by our People Survey. We are adapting and introducing new workplace procedures to address these challenges, as well as supporting vaccination rollouts across our assets to try to ensure that our workforce remains protected, healthy and safe.

* The Copper group's carbon emissions are reported on an equity basis and therefore include Rio Tinto's 30% share in Escondida. The new power contract at Escondida, which replaces fossil-fuel based electricity with renewable energy, came into effect in 2021, and is a major contributor to emissions reduction of the Copper group.



A decade of innovation, a lifetime of opportunity

Award-winning copper, enriched communities, an underground oasis, and sustainable cashmere are among the many standout moments during Oyu Tolgoi's first ten years of operation.

Learn more about Oyu Tolgoi at riotinto.com/stories.

Financial performance

The improvement in our financial performance was primarily attributable to strong market conditions, with the copper price driven higher by renewed speculative interest, declining LME stocks, a weaker US dollar and COVID-19 related supply constraints. We also benefited from higher sales volumes of refined metal at Kennecott in the US and temporarily higher gold grades at Oyu Tolgoi in Mongolia. These compensated for lower volumes at Escondida in Chile, where ongoing preventive measures in response to COVID-19 continued to impact workforce availability. As a result, underlying EBITDA was up 90% to \$4.0 billion, with margins rising to 59%.

Price movements for all products benefited underlying EBITDA by \$2.2 billion for the full year. Our average realised copper price increased by 50% to 424 US cents per pound, even before taking into account the provisional pricing benefit to revenues of \$246 million in 2021, while the benchmark gold price rose just 2% to \$1,799 per ounce. We incurred additional costs related to our response to COVID-19, higher energy costs, notably in the US driven by higher diesel costs, and higher unit costs at Escondida due to lower concentrator throughput. These were offset by an improvement in volumes at Oyu Tolgoi and higher refined copper volumes at Kennecott, despite a furnace failure in September 2021, which was followed by safe restart in October. Downtime in 2020 was more significant, due to an earthquake and a major smelter maintenance shutdown.

Our copper unit costs, at 82 cents per pound in 2021, were 26% lower than in 2020, but marginally above guidance of 75 to 80 cents per pound. Lower throughput and grades at Escondida and higher royalties, in line with stronger prices, at Kennecott and Oyu Tolgoi were offset by higher production of copper and, in particular, gold at Oyu Tolgoi, driven by higher grades.

We continue to advance our future evaluation projects, in particular at Resolution Copper in Arizona, at Winu in Western Australia and at the Simandou iron ore project in Guinea.

We generated \$2.6 billion in net cash from our operating activities, a 168% increase on 2020, from the same drivers as underlying EBITDA and a \$0.8 billion increase in dividends from our 30% equity holding in Escondida to \$1.4 billion, partly offset by a \$0.4 billion tax payment in Mongolia. Free cash flow of \$1.3 billion reflected the higher operating cash flow and high level of capital investment (\$1.3 billion), mainly relating to the ongoing development of the Oyu Tolgoi underground project, where we have a 34% effective interest but fully consolidate on the basis of management control.

Review of operations

Mined copper, at 494 thousand tonnes, was 7% lower than 2020, due to lower recoveries and throughput at Escondida as a result of the prolonged impact of COVID-19, partly offset by higher recoveries and grades at Oyu Tolgoi and Kennecott.

Kennecott's mined copper production was 14% higher than 2020, with higher grades and recovery but less than expected production due to a slope failure in May. The transition to the south wall is complete, with copper head grade exceeding 0.5% in the second half. Refined copper production was 69% higher than 2020 as a result of improved performance through most of the year relative to 2020, despite the furnace failure in September 2021. The smelter was safely restarted in late October and has been stable since. In 2020, there was significant downtime following an earthquake and major maintenance.

Escondida's mined copper production was 17% lower than 2020, mainly due to 10% lower grade in ore feed to the concentrators, 4% lower throughput and 31% lower recoverable copper in ore stacked for leaching, mostly caused by continuous COVID-19 restrictions in 2021 which impacted mine development due to lower workforce availability.

Oyu Tolgoi's mined copper production from the open pit was 9% higher than 2020 with improved performance, a temporary increase in grades and increased mill feed following geotechnical issues in the first half, partly offset by lower staffing levels due to COVID-19.

Our principal projects and growth options – Oyu Tolgoi underground project

The Oyu Tolgoi underground project in Mongolia is expected to produce 500,000 tonnes of copper per year on average, from 2028 to 2036, from the open pit and underground and an average of around 350,000 tonnes for a further five years (from 2037 to 2041)¹, compared to 163,000 tonnes from the open pit in 2021. The underground Ore Reserve has an average copper grade of 1.52%, which is more than three times higher than the open pit Ore Reserve, and contains 0.31 grammes of gold per tonne.²

By 2030, Oyu Tolgoi is expected to be the fourth-largest copper mine in the world. It is a complex greenfield project comprising an underground block cave mine and copper concentrator as well as an open pit mine which has been successfully operating for ten years. It is also one of the most modern, safe, sustainable and water-efficient operations globally, with a workforce which is more than 96% Mongolian. Since 2010, Oyu Tolgoi has spent a total of \$13.4 billion in-country, including \$3.6 billion of taxes, fees and other payments to Mongolian national and local governments. The size and quality of this Tier 1 asset provides additional options, which could see production sustained for many decades.

In December 2021, the updated Resources and Reserves were registered in Mongolia in accordance with Mongolian regulations, and approval from the Mongolian authorities of the 2022 Annual Mine Plan was received.

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

As part of a comprehensive package, Turquoise Hill Resources (TRQ) agreed to waive in full, funding balances arising from a carry account loan with Erdenes Oyu Tolgoi (EOT) of \$2.4 billion, comprising the amount of common share investments in Oyu Tolgoi LLC funded by TRQ on behalf of EOT to build the project to date, plus accrued interest.

The Parliament of Mongolia has approved a resolution (Resolution 103) that substantially resolves the outstanding issues that have been subject to negotiations with the Government of Mongolia over the last two years in relation to addressing Parliament Resolution 92 (December 2019).

An updated funding plan has been agreed to address the current estimated funding requirement for the project. Until sustainable underground production is achieved, Oyu Tolgoi will be funded by cash on hand and rescheduling of existing debt repayments, together with a pre-paid copper concentrate sales agreement with TRQ. This is in line with restrictions on debt financing contained in Resolution 103, passed by the Parliament of Mongolia on 30 December 2021.

Rio Tinto and TRQ have amended the Heads of Agreement signed in April 2021 to ensure they appropriately fund Oyu Tolgoi, including seeking to reschedule existing project finance repayments and raising additional supplemental debt on terms acceptable to all the parties, as well as a loan facility from Rio Tinto and up to \$1.5 billion of equity offerings by TRQ, with an initial offering of at least \$650 million in 2022. The capital forecast stands at \$6.925 billion, including \$175 million of estimated COVID-19 impacts to the end of 2021³, with sustainable production expected in the first half of 2023. A reforecast will be undertaken in the first half of 2022 to determine a revised cost and schedule estimate that will reflect any further COVID-19 impacts; any additional time-based impacts and market price escalation arising from resequencing due to 2021 budget constraints (as a result of the Oyu Tolgoi Board not approving the capital budget uplift at the time the Definitive Estimate was finalised); and updated risk ranging reflecting the latest project execution risks.

The Oyu Tolgoi Board has also approved the signing of an electricity supply agreement to provide Oyu Tolgoi with a long-term source of power from the Mongolian grid, under terms already agreed with the Government of Mongolia. In meeting Oyu Tolgoi's commitment to sourcing power domestically, we will work with the Government to support long-term renewable energy generation in support of the Mongolian grid. The Government of Mongolia and Oyu Tolgoi are in constructive discussions with the Inner Mongolia Power International Cooperation Company (IMPIC) for an extension of current power import arrangements beyond the current agreement of July 2023. IMPIC has indicated its support for an extension and commercial terms are being finalised.

Other principal projects and growth options

The \$0.9 billion investment in phase one of the south wall pushback project at Kennecott, extending mine life to 2026, is complete and we are gradually accessing higher grades. The \$1.5 billion phase two investment will further extend pre-stripping and support additional infrastructure development, allowing mining to continue into a new area of the ore body between 2026 and 2032, generating attractive returns. Pre-feasibility studies are also being progressed to extend open-pit mining beyond 2032, with a further pushback of the north wall. In July, we announced the approval of a \$108 million investment to support an underground mine below the existing open pit, with studies due to be complete by 2024. Potential underground mining would occur concurrently with open pit operations and result in increased copper output.

At the Resolution Copper project in Arizona, the US Forest Service (USFS) published the Final Environmental Impact Statement (FEIS) in January 2021, six months behind the target date in its original project schedule set in 2015 by the Obama Administration. In March 2021, the US Department of Agriculture directed the USFS to rescind the FEIS to allow the agency to undertake further review and consultation. Resolution Copper has used this time to deepen dialogue and partnerships with local communities and Native American tribes, building on the significant consultation undertaken over the past decade.

1. The 500ktpa target (stated as recovered metal) for the Oyu Tolgoi underground and open pit mines is underpinned 17% by Proved Ore Reserves and 83% by Probable Ore Reserves for the years 2028–2036. The 350ktpa production target for the following five years is underpinned 18% by Proved Ore Reserves and 82% by Probable Ore Reserves. These production targets have been scheduled from current mine designs by Competent Persons in accordance with the requirements of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves, 2012 Edition (the JORC code).
2. This information in relation to the underground Ore Reserves was previously reported in the release to the ASX dated 16 December 2020. The Competent Persons responsible for reporting the Ore Reserves were Ferrin Prince and Mark Bixley, Competent Persons, who are a Member and Fellow respectively of The Australasian Institute of Mining and Metallurgy. Rio Tinto is not aware of any new information or data that materially affect these Ore Reserve estimates and confirms that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The form and context in which the Competent Persons' findings are presented have not been materially modified from the release dated 16 December 2020.
3. These estimates exclude any impacts of delays to work schedules caused by restricted approved budgets since the start of 2021. This, together with any ongoing COVID-19 impacts, will be assessed following the commencement of underground operations with further updates provided to the market in due course. Panels 1 and 2 studies will be ongoing throughout 2022. Further study work is also under way to assess the extraction methodology and ultimate recovery of the Panel 0 recoverable pillars.

There are five different Native American groups, the O'odham, Hopi, Pueblo of Zuni, Western Apache, and Yavapai, who traditionally used and occupied this land, each with unique histories and interactions, cultural traditions, and perspectives on the way of life. The O'odham, Hopi and Zuni have ties to this land dating back thousands of years. From these five groups, there are 11 federally recognised tribes which establishes them as domestic dependent nations within the US with inherent sovereign authority who are part of the formal consultation process, all of whom have different views around this project. We are already progressing partnerships with over half of these tribes and our aim is to have a mutual dialogue with all tribes. For example, in the second quarter of 2021 the USFS, in partnership with Resolution Copper and Western Apache Tribal elders began a restoration effort for Emory Oak trees, guided by Indigenous Traditional and Ecological Knowledge. The project has advanced restoration activities at a dozen priority Emory Oak Groves identified by Western Apache elders on Arizona National Forests, White Mountain Apache Tribal lands and Resolution Copper private property.

In 2021, we also hosted tribal leaders and elders in our business and local community to share the importance of their culture and acknowledge their ancestral ties to Arizona's landscape. Throughout the year, we continued to support fieldwork by Native American tribal monitors who use traditional knowledge to identify ancestral sites, seeps, springs and medicinal plants on Resolution Copper private lands and partner with us on preservation and co-management approaches.

At the Winu copper-gold project in the Paterson Province of Western Australia, we continue to actively engage with the Traditional Owners and have begun discussions on the initial scope and mine design with Western Australia's Environmental Protection Authority. We have taken particular care to build transparent, credible and trusting relationships with the Traditional Owners and continue to prioritise building these partnerships moving forward. Drilling, fieldwork and development activities continue to progress to schedule. Timelines to sanction and first production will be disclosed on completion of relevant agreements and permitting processes.

At the Simandou iron ore project⁴ in Guinea, technical optimisation work continued in 2021 with the support of China-based institutions and partners. Progress continued on updating and implementing our 2012 Social and Environmental Impact Assessment, alongside a new drilling programme that commenced in the fourth quarter. We established a new office in Conakry to accommodate our expanding in-country team and have issued expressions of interest for construction and early development works and in-country activities to be carried out in 2022.

We continued to engage with the Guinean authorities on potential mechanisms for collaboration on infrastructure development, while seeking mutual and sustainable benefits by developing our projects in line with international social and environmental standards and practices. We have continued to work closely with local communities, supporting them through the COVID-19 pandemic.

We remain committed to the development of Simandou, one of the world's largest and richest iron ore deposits, demand for which is increasing as steelmakers look to reduce carbon emissions, while delivering benefits to our partners, local communities and the people of Guinea.

Our people

Our people are a critical differentiator as we future-proof our business and continue the decarbonisation journey. One example this year of our people's role in our future success could be seen at Kennecott, where we are building on a foundation of more than 100 years of pioneering history.

Our Kennecott Concentrator was chosen as the first site across Rio Tinto to test, improve and embed the Rio Tinto Safe Production System (RTSPS). The system is different to what we have tried in the past. This time we are designing and building it from the ground up, with our people's voices being heard right across the business. Critical to our success will be how we lead. Our leaders are becoming coaches so our people have the autonomy they need to make decisions at the right level, to innovate, and to problem solve. Our people are building a production system that simplifies what we do, upskills our workforce in problem solving and brings consistency to our operations by sharing best practices and continuously improving them.

As we continue to roll out RTSPS, we are building the foundation of a new way of working that is future-ready and brings us together to become the best operator.

4. Operating under the Simfer joint venture where the government of Guinea holds 15% and Simfer Jersey holds 85%. Simfer Jersey is owned by Chalco Iron Ore Holdings (CIOH) (47%) and Rio Tinto (53%). CIOH is owned by Chinalco (75%), Baosteel Resources (20%), China Civil Engineering Construction Corporation (CCECC) (2.5%) and China Harbour Engineering Company (CHEC) (2.5%). This structure has been in place since 2017.

Minerals

Our Minerals portfolio encompasses a global suite of businesses producing materials essential for sustainable development in a decarbonising world. Our products are crucial to a wide variety of industries, ranging from agriculture to renewable energy and electric vehicles.

Our Minerals product group produces high-grade, low-impurity iron ore pellets and concentrate, titanium dioxide, diamonds, and borates from operations in Canada, Madagascar, South Africa and the US. We contribute to Rio Tinto's sustainable growth by unlocking value from our high-grade orebodies and developing new materials. By reprocessing mining waste to extract valuable by-products, we are expanding our frontiers and meeting the increasing demand for critical minerals. We apply innovative technology and processes to deliver products that contribute to a decarbonising and sustainable world.

Our borates business, U.S. Borax, supplies almost 30% of the global demand for borates. It is used in everything from agriculture to fibreglass insulation and in materials for renewable energy – for both wind and solar projects.

Our iron and titanium business is a major global producer of high-grade titanium dioxide, with operations in Canada, Madagascar and South Africa. We also operate a metal powder annealing facility in Suzhou, China. Titanium dioxide is used to whiten a wide range of products, from paint and textiles to paper. When it is smelted and processed into metallic form, titanium is light, resilient and corrosion-resistant. The nature of the orebodies allows us to produce by-products such as monazite and scandium.

Located in northeast Canada, the Iron Ore Company of Canada (IOC) is a fully integrated business with mine, processing, railway, and port facilities. IOC is the leading North American producer and exporter of premium iron ore pellets and high-grade concentrate with some of the lowest levels of impurities in the market.

The Diavik Diamond Mine is known for its beautiful and sought-after white diamonds. Situated 200km south of the Arctic Circle, Diavik is committed to protecting the biodiversity of this delicate ecosystem. The site is home to an award-winning wind farm that has offset over 28 million litres of diesel since its inception – prioritising environmental sustainability in the way that we mine.

Rio Tinto's 2021 Argyle Pink Diamonds™ Tender of 70 rare pink and red diamonds delivered the most significant record breaking results in its 38 year history. We will retain and manage the Argyle Pink Diamonds brand and associated intellectual property through a proprietary Argyle pink diamond trading platform, certification processes and ongoing collaborations with trusted partners.

We have made significant progress across critical minerals that are essential for a low-carbon future through our lithium and scandium projects. This year, we entered into a binding agreement to acquire the Rincon lithium project in Argentina from Rincon Mining, for \$825 million. We also committed \$2.4 billion to the Jadar lithium-borates project in Serbia. The project remains subject to receiving all relevant approvals, permits and licences. In January 2022, the Government of Serbia cancelled the Spatial Plan for the Jadar project and required all related permits to be revoked. We remain committed to exploring all options and are reviewing the legal basis of the decision and the implications for our activities and people in Serbia.

We also successfully produced battery-grade lithium from waste rock at a demonstration plant at the Boron mine in California, US.

We are extracting scandium sustainably from the waste streams of titanium dioxide production, without the need for any additional mining at our new commercial-scale demonstration plant at the Rio Tinto Fer et Titane (RTFT) metallurgical complex in Sorel-Tracy, Quebec. Scandium oxide is used to improve the performance of solid oxide fuel cells and to produce high-performance aluminium-scandium alloys for the aerospace, defence, and 3D printing industries.

Looking ahead, the Minerals product group strives to be a leader in the green economy, a growth contributor, and an employer and partner of choice. Collaboration with our stakeholders, including governments and the communities surrounding our operations, is central to our strategy.

Working together for a better future

6	3	7	9,000	3.4Mt	18,000
mine sites	by-products recovered from waste	smelters, refineries, and processing plants	employees	CO ₂ e emissions (our share)	solar panels to power our QIT Madagascar Minerals operations by end of 2022

Snapshot of the year

0.38	43%	\$2.6bn	\$6.5bn	\$1.4bn	\$0.6bn
AIFR (2020: 0.43)	underlying EBITDA margin (product group operations) (2020: 35%)	underlying EBITDA (2020: \$1.7bn)	gross product sales (2020: \$5.2bn)	net cash generated from operating activities (2020: \$1.1bn)	capital expenditure (2020: \$0.5bn)



Minerals

2021 year-end results	2021	Adjusted ⁵ 2020	Change
Iron ore pellets and concentrates production ¹ (million tonnes – Rio Tinto share)	9.7	10.4	(6)%
Titanium dioxide slag production (000 tonnes – Rio Tinto share)	1,014	1,120	(9)%
Borates production (000 tonnes – Rio Tinto share)	488	480	2%
Diamonds production (000 carats – Rio Tinto share) ²	3,847	14,676	(74)%
Gross product sales (US\$ millions)	6,481	5,170	25%
Underlying EBITDA (US\$ millions)	2,603	1,710	52%
Underlying EBITDA margin (product group operations)	43%	35%	
Underlying earnings (US\$ millions)	888	580	53%
Net cash generated from operating activities (US\$ millions)	1,433	1,122	28%
Capital expenditure (US\$ millions) ³	(644)	(455)	42%
Free cash flow (US\$ millions)	762	642	19%
Underlying return on capital employed (product group operations) ⁴	21%	14%	

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

2. Diamonds production for 2021 solely relates to Diavik Diamond Mine, following the closure of Argyle in 2020. On 17 November 2021, Rio Tinto's interest in Diavik increased from 60% to 100%. Production and financials reflect this from 1 November 2021.

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

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

5. Following a reorganisation of the management team in 2021, the Diamonds business is reported within Minerals and the Simandou iron ore project in Guinea is reported within Copper. 2020 comparatives have been adjusted accordingly.

Enabling the low-carbon transition

The minerals we produce are essential to a low-carbon future. Our premium iron ore pellets and high-grade concentrate from the Iron Ore Company of Canada (IOC) enable our customers to operate more productively, reduce emissions and produce higher-quality steel for the modern world. With lithium, we will support the growing demand for electric vehicles and renewable energy storage. We also recover valuable minerals from waste, making the most of what we extract from the ground.

The Minerals product group supports our pathway to zero emissions through several initiatives:

- We are investing in battery manufacturer InoBat Auto to support the development of a battery ecosystem in Europe, one of the world's largest and rapidly growing electric vehicle (EV) markets. InoBat is a European-based battery technology and manufacturing company with a battery research and development centre and pilot battery line under development in Voderady, Slovakia. Our investment follows a memorandum of understanding (MoU) signed with InoBat in May 2021 to help fund and complete this facility. In our MoU, we have agreed to work together to progress the establishment of a "cradle-to-cradle" EV battery value chain in Europe – covering the full commodity lifecycle from mining through to recycling of lithium.
- We have partnered with the US Department of Energy's Critical Materials Institute (CMI) to develop processes to extract lithium from waste material.
- In December, we announced the launch of the construction of the renewable energy plant that will power our QIT Madagascar Minerals (QMM) operations, with our partner CrossBoundary Energy. The plant will consist of over 18,000 solar panels and four wind turbines. The solar plant is expected to be operational in 2022, and the wind power facility will be completed in 2023.
- At the IOC operations in Canada, we are working on developing low-emissions process heat technology, including the trialling of plasma torches.
- Our Diavik Diamond Mine reduced diesel consumption by approximately 4.5 million litres in 2021 alone through their award-winning wind farm. This amount accounts for about 10% of Diavik's annual diesel consumption.

- Boron in California, US, started to trial the first renewable diesel-powered haul truck in Rio Tinto. Manufactured using organic biomass, the renewable diesel fuel is set to produce up to 80% fewer greenhouse gas emissions than regular diesel on a lifecycle basis.
- We are pursuing a project to produce hot briquetted iron (HBI) with high-grade iron ore and hydro-based green hydrogen in Canada.
- We are also working on initiatives that will help decarbonise our energy supply in Africa and implement alternative industrial heat sources and reductants for our industrial processes across our operations.

In 2021, our Minerals product group's absolute greenhouse emissions were 3.4Mt CO₂e, a reduction of approximately 8% from 2018 levels. The decrease in emissions was mainly driven by reductions in production and associated energy use at Richards Bay Minerals (RBM) due to halted operations.

Safety and wellbeing

Our Minerals operations recorded notable progress across key safety metrics this year. For a third year in a row, we recorded zero fatalities. The rate of injuries decreased, with our all-injury frequency rate (AIFR) at 0.38 compared to 0.43 in 2020. The number of potentially fatal incidents (PFI) was 47% lower than in 2020. For 2021, we had six process safety incidents, up from five last year. Our focus on reducing injuries at the sites results from our continued implementation of best practice standards in health and safety, and completing significant projects to remove our people from hazard exposure. We have thoroughly reviewed our risks across the product group and improved controls to mitigate and manage them. We strongly believe our leaders have a key role in our health and safety performance, and we were able to continue our coaching approach across all our sites despite COVID-19 restrictions. We have also made significant progress with our contractors' safety performance, resulting in an AIFR of 0.22, compared to 0.38 in 2020.

The QMM team marked a significant safety milestone by reaching, at the end of 2021, 14 million hours worked without lost-time incidents. The RBM team recorded exceptional safety performance with an AIFR of 0.06 in 2021. The Jadar project recorded three years without recordable injuries, and the Borates packaging and distribution facility in Nules, Spain, reached an impressive 25 years without a lost-time incident.



A critical mineral hiding in the desert

At our Boron operations in the US, we are testing a process to extract high grades of lithium from waste rock created from over 90 years of mining boron.

Learn more at riotinto.com/stories.

This year, we felt immense sadness when one of our colleagues was tragically killed on his way to work at RBM in South Africa. Sadly, another colleague was killed in a public bus accident near RBM. Our sympathies are with their families and loved ones, and we are offering ongoing support to their families and colleagues.

In 2022, we will continue to grow our safety culture in line with our safety maturity model (SMM) by learning from the best sites within the business. We will also continue to integrate SMM with our contractors, building on the success of our teams at RBM who reduced the contractors' rolling AIFR from 0.85 in January 2020 to 0.00 in May 2021 and recorded one injury for the contractor workforce in 2021, down from three in 2020. To support our ambition of becoming the best operator, we will also roll out the Rio Tinto Safe Production System (RTSPS), which was launched this year at the Iron Ore Company of Canada.

As COVID-19 continues to be prevalent in our everyday lives, our teams across all Minerals sites are taking proactive steps to ensure the health and safety of our employees and host communities. We maintain a range of COVID-19 specific measures to align with directives from governments and health authorities in the respective jurisdictions. Our strict COVID-19 protocols allow us to continue to operate while simultaneously reducing the risk of transmission for our employees, contractors and communities.

In 2021, we supported government vaccination campaigns. For example, in Canada, we partnered with governments, communities and other local businesses to deploy vaccination clinics at our facilities and trained staff to administer doses to employees and members of the communities.

Financial performance

In 2021, we benefited from strong market conditions in particular for iron ore pellets and concentrate, but also for titanium dioxide pigment and borates, driven by global economic growth and underpinned by a robust construction market. We also saw a recovery in diamond prices following a pandemic-related build-up of demand and low inventory levels.

The business continued to comply with government-imposed COVID-19 restrictions, notably in Canada, the US and South Africa. At our titanium dioxide business we experienced 9% lower production, as a result of community disruptions and subsequent curtailment of operations at Richards Bay Minerals (RBM) in South Africa for around three months coupled with an extended ramp-up period, as well as unplanned maintenance and equipment reliability issues at Rio Tinto Fer et Titane (RTFT) in Canada.

Underlying EBITDA of \$2.6 billion was 52% higher than 2020, primarily due to the strong pricing environment which more than offset the impact of lower volumes, which in turn drove up cash unit costs due to fixed cost inefficiencies.

We generated net cash of \$1.4 billion from our operating activities, and \$0.8 billion of free cash flow, 28% and 19% higher than 2020, respectively, reflecting the strong pricing environment and higher dividends paid to holders of non-controlling interests at Iron Ore Company of Canada.

Review of operations

Iron Ore Company of Canada (IOC)

Iron ore production was 6% lower than 2020 due to prolonged labour and equipment availability issues impacting product feed and various other operational challenges throughout the year.

Iron & Titanium

Titanium dioxide production of 1.0 million tonnes was 9% lower than 2020 as a result of community disruptions and subsequent curtailment of operations at RBM and unplanned maintenance and equipment reliability issues at RTFT. On 24 August, RBM resumed operations following stabilisation of the security situation, supported by the national and provincial government, as well as engagement with host communities and their traditional authorities.

Borates

Borates production was in line with 2020 and benefited from improved refinery operating rates following the successful implementation of productivity initiatives supporting system stability.

Diamonds

On 18 November, we announced we had become the sole owner of Diavik Diamond Mine in the Northwest Territories of Canada, continuing its leading role in the Canadian diamond industry. Carats recovered at Diavik were 3% higher than in 2020, due to the increased share of production from November, which offset lower ore grade. The 74% decline in diamond production reflects the closure of the Argyle mine on 3 November 2020.

Our principal projects and growth options

The \$463 million Zulti South project at RBM remains on full suspension.

On 27 July, the Board committed \$2.4 billion of funding for the Jadar lithium-borates project in Serbia, subject to receiving all relevant approvals, permits and licences. In January 2022, the Government of Serbia cancelled the Spatial Plan for the Jadar project and required all related permits to be revoked. We are disappointed by this announcement and are committed to exploring all options and are reviewing the legal basis of the decision and the implications for our activities and people in Serbia.

In December, we entered into a binding agreement to acquire the Rincon lithium project in Argentina, demonstrating our commitment to build our battery materials business and strengthen our portfolio for the global energy transition. Located in the heart of the lithium triangle in Salta Province, Rincon is a long-life, scaleable resource capable of producing battery-grade lithium carbonate. It also has the potential to have one of the lowest carbon footprints in the industry that can help deliver on our commitment to decarbonise our portfolio. The transaction is expected to be complete in the first half of 2022, subject to approval by Australia's Foreign Investment Review Board.

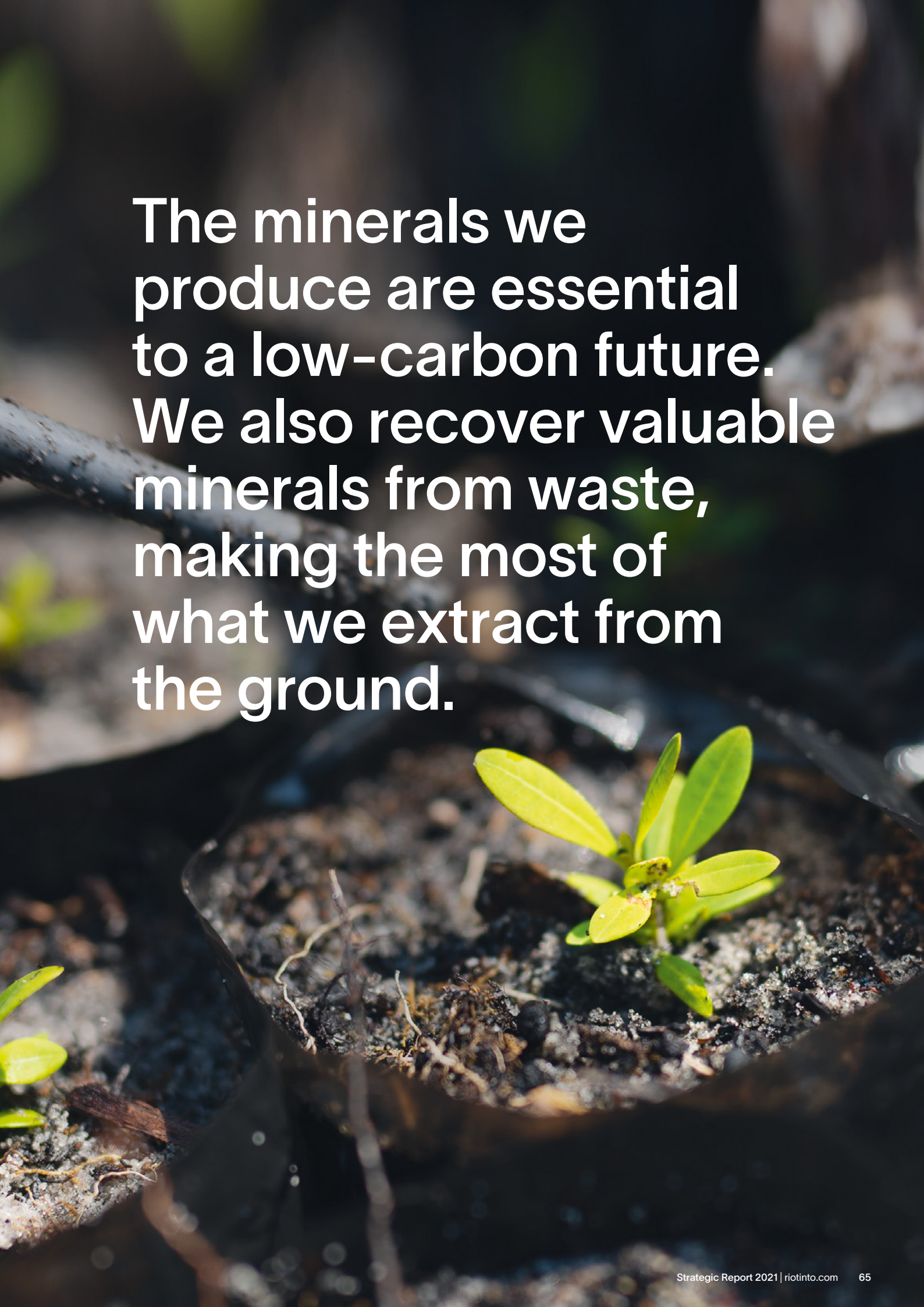
At our Boron operations in California, US, we have successfully produced battery-grade lithium from waste rock at our lithium demonstration plant as part of continued research, development, testing and experimentation of our proprietary technology in this space. The demonstration plant has a design capacity of ten tonnes per year. We are progressing with a feasibility study to evaluate options to expand to a 5,000 tonne per annum capacity.

Our people

Caring for our people is a top priority. Across Minerals operations and offices, initiatives have been put in place to ensure that our employees feel safe, heard, included and motivated.

One example is the Women in Mining Forum at our RBM operations in South Africa, sponsored by the site leadership team. Discussion forums between senior management and female employees at the site were held to foster dialogue and identify areas for improvement to break down gender bias and inequality. The forum also spearheaded community initiatives to support young girls attending high school, with care packages and career guidance.

As a result of these joint efforts, this year's graduate cohort is 70% female. The Imbokodo programme – implemented in 2005 – is a second initiative led by RBM to improve gender diversity in the workplace by providing training and career opportunities to women in our surrounding communities.



The minerals we
produce are essential
to a low-carbon future.
We also recover valuable
minerals from waste,
making the most of
what we extract from
the ground.

Commercial

Our Commercial group includes our global sales and marketing, procurement, and marine and logistics operations. We are the primary interface with markets, customers and suppliers – local, regional and global – through a network of 37,000 suppliers and almost 2,000 customers.

Our Commercial group is focused on building industry-leading customer and supplier partnerships to deliver innovation, ESG leadership, and create future value for the company.

In 2021, we refocused the Commercial group to prioritise the delivery of marketing and procurement excellence, provide sustainability leadership, drive optimisation across the Group, and establish integrated trading activities.

This year also saw an increased focus on the Asia region for the Commercial group as our Chief Commercial Officer also became the Group Executive responsible for China, Japan and South Korea.

The expansion of our marketing activity is helping position us to meet demand for Rio Tinto products driven by customer expectations and consumer behaviour, government stimulus initiatives in response to COVID-19 impacts, and the longer-term opportunities generated by climate change policies.

We are already seeing enduring market changes – whether it be mechanisms such as premium pricing for green products or demand advantage for low-carbon products.

There is a growing number of customers who require products to be responsibly produced, and who seek access to favourable green financing or opportunities that mandate green credentials.

Safety and wellbeing

In 2021, we continued to focus on the safety and health of our employees, contractors and stakeholders, recording zero fatalities and a 0.07 all-injury frequency rate (AIFR) for the year.

COVID-19 continues to be a global risk, managed across our workforce and supply chains with appropriate physical mitigations in place; regular facilitated discussions on mental health, resilience and wellbeing; and the collaborative sourcing and delivery of critical health equipment to colleagues and communities in medically underserved regions.

As our business continues to navigate COVID-19 impacts, we have maintained our strong focus on critical risk management and prevention programmes across areas of greatest exposure. For example, we continue to undertake risk analysis for each of our dangerous goods supply chains, and develop appropriate critical control plans.

In 2021, the Commercial group successfully managed a maritime fleet of more than 230 contracted and owned vessels. Our Marine team focuses on managing fatal risks by ensuring Critical Control Verifications are performed for all tasks. Over 300,000 operator verifications were performed and recorded during 2021, the highest number within the company during the past 12 months. This has helped our Marine team deliver an outstanding safety performance on our fleet of 17 owned vessels with a zero AIFR for 2021 and 12 months rolling, with the last recordable injury in July 2020. We are working hard with our partners to achieve the same results at our non-managed marine operations where we tragically witnessed three fatalities in 2021 and one in early 2022 on chartered vessels. We started collecting data on these fatalities in 2019, with three fatalities on non-managed vessels in 2019 and 2020.

To manage risks to seafarers from COVID-19 restrictions on crew changeovers, we continued to work with the industry, our shipowner partners, and regulators to support crew changes and protect crew welfare. This commitment was confirmed when we became a founding signatory to the Neptune Declaration on Seafarer Wellbeing and Crew Change.

Customer focus

We continue to lead the industry in the availability of our products, use of secure technology and application of streamlined financial platforms. For example, the increasing use of bonded warehousing and portside sales for our iron ore and aluminium products in China is supporting customer diversity with more than 20 million tonnes of portside iron ore sales achieved.

Our pioneering first paperless iron ore transaction in Chinese renminbi between Rio Tinto and Baosteel last year was recognised for industry excellence at the 2021 Asset Awards, and as one of the best deals from the market by Global Trade Review.

In 2021, we continued to simplify the customer experience by incorporating secure digital platforms, such as WeChat into our Boron marketing and Ouyeel and EFFITRADE into our iron ore sales.

During the year, we celebrated major destination milestones with the delivery of our three billionth tonne of iron ore to China and two billionth tonne of iron ore to Japan.

Supplier focus

We had more than 2,100 contracts under management in 2021, creating commercial advantage for us through key partnerships, lower costs, release of working capital and better productivity.

We worked to embed greenhouse gas emissions into our sourcing criteria, and we are expanding that to include other ESG factors.

During the year, our Procurement team managed \$17.9 billion in contestable spend globally, while working to realise our local spend commitments and secure and diversify our supply chains through a continuing period of significant disruption due to COVID-19.

Our Procurement team's focus on local spend resulted in A\$400 million spent with Indigenous suppliers in Australia in 2021, an increase of almost 40% on the previous year.

To further support our supplier partners, we introduced new shorter payment terms to pay Indigenous, small and regional suppliers faster.

Our China Sourcing strategy worked to provide competitive, quality options, and our spend with Chinese suppliers increased 44% compared to 2020.

Marine and logistics

We have already delivered a reduction in shipping emissions on our owned and time-chartered fleet with the use of more efficient vessels, weather routing and schedule optimisation, which will help us exceed the International Maritime Organization's 2030 targets of a 40% reduction by 2025.

From 2023, we will also begin to include the first dual-fuelled liquified natural gas (LNG)-powered ships in our fleet and continue to support the development of technologies and industry partnerships to accelerate the delivery of our climate commitments on shipping.

This includes the potential use of alternative fuels, supporting the viability of zero-emissions fuels, such as ammonia, through our memorandum of understanding (MoU) with ITOCHU Corporation, and our alignment with the Global Maritime Forum's Call to Action for Shipping Decarbonisation.

Circular economy, sustainable value chain initiatives and new markets

In 2021, we created and progressed innovative partnerships with key customers, suppliers, industry groups, technology providers and others on climate change, value chain decarbonisation and market growth.

Our commitment to sustainability was underscored by the launch of START – a new standard in transparency and traceability for the aluminium industry – where customer and consumer demand for a sustainable product is supported through reporting on key ESG criteria regarding our production process via secure blockchain technology.

In Iceland, our ISAL smelter was certified by the Aluminium Stewardship Initiative (ASI) for meeting the highest internationally recognised standards for responsible aluminium production. We now offer ASI Aluminium from eight smelters.

The transition to a lower-carbon world also offers us opportunities to grow our business. For example, to meet the growing demand for boron and zinc in fertilisation programmes, U.S. Borax launched two new products – Anhybor™ and Zincubor™ – to help farmers and fertiliser manufacturers unlock crop potential.

We partnered with Comptech to bring a new generation of aluminium alloys to the market for use in advanced technologies such as electric vehicles and 5G antennas.

We signed an MoU with InoBat to establish a "cradle-to-cradle" battery manufacturing and recycling value chain, and we marked the first sale of aluminium-scandium alloys to Amaero for use in 3D printing of industrial products.

We are also progressing innovative ways to reduce waste from our operations and strengthen our position in the supply of critical minerals by converting it into valuable products and services. Some new potential revenue streams include the extraction of tellurium at Kennecott in Utah, pathways to extract lithium from tailings at Boron in California, and the extraction of high-purity scandium from titanium dioxide production in Sorel-Tracy, Quebec and monazite at QMM in Madagascar.

Our commitment to a sustainable circular economy also included a first-of-its-kind, multi-product collaboration with Schneider Electric.

We announced the development of zero-emissions technologies and applications for mine-haulage systems with key supplier partners Komatsu and Caterpillar. By 2025, we will be piloting both zero-emissions haul trucks and locomotives with the goal to stop buying new diesel haul trucks and locomotives before 2030.

Partnerships aimed at delivering low-carbon and sustainable value chains have also continued with China Baowu, Tsinghua University and Nippon Steel Corporation, and new ones were created with Sumitomo Corporation, POSCO, the Australian Renewable Energy Agency, BlueScope and others.

More information on our low-carbon initiatives can be found in the Innovation pages 70–71.

Market insight and outlook

2021 presented a number of challenges along the path of economic revival, but perhaps most surprising was the breadth of the recovery itself.

Following China's remarkable, commodity-intensive recovery from the COVID-19 pandemic in 2020, other major economies also largely navigated out of the restrictions that impacted economic activity in 2021.

The vaccine rollout, while geographically uneven, defied most expectations and, coupled with ongoing accommodative monetary policy, allowed business across much of the world to begin the process of rejuvenation.

Unfortunately, the force of the global recovery caused numerous supply and demand imbalances that tested the world's production, commerce and trade.

Although we remain cautious of ongoing supply chain and COVID-19 challenges, we are encouraged by growth prospects in the coming year.

Iron ore

Iron ore demand and prices rose to record highs during 2021 as China's imports remained well above one billion tonnes while consumption in the rest of the world largely recovered to pre-COVID levels.

Global scrap generation and consumption also regained their pre-pandemic volumes, but significant incremental high-cost iron ore supply was required to balance the market.

The monthly average Platts Index for 62% iron fines converted to a free on board (FOB) basis rose by 45% (from \$101/dmt in 2020 to \$147/dmt in 2021 in nominal terms) year on year in order to incentivise the seaborne supply response.

With the exception of products sold at ports in China, all of our Pilbara products are priced with reference to the 62% index.

The steel intensity of the global economic recovery also lifted steel prices and steelmaking profitability across regions to record levels, and global crude steel production grew by almost 100 million tonnes year on year – one of its largest absolute annual increments in history – to an unprecedented total of almost two billion tonnes.

Steel output in Europe and North America rebounded by 16% and 19% year on year, respectively, and exceeded pre-pandemic levels in India, ASEAN and the Middle East.

On the seaborne iron ore supply side, the major producers maintained their 2020 aggregate shipments, but volumes remained below those delivered in the 2018 calendar year (pre-Brumadinho tragedy) for the third consecutive year.

The demand and price premiums for iron ore concentrate and pellets were supported by the recovery in ex-China steel production as steelmakers in developed regions responded to record margins by seeking to ramp up capacity and boost productivity using high-quality raw materials.

Aluminium

Aluminium prices rallied in 2021 to multi-year highs, on firm recovery in global demand, and extensive power-related supply disruptions in China. This led to a global market deficit. Coupled with logistical disruptions, raw materials and energy cost inflation, physical markets remained tight and supportive of higher prices.

Aluminium semi-fabricated demand rose by approximately 7% in 2021, following a decline of approximately 4% in 2020. A robust recovery in global demand across end-use sectors, including packaging, transport, building and construction, led the recovery. This was despite the impact of the semiconductor shortage on automotive production.

Demand recovery was notable in Europe and the US, leading to strong value-added products demand for extrusions billet and rolled sheet.

We expect overall global demand to improve in 2022, but geopolitical risks remain, as well as lower growth in China.

The global alumina market remains in overcapacity, which led to subdued prices earlier in 2021. However, severe disruptions to refineries in the Atlantic and China led to a spike in prices later in the year, but prices retreated by the fourth quarter on ample supply in China.

China continues to drive demand in the global seaborne bauxite market as a result of stricter environmental measures and the depletion of domestic bauxite.

Copper

Copper prices peaked in May at all-time highs (486c/lb LME copper cash, official daily price) driven by renewed speculative interest, declining LME stocks, a weaker dollar and lower production that suggested COVID-related supply problems would persist.

Prices eased over the remainder of 2021, barring a brief spike above 480c/lb in October due to speculation by financial investors and low exchange inventories on the major commodities exchanges of LME, COMEX and SHFE.

Despite headwinds of renewed lockdowns and logistical issues, softening demand and subsequent deterioration in global macroeconomic sentiment, full-year demand surpassed its pre-pandemic highs.

Supply struggled to keep up with rising demand as the lingering effects of COVID-19, workforce constraints and adverse weather conditions limited operating rates.

Supply growth is expected to pick up in 2022 as projects approved in 2017-2018 enter the market.

Copper inventories are at low levels. Throughout 2021, total visible inventory continued to decline, and Chinese inventories reached the lowest level on record. Stocks in LME warehouses rose with inflows to European warehouses in the first half of the year.

Minerals

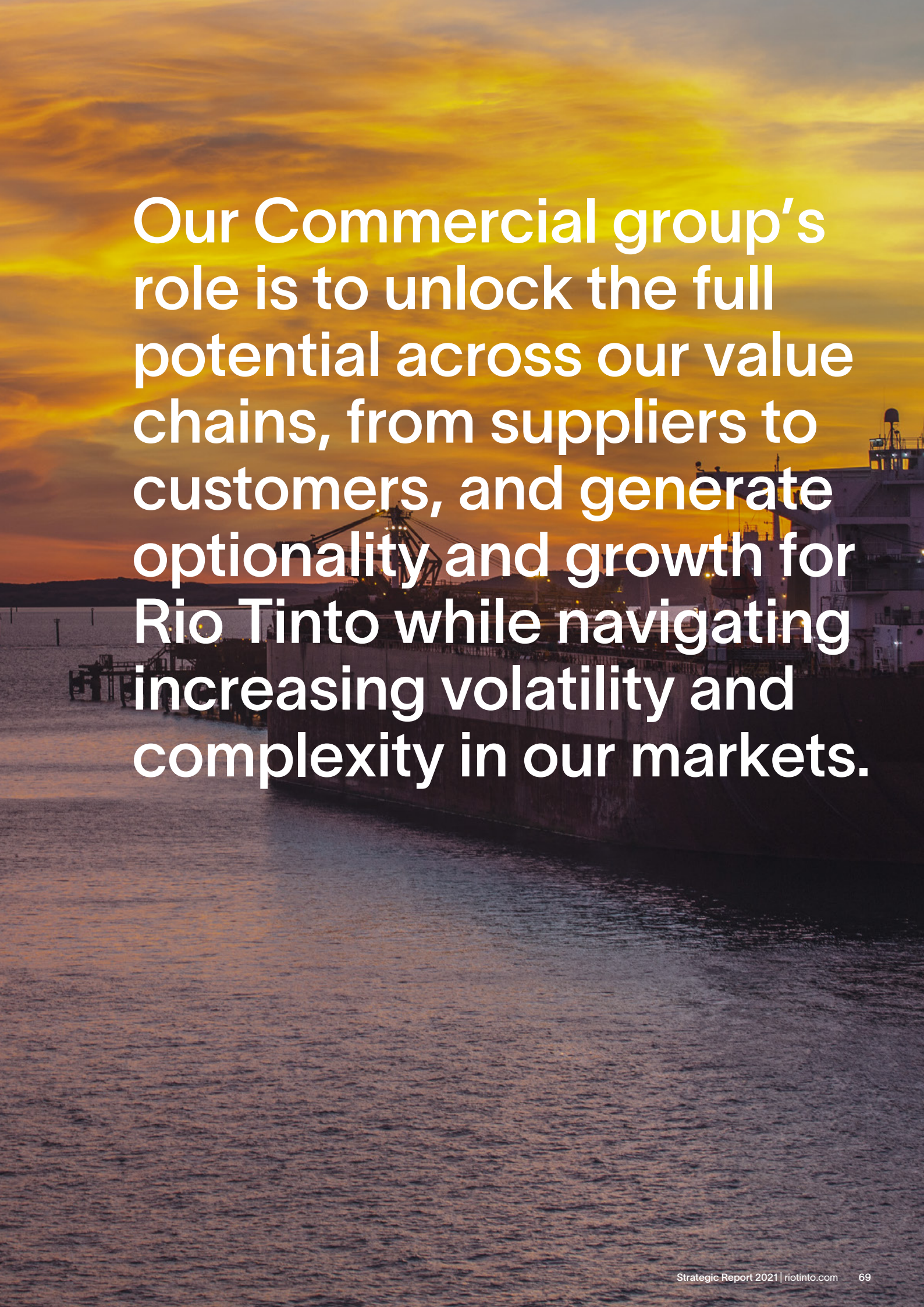
Underlying demand for titanium dioxide pigment has been strong throughout 2021, underpinned by robust construction. Leading indicators, such as housing starts in the US, suggest continued growth in 2022.

Structural factors relating to orebody depletion remain favourable for high-grade TiO₂ feedstock and zircon markets.

Lithium prices have risen sharply through 2021 amid accelerated demand and growth projections for electric vehicles. Increased model variety and the adoption of targets to transition to electric vehicles by major economies underpin this growth.

A strong demand uptick for borates in 2021 was driven by economic growth, with specific applications to construction and elevated crop prices. Supply bottlenecks further contributed to market tightness. Underlying fundamentals remain intact for 2022.

In diamonds, pandemic-related build-up of demand resulted in robust rough sales. Inventory levels dropped to an all-time low, resulting in a recovery in prices.

A large industrial ship, possibly a bulk carrier, is docked at a port. The ship is dark, with some lights visible on its upper decks. The background features a dramatic sunset sky with orange and yellow clouds. The water in the foreground is dark and reflects the light from the sky. The overall scene conveys a sense of industrial activity and global trade.

Our Commercial group's role is to unlock the full potential across our value chains, from suppliers to customers, and generate optionality and growth for Rio Tinto while navigating increasing volatility and complexity in our markets.

Innovation

Innovation has always been a significant differentiator for Rio Tinto, and it plays a critical role in enabling us to lead change for our future success. Empowering our people to innovate is especially important as we tackle climate change and support our customers on their own journeys to decarbonisation.

In 2021, we cemented our focus on research and development (R&D) and technology with the appointment of our Chief Scientist and the development of detailed R&D roadmaps to support the delivery of our business priorities. These include technology and inventions that deliver improved health and safety outcomes, productivity benefits and contribute to our climate goals. This year, we progressed both small initiatives and game-changing innovations across each area.

Improving health and safety through technology

Health and safety are at the centre of everything we do, and technology solutions remained key in keeping our operations running safely during the year. Some health and safety initiatives included:

- Investment in personal monitoring technology to help manage the risk of fatigue and heat stress in our workforce, particularly important where our people are exposed to extreme temperatures and humidity. The technology was tested at our Resolution Copper project in Arizona this year, and the trial identified key learnings and positive outcomes. Further options will be reviewed in future phases.
- At Oyu Tolgoi, a pilot for a Vehicle Interaction Management Situational Awareness System. This new system will improve and support underground mine safety by enhancing environmental visibility and awareness for underground mobile equipment operators. The pilot included 26 vehicles and went live as a fully operational safety system in January 2022.
- Automation of high-risk tasks to reduce our people's exposure to live-energy sources and confined spaces – two critical fatality risks in our business. For example, our Aluminium business has used robots to complete non-destructive testing as a proof of concept, and drones to inspect confined spaces.

Working smarter

A strategic priority in 2021 has been to continue our investment in next-generation technologies to deliver greater efficiency and lower production costs. Some initiatives include:

- Deployment of a decision support and alerting software application across our Pilbara mine operations. This technology puts rich, real-time information into the hands of our frontline mine operations workforce, so they can make more informed and productive operational decisions.
- Deployment of the world's first fully autonomous water trucks at Gudai-Darri in the Pilbara, in collaboration with Caterpillar. These joined our autonomous heavy mobile equipment fleet, including haul trucks and autonomous drills.
- Application of computer vision, a type of artificial intelligence, on our Kemano T2 hydropower project in British Columbia, Canada.

This intelligence delivered productivity improvements in our tunnel boring machine as it journeyed through more than seven kilometres of mountainside to ensure the long-term reliability of the power supply for our BC Works smelter in Kitimat.

- Construction of a tellurium recovery plant at our Kennecott operations. This is part of our commitment to minimise waste streams by optimising extraction from the material we mine and process. An increasingly valuable by-product of copper smelting, tellurium is a critical mineral and an essential component of cadmium telluride, a semiconductor used to manufacture thin film photovoltaic solar panels. The \$2.9 million investment has moved tellurium production forward with a commissioning phase that began in 2021. The plant is set to produce approximately ten tonnes of tellurium annually, developing a new US supply stream for the renewable energy industry.
- Development of a world-first Jadarite extraction process for our project in Jadar, Serbia. As Jadarite is a new mineral, there was previously no known process to extract it. At our Bundoora Technical Development Centre in Melbourne, Australia we created a pilot plant to develop and test extraction processes and validated a viable process.
- We began the design and rollout of the Rio Tinto Safe Production System (RTSPS), which simplifies what we do, frees our people up to innovate, and brings consistency of performance to our operations. Through RTSPS, we make sure our people can contribute to their full potential by upskilling them in problem solving. We are also drawing on data more efficiently to understand asset health, maintenance scheduling and bottleneck solutions, to optimise the end-to-end value chain. We have selected a number of pilot sites across our product groups to progressively test and refine the system as we look to deploy it globally over the next five years.

Accelerating the net zero transition

Tackling our operational emissions

We all have a role to play in addressing the climate challenge, and we know we cannot realise a decarbonised world without significant progress in technology solutions. Partnering with suppliers, industry and other organisations to reduce emissions, as well as growing and developing new markets, remain key components in our decarbonisation journey. Some of our activities this year include:

Decarbonising power:

- Long duration energy storage (between eight to 150 hours) will be required as we decarbonise our businesses through the adoption of renewable power from wind and solar sources as they become the dominant source of energy. In 2021, we became an Anchor member of the newly created Long Duration Energy Storage Council, which was launched at COP26. Through the Council, we aim to partner



Nurturing an innovative culture

At Rio Tinto, innovation is core to what we do. We are driving change internally, encouraging our people to show care, courage and curiosity through our Pioneering Pitch programme. It is an inclusive, global programme designed to capture our employees' creative ideas and accelerate innovative solutions by providing seed funding to develop those ideas further.

In 2021, we held our sixth Pioneering Pitch session and funded eight projects for further development. In total, we have funded 47 projects and invested over \$8 million in our employees' ideas and projects.

Learn more about Pioneering Pitch at riotinto.com/stories.

with technology providers, industry and services customers, equipment manufacturers, capital providers and low-energy system integrators and developers to discover how these technologies and their materials' requirements can support us and society to decarbonise our energy systems.

Decarbonising process heat:

- At our Iron Ore Company of Canada (IOC) operations, we continued to work on the development of low-emissions process heat technology, including plasma torches.
- We formed two partnerships to research using hydrogen to reduce emissions in alumina refining: a study with the Australian Renewable Energy Agency to assess hydrogen use in industry and support a coordinated approach to developing a local supply chain; and a study with Sumitomo Corporation on building a hydrogen pilot plant at our Yarwun alumina refinery in Gladstone, Queensland, Australia.

Decarbonising mobile diesel (vehicles and rail):

- We launched the Charge On Innovation Challenge as Founding Patrons, alongside Vale and BHP and facilitated by Austmine. This global initiative challenges technology innovators to develop concepts for large-scale haul truck electrification systems to help the mining sector to reduce its consumption of diesel fuel and significantly cut emissions from surface mine operations.
- We are also fast-tracking the development of zero-emission mining haulage solutions, including autonomous haul trucks, through partnerships with key suppliers Komatsu and Caterpillar.

Decarbonising anodes and reductants:

- ELYSIS marked a significant milestone, successfully producing aluminium without any direct greenhouse emissions at its Industrial Research and Development Centre in Saguenay, Quebec, Canada. ELYSIS is our joint venture with Alcoa, supported by Apple and the Governments of Canada and Quebec.

Carbon-neutral solutions:

- We began collaborating with Carbfix, an academic-industrial partnership that has developed a novel approach to capturing and storing CO₂. Carbfix will use our land surrounding the ISAL smelter in Iceland for onshore CO₂ injection in the world's first carbon mineral storage hub, the Coda Terminal. Liquified CO₂ will be captured from European industrial plants' emissions and transported to Iceland by specifically designed ships operating on sustainable fuel.

Partnering to address emissions across our value chains

We operate in energy- and carbon-intensive value chains – particularly steel and aluminium production – and recognise that we have an important role to play in addressing the resulting emissions.

Our approach to Scope 3 emissions is to work in partnership with our customers to support the decarbonisation of their processes. In the steel value chain, our goal is to invest in technologies that could deliver reductions in steelmaking carbon intensity of at least 30% from 2030.

We are also working in partnerships to develop breakthrough technologies with potential to deliver carbon-neutral steelmaking pathways by 2050. These are subject to deployment by our customers.

Examples of some initiatives include:

- Supporting our customers' blast furnace optimisation to enable sizeable potential carbon emission reductions.
- Developing three decarbonisation pathways for our Pilbara iron ore:
 - Iron ore beneficiation and agglomeration with customers and research institutions.
 - Assessing a mid-grade direct reduced iron (DRI) produced with green hydrogen and processed in an electric melter.
 - A new low-carbon steel process that aims to replace coking coal with sustainable plant biomass when converting iron ore fines into steel. The patent-pending, laboratory-proven process has been developed over the past decade and is now being further tested in a small-scale pilot plant as the initial step in our scale-up process.
- Pursuing a project to produce hot briquetted iron (HBI) with high-grade iron ore and hydro-based green hydrogen in Canada.
- In China, we are working with China Baowu, the world's largest steel group, to support low-carbon steelmaking projects and research. The first \$5 million committed in 2021 will initially prioritise the development of lower-carbon ore preparation processes. We committed a further A\$4.5 million over five years to our partnership with China's Tsinghua University to support research projects at the Tsinghua-Rio Tinto Joint Research Centre for Resources, Energy and Sustainable Development.
- Through our memorandum of understanding (MoU) with Japan's Nippon Steel Corporation, we identified areas of mutual interest and are progressing projects in decarbonisation of iron and steelmaking, and shipping.

Further details on these initiatives can be found in our 2021 Climate Change Report. Our initiatives relating to our products can be found in our Commercial pages 66–68 in this report.

Sustainability

2021 was a year of learning from the past and looking to the future. We spent the year listening, learning and reflecting on who we are as a business, to better understand stakeholder expectations of us and how we can make a more meaningful contribution to addressing some of the world's most urgent challenges.

We have had some difficult conversations, both within our business and with stakeholders, about our actions, performance and culture. This feedback has helped shape a new direction for our leadership team and our business as a whole.

We are looking to the future and our role in tackling climate change, as well as the opportunities doing so might bring. The world is not doing enough to reduce carbon emissions and curtail the impact of climate change. Our business strategy, released in October 2021, has sustainability at its core. It sets a new direction for Rio Tinto, and an accelerated timeframe for us to deliver significant reductions in emissions from our operations and our value chain.

In 2021, we also set a goal to achieve impeccable environmental, social and governance (ESG) credentials, in line with societal expectations. We know that responsibly managing our business impacts is fundamental if we want to continue to grow and deliver on our strategy.

We can only achieve this in a culture of care, courage and curiosity – our new values.

We faced some confronting truths about our culture this year as we worked to better understand people's experiences of bullying, sexual harassment, racism and other forms of discrimination in the workplace through a comprehensive, independent review of our culture. Following the feedback from more than 10,000 of our people, we have set out a plan of action to improve how we prevent and respond to harmful behaviours in the workplace. This will, over time, contribute to a more safe, respectful and inclusive work environment.

We know we have lots of work to do, but we are optimistic about our future.

Our people demonstrated enormous resilience and commitment as we navigated the second year of the global pandemic, which for many presented even greater challenges than 2020. We continued to work closely with our employees and contractors, communities and governments to protect people's health and safety and facilitate access to vaccinations.

In 2021, we boosted our in-house expertise and capability across several disciplines, including communities, cultural heritage, social performance and environment, to support our operations. We also reviewed many of our organisational structures, standards and processes to ensure we have the right systems in place to effectively manage our impacts.



Our approach to sustainability

Sustainability is core to our business. Our strategy, objectives and values guide our approach to sustainability.

Decarbonisation is an urgent priority for us and the world. Our strategy sets a new direction for us to decarbonise our assets and our products, and grow by investing in those materials that are essential to a low-carbon future.

To deliver the strategy, we are focused on four key objectives, including our drive for impeccable ESG credentials and maintaining our social licence to operate.

We must ensure all our stakeholders benefit from the success of Rio Tinto. To do this, our business priorities and performance must align with society's expectations, which are constantly evolving. Robust and trusting relationships with our stakeholders are essential to secure a strong future for our business while ensuring we make meaningful contributions to our host communities and help address the world's most urgent challenges.

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

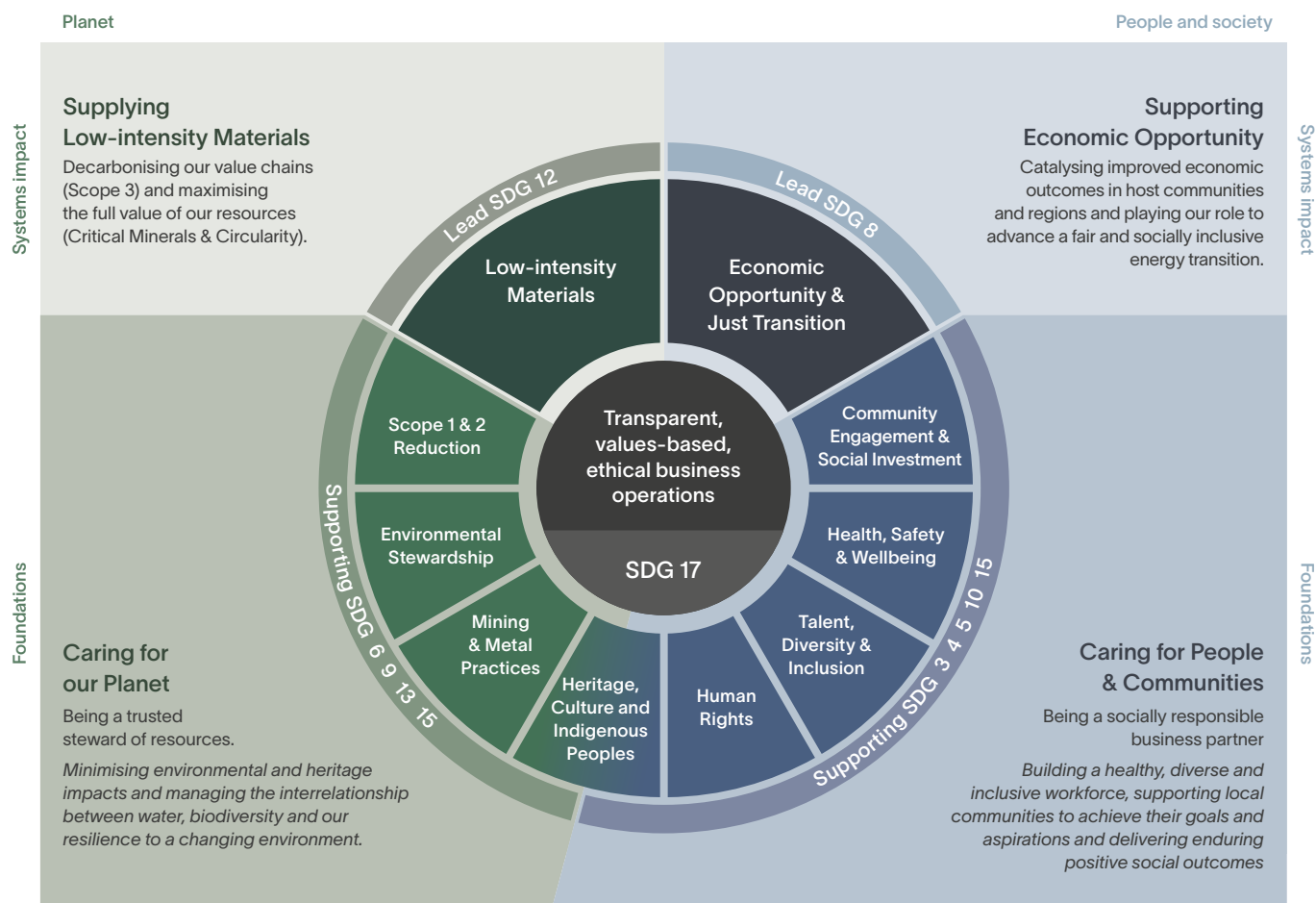
Our sustainability framework

We are entrusted with accessing the world's essential materials and making them available for society's use.

These resources are finite, and we recognise our responsibility to extract the full value from the minerals and materials we produce while avoiding harm and mitigating impacts to people and the planet. Excellence in managing the fundamentals of our business gives us the opportunity to make more substantial and meaningful contributions to society. We are working in partnership with others to support fairer, more sustainable and inclusive communities where we operate.

It has been a transitional year at Rio Tinto and in 2022, we will further define ambitions for each of our objectives, in line with our goal to achieve impeccable ESG credentials.

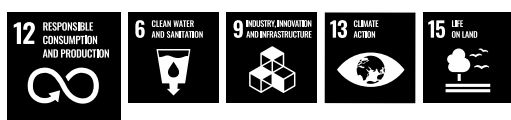
Sustainability framework



Our approach to the United Nations Sustainable Development Goals

In 2021, we refreshed the way we think about sustainability and more clearly articulated how we are supporting our priority United Nations Sustainable Development Goals (UN SDGs).

Our sustainability framework reflects our focus on the two lead goals – SDG 12 (responsible consumption and production) and SDG 8 (decent work and economic growth) – that we feel are most relevant to operating our business responsibly, and where we can have the most significant impact. Our business operations also contribute to eight supporting SDGs (3, 4, 5, 6, 9, 10, 13, 15) while SDG 17 (partnerships for goals) reflects our approach to achieving our sustainability objectives.



SDG 12 relates to how we mine, process and produce materials and contribute to ethical global supply chains, including trusted lifecycle assessments. This SDG builds on our existing health, safety, environment and community performance standards and our membership of responsible production and product stewardship programmes. It extends our thinking into how we can, in partnership, accelerate efforts to decarbonise our own operations, and those of our customers, and extract the most value from the materials we produce.

To further this goal in 2021, we:

- Announced new climate targets, including new commitments to reduce Scope 1 and 2 emissions by 50% by 2030. We also intend to invest an estimated \$7.5 billion in climate abatement projects until 2030, including the installation of one gigawatt of solar and wind power in the Pilbara.
- Recovered critical mineral by-products from waste across several sites, including tellurium, a critical mineral used in solar panels, from Kennecott, lithium from our Borates business in the US, scandium oxide at Rio Tinto Fer et Titane and monazite at QIT Madagascar Minerals (QMM).
- Launched START, the first sustainability label for aluminium using blockchain technology, setting a new standard in transparency and traceability for the industry.
- Achieved industry and commodity accreditations and certifications, including the Aluminium Stewardship Initiative, the Copper Mark, the Responsible Jewellery Council, and the Mining Association of Canada's *Towards Sustainable Mining* standard to independently verify our ESG performance.
- Signed two memoranda of understanding (MoU) with POSCO and BlueScope to investigate options to decarbonise the steel value chain.
- Developed a business model and signed an MoU with our partner RESOLVE to form Regeneration Enterprises, a for-purpose and for-profit company that will combine the re-mining and processing of waste with site closure and rehabilitation, with the ambition to create full restoration outcomes.



SDG 8 speaks directly to our values and commitments to creating a safe and inclusive working environment, as well as promoting education and training partnerships that support social and economic development, and help develop skills for the future. We are committed to ensuring Traditional Owners and Indigenous peoples have a stronger voice in the decisions that affect their lands. Alignment with this goal also requires us to think carefully about how the decisions we make today will impact communities in the future.

To further this goal in 2021, we:

- Expanded our target of a 2% increase in the number of women in leadership roles, to a 2% increase in women in all roles across our business. We did not meet the target. On a broader level, we increased the representation of women in our workforce by 1.5%.
- Committed \$50 million in Indigenous leadership development in Australia over five years. In 2021, the number of Australian Indigenous leaders in our business increased fivefold.
- Continued our commitment to source and hire locally, wherever possible, through asset-based employment and local procurement targets. For example, in Mongolia more than 96.5% of Oyu Tolgoi's workforce is Mongolian, of which 22% are from the neighbouring communities in our host Umnugovi province. In 2021, 71% of our total operational procurement was spent in-country.
- Developed partnerships and contributed \$72 million to community programmes covering the health, education, environmental protection, housing, agricultural and business development sectors. Some initiatives included:
 - A partnership with the Mongolian University of Science and Technology to build the capability of geotechnical and mining professionals in Mongolia.
 - A partnership with Université du Québec à Chicoutimi (UQAC) for an institutional research structure dedicated to the indigenisation of higher education focused on training the next generation of Indigenous scientists.



Reporting what matters

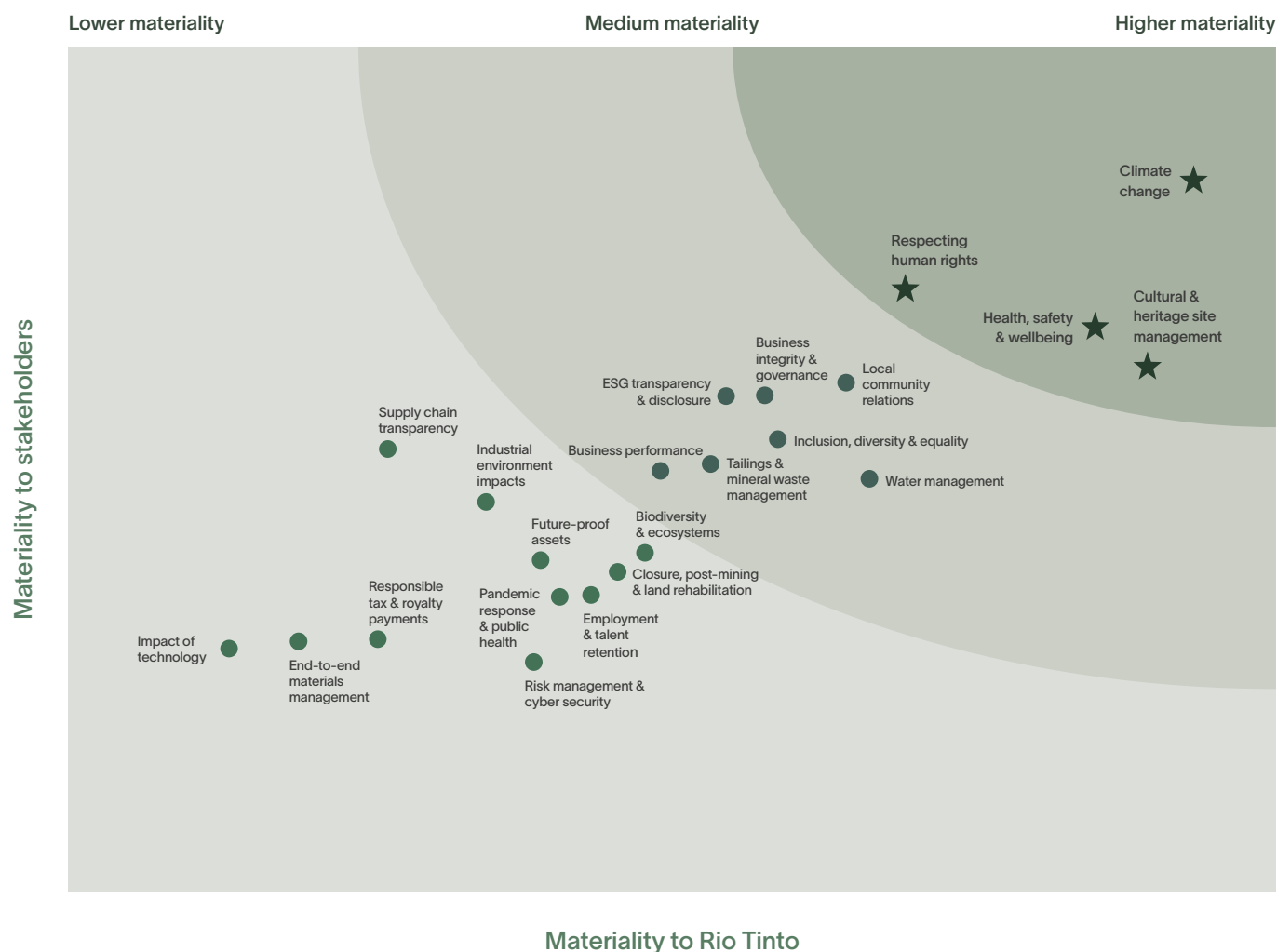
We complete a sustainability materiality assessment every year to ensure we understand what issues matter to our stakeholders and our business. We expanded our approach in 2021¹ to gather information from external stakeholders and a cross-section of employees via interviews, surveys, and reviews of publicly available materials. We asked participants what was important to them now, and what they think will be important in five to ten years.

What is important now

We found that our top four priority issues were clearly aligned with those of our external stakeholders. Climate change clearly stood out as the most important issue for all of us.

Concerns about climate change extended beyond emissions reduction to the need to consider our impact on nature more holistically, for example, on water and biodiversity, and how resilient the natural environment is to climate-induced change.

Respecting human rights, cultural and heritage site management, and health, safety and wellbeing, were the next most significant topics for both internal and external stakeholders. The safety and wellbeing of our people remains our highest priority and we have, over a number of years, made significant progress in ensuring our people return home safely. Business integrity and governance, and local community relations, remain important topics as we continue to rebuild trust with our stakeholders.



1. Note: Based on 60 internal and 68 external stakeholders (note: some interviewees chose not to answer one or more questions). The score represents an average of all respondents in each stakeholder group. Source: Primary interviews and surveys.

What will be important in the future

Our internal and external stakeholders feel that climate change will only continue to increase in importance over the next decade, as will geopolitical uncertainty, the impact of technology, and end-to-end materials management. Other emerging topics include water management due to the reliance of local communities and mining operations on an increasingly scarce resource, and biodiversity due to the increasing impacts of climate change. Human rights will also continue to be of high importance – it is a critical foundation of our social licence to operate.

It is also clear that supply chain accountability and ESG transparency are becoming increasingly important to customers, consumers, investors and financial markets, including our insurance providers. As we produce more critical minerals for batteries, electric vehicles and renewable energy technology, there will be a higher burden of proof in value chain provenance.

Reporting our performance

Our sustainability materiality assessment records the threshold at which an issue or topic becomes important enough to be reported on externally. Not all sustainability-related topics have the same risk profile. A sustainability materiality assessment differs from financial materiality, which may use financial metrics or other quantitative analyses to determine what would be considered a significant or material impact.

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

The majority of our sustainability reporting is incorporated into our Annual Report and supplemented by our full Sustainability Fact Book containing current and historical data on topics, including health, safety, environment, climate, communities, human rights, responsible sourcing and transparency. Additional information is available at riotinto.com.

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 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. See the Governance section (pages 156–158 ^{AB}) for more information about the Sustainability Committee.

This year, KPMG, the Group's auditor, 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. See pages 153–154 ^{AB} in the Governance section for more information about our external auditors and internal assurance.

Non-financial information statement

This section provides information as required by regulation in relation to:

- Environmental matters - pages 72–89
- Our employees - pages 101–103
- Social matters - pages 90–95
- Human rights - page 104
- Corruption and bribery - pages 107–108

Other related information can be found as follows:

- Our business model – page 23
- Principal risks and how they are managed – pages 117–130
- Non-financial key performance indicators – pages 24–28

Notes on data

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

We report against the GRI standards and the requirements of other select reporting frameworks, and we reflect the ten principles of the ICMM and the mandatory requirements in the ICMM position statements within our policies, standards and procedures. Visit riotinto.com/policies for more information.

2021 performance against targets

Targets	Performance
To reach zero fatalities, and to eliminate workplace injuries and catastrophic events.	– Zero fatalities at managed operations. – All-injury frequency rate (AIFR) at 0.40 (target: 0.33). – 1.3 million critical risk management (CRM) verifications.
To have all of our businesses identify at least one critical health hazard material to their business, and demonstrate a year-on-year reduction of exposure to that hazard.	– In 2021, 13 of our assets across Rio Tinto achieved an exposure reduction to known health risks (airborne contaminants and noise); these exposure reduction projects positively impacted over 6,500 employees and contractors.
To reduce the rate of new occupational illnesses each year.	– 28% decrease in the rate of new occupational illnesses since 2020¹
To reduce our absolute Scope 1 and 2 emissions by 15% and our emissions intensity by 30% by 2030 (relative to our 2018 equity baseline).	– The 2021 Scope 1 and 2 emissions were 31.1Mt CO₂e – a reduction of 1.4Mt CO₂e (4.3%) relative to our 2018 baseline.
These targets were updated on 20 October 2021. Our new targets are to reduce our absolute Scope 1 and 2 emissions by 15% by 2025 and by 50% by 2030.	
To disclose for all managed operations by 2023, their permitted surface water allocation volumes, annual allocation usage and the estimated surface water allocation catchment runoff from average annual rainfall.	The water stewardship targets have progressed well with the Group target, with 4 of the 6 asset level targets remaining on track. Kennecott and Ranger site-based targets are at risk, but both are considered recoverable with additional focus. For further details on our water performance, see pages 83–86.
To achieve local water stewardship targets for selected sites by 2023.	
To demonstrate local economic benefits from employment and procurement of goods and services by reporting yearly against a locally defined target.	– 95% (20 out of 21 asset groupings²) have met their 2021 repeat complaints target. – 90% (19 out of 21 asset groupings²) have met their 2021 significant complaints target.
To capture and manage community complaints effectively and reduce repeat and significant complaints each year.	– 81% (17 out of 21 asset groupings²) have met their locally set procurement target.
These targets will be updated for 2022–2026.	– 53% (10 out of 19 asset groupings²) have met their locally set employment target³.
To improve diversity in our business by:	– 25% of our Executive Committee were women, up 2% from 2020. – 27.4% of senior leadership⁴ were women, up 1.3% from 2020. – 21.6% of our workforce were women, up 1.5% from 2020⁵. – 58% of our graduate intake were women, down 2% from 2020. – 36.4% of Board roles were held by women, up 3.1% from 2020. – 35% of our graduate intake was from places where we are developing new businesses⁶, up 9% from 2020.
– Increasing women in the business (including in senior leadership) by 2% each year.	
– Aiming for 50% women in our graduate intake, and 30% from places where we are developing new businesses.	
Improving our employee engagement and satisfaction.	– 2-point decrease in our employee satisfaction score (eSAT⁷) from 2020.

1. Fewer health assessments were completed in 2021 due to COVID-19 restrictions, which may have impacted the frequency of new cases of occupational illnesses.

2. Refer to the Sustainability Fact Book on riotinto.com/sustainabilityreport for details on the asset groupings.

3. COVID-19 restrictions, workforce supply constraints and organisational restructures are the primary drivers which have impacted asset achievement of locally set employment targets. Two asset groupings are not reporting against the employment target in 2021. Further explanatory notes for each asset are provided in the Sustainability Fact Book.

4. We define senior leadership as General Managers, Group Advisers and Chief Advisers as well as employees in leadership roles who report directly to Executive Committee members.

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

7. 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.

Caring for the planet

Producing the materials the world needs means we have an impact on the environment. We work in remote locations and sensitive environments, our activities have the potential to cause harm through pollution, and we have a significant carbon footprint.

We recognise the responsibility we are entrusted with and see ourselves as long-term stewards of natural resources, including land and water, and the ecosystems they support. Our commitment to understanding and mitigating the risks and impacts of our operations extends from the very beginning of an operation's life to beyond closure. More immediately, we are accelerating action to reduce our carbon emissions and investing to help reduce emissions generated by the use of our products. We have an important role to play.



Solar power plant, Weipa, Queensland, Australia.

Climate change

The transition to a net zero carbon emissions world will create additional demand for our commodities. Copper, lithium, aluminium and other minerals are essential to increase renewables capacity and for electric vehicles. Steel is an irreplaceable material in many applications, and iron ore is an essential ingredient for the new technologies required to produce green steel.

We have an important role to play in supporting and enabling the transition to net zero emissions. We will do this by producing materials that are essential to the energy transition, decarbonising our own assets, and partnering to develop the technologies and products that will enable our customers to decarbonise their own processes.

Most of our assets sit in the low end of their commodity carbon intensity curves and 75% of the electricity used at our managed operations is from renewable sources. Our absolute Scope 1 and 2 emissions in 2021 were 31.1Mt CO₂e (2020: 31.5Mt CO₂e), 4.3% below our 2018 equity emissions baseline. The reductions achieved since 2018 are primarily the result of switching to renewable electricity contracts at Kennecott in the US and the Escondida mine in Chile (managed by BHP; Rio Tinto owns 30%), and also relate to unplanned operational disruptions in 2021 at Richards Bay Minerals in South Africa and the Kitimat aluminium smelter in Canada.

Decarbonising our operations

In the lead up to the UN Climate Change Summit in Glasgow, we announced that we will accelerate actions to decarbonise our assets in the short term and aim for a 15% reduction in emissions by 2025 – five years earlier than originally planned. We increased our 2030 target to a 50% reduction in our Scope 1 and 2 emissions and remain committed to reaching net zero by 2050.

To achieve this, we aim to:

- Develop renewable power in the Pilbara. The 34MW solar plant at Gudai-Darri and the 45MW battery system at Tom Price that we approved in 2020 are expected to come online in 2022. We are now targeting the rapid deployment of one gigawatt of wind and solar power. This will replace gas power and meet demand from our fixed plants and infrastructure, as well as support the early electrification and decarbonisation of our mobile fleet.
- Work with state and federal governments, power companies and renewable developers to dramatically increase the availability of renewables in eastern Australia, and aim to develop green repowering solutions for the Boyne Island and Tomago smelters.
- Advance the projects in our Marginal Abatement Cost Curve such as the deployment of zero-emission trucks and the use of hydrogen at our alumina refineries.
- Use a \$75/t CO₂e internal carbon price to incentivise energy-efficiency investments and identify new mitigation projects.
- Scale up the ELYSIS™ technology with the goal to have it available for installation from 2024. Construction of the first commercial-scale prototype cells of the inert anode technology has begun at our Alma smelter in Saguenay–Lac-Saint-Jean, Quebec.

We estimate that we will invest approximately \$7.5 billion in capital between 2022 and 2030 to deliver our decarbonisation strategy (approximately \$1.5 billion over the period 2022 to 2024). There will also be incremental operating expenditure on building new capabilities, energy efficiency initiatives, and research and development of approximately \$200 million per year to 2030.

Alignment with 1.5°C

We conclude that our Scope 1 and 2 targets for 2030 and our commitment to reach net zero emissions by 2050 are aligned with efforts to limit warming to 1.5°C, which is aligned with the stretch goal of the Paris Agreement. While there is no universal standard for assessing the alignment of targets with the Paris Agreement goals, the basis for our conclusion is provided in the 2021 Climate Change Report.

KPMG has provided limited assurance over our Scope 1 and 2 target information presented in the 2021 Climate Change Report, including the process to set the target, the alignment with 1.5°C and the roadmap to achieving the target.

Partnerships across our value chains

We operate in energy- and carbon-intensive value chains – particularly steel and aluminium production – and recognise that we have a role to play in addressing the resulting emissions. We have updated our approach to calculating Scope 3 emissions to use regional factors rather than a global average. Our estimated Scope 3 emissions in 2021 were 553.5Mt CO₂e, and around 95% is from the processing of iron ore, bauxite and other products by our customers. Aside from the revision to the reporting methodology, the change from 2020 is primarily due to changes in production of iron ore and bauxite. 94% of these processing emissions take place at our customer facilities in China, South Korea, Japan and other countries that have pledged to be carbon neutral by around mid-century.

Our approach to addressing Scope 3 emissions is to engage with our customers on climate change, to share information on respective goals and targets, and work with them to develop the technologies to decarbonise steel and aluminium production. We will continue to report on progress each year.

Steel value chain

Steel is a vital material for low-carbon infrastructure and, with limits to recycling, our iron ore products have an important future role to play. The future trajectory of our Scope 3 emissions is dependent on our customers' decarbonisation roadmaps, which in turn will be guided by technology development and government policies, including carbon pricing. The Net-Zero Steel Initiative (NZSI) is an industry platform, part of the Mission Possible Partnership, that brings together stakeholders across the whole steel supply chain to help put the sector on a path to net zero emissions by mid-century. The NZSI considers 20 technology archetypes and the decision-making process to deploy these at individual steel plants based on lowest total cost of ownership. Should the industry follow the NZSI Tech Moratorium scenario, we estimate that Rio Tinto's iron ore-related Scope 3 emissions would fall by 23% by 2035 and 42% by 2040, relative to our 2020 emissions.

About 28% of our iron ore sales are directly to steel producers that have already set public targets for their Scope 1 and 2 emissions (our Scope 3), and have ambitions to reach net zero by around mid-century. In 2022, we commit to engage with all our direct iron ore customers (representing approximately 75% of our iron ore sales and related Scope 3 emissions) to share information on our respective climate change goals and roadmaps, and actively seek areas of mutual collaboration on pathways to net zero, such as those highlighted in our iron and steel decarbonisation goals.

Our approach is to pursue and support a range of decarbonisation options aligned with the technology pathways highlighted by the NZSI analysis, through proactive partnerships with our customers, including China Baowu, Nippon Steel Corporation, POSCO and BlueScope, as well as technology providers, universities and research institutes. This is consolidated under the following focus areas:

- Support our customers' blast furnace optimisation, with potential carbon emission reductions of up to 30%;
- Explore future carbon-neutral pathways for our Pilbara iron ores through: existing and new technologies to beneficiate Pilbara ores; a proprietary low-carbon research project using microwave energy and sustainable biomass as a reductant; and assessing a mid-grade direct reduced iron (DRI) produced with green hydrogen and processed in an electric melter;
- Pursue a project to produce hot briquetted iron (HBI) with high-grade iron ore and hydro-based green hydrogen in Canada;
- Find a pathway to develop Simandou to meet the future demand of high-quality iron ore for low-carbon steelmaking technologies.

Aluminium value chain

As a leading producer of low-carbon aluminium, we are actively involved in the decarbonisation of the value chain from bauxite to alumina and primary metal production, and we are committed to support the industry's transition. About 74% of our Scope 3 emissions related to the downstream processing of bauxite and alumina sold to our customers is from the use of electricity, predominantly in China. The remainder is from the energy used for process heat at the alumina refineries of our bauxite customers and from the use of carbon anodes in aluminium smelting. Our plan is to address these through:

- A commitment to engage with all our bauxite customers to seek areas of mutual collaboration in alumina decarbonisation projects, leveraging existing technical support relationships;
- The continued development of the ELYSIS™ inert anode technology, with the goal to have it available for installation at our smelters from 2024, following the construction of large-scale commercial prototype cells at our Alma smelter in the Saguenay by 2023;
- Leveraging START, a new standard we launched in 2021 for transparency and traceability across the aluminium value chain, to support customer and consumer demand for sustainable products.

Shipping

We have an ambition to reach net zero emissions from the shipping of our products by 2050 and expect to meet the International Maritime Organisation (IMO) decarbonisation goal of 40% reduction in shipping emissions intensity by 2025, five years ahead of the IMO deadline. We expect to introduce net-zero emission vessels into our portfolio by 2030.

Enhancing our resilience to physical climate risk

Our assets, infrastructure, communities and broader value chains are exposed to chronic and acute climate change risks, such as the impacts of extreme weather events. Managing physical climate change risk through risk-based adaptation practices is essential to enhance the resilience of assets and communities, and it is the fourth pillar of our approach to climate change. Following a Group-wide exposure assessment, the next stage has been to conduct asset-level risk assessments to confirm the effectiveness of our controls. This work was paused in 2020 due to the prioritisation of the COVID-19 response and restrictions on travel to our sites. In 2021, the Energy and Climate Change Centre of Excellence and Risk Area of Expertise have been preparing to engage the product groups for detailed physical risk assessments in 2022.



Revolutionising aluminium production

The ELYSIS™ technology will reduce the carbon footprint and operating costs of aluminium smelters while increasing production capacity. In Canada alone, the ELYSIS™ technology has the potential to reduce greenhouse gas emissions by 7 million tonnes.

Learn more about ELYSIS™ at riotinto.com/stories.

Disclosures consistent with the TCFD recommendations

Climate-related disclosures on governance, strategy, risk management, as well as metrics and targets, are integrated into this Annual Report in the following sections: Strategic Context, Key Performance Indicators, Innovation, Risk Management, Principal risks and Uncertainties, Governance, the Sustainability Committee report, the Remuneration Committee report and in the notes to the accounts.

Given space constraints in the Annual Report, other reports supplement the disclosures on climate-related governance, strategy, risk management and metrics and targets that are made in this report. These are available at riotinto.com/reports. Our 2021 Climate Change Report provides further detail on our approach including our Climate Action Plan, the way we evaluate and manage climate-related risks, progress towards our targets and our value chain partnerships. Our 2021 Sustainability Fact Book provides a full list of the 11 main TCFD recommendations alongside references to our disclosure against them. Our 2020 Climate Change Report includes further detail on our approach to scenario analysis, including our consideration of 1.5°C scenarios. These disclosures together meet all of the disclosures required under the TCFD Recommendations and Recommended Disclosures.

Greenhouse gas emissions

Scope 1 and 2 emissions - equity basis

Equity greenhouse gas emissions - million tonnes carbon dioxide equivalent (Mt CO ₂ e)	2021	2020	2019	2018
Total Scope 1 & 2 GHG emissions	31.1	31.5	31.5	34
Scope 1 emissions	22.7	22.8	23.1	24.7
Scope 2 emissions	8.4	8.7	8.3	9.3
2018 GHG emissions target baseline (adjusted for acquisitions & divestments)				32.5
Scope 3 emissions	553.5	570 ¹	–	–
Operational greenhouse gas emissions intensity (t CO ₂ e / t Cu-eq) (equity) ²	6.4	6.2	6.1	6.2

2021 equity greenhouse gas emissions by product group & source (Mt CO ₂ e)	Electricity ³	Anodes & Reductants	Process Heat ³	Mobile Diesel ³	Other	2021 Total emissions (Mt CO ₂ e)
Aluminium	10.4	5.2	4.9	0.3	1.1	21.9
Aluminium (Pacific)	8.1	1.7	0.2	–	0.2	10.2
Aluminium (Atlantic)	0.6	3.5	0.5	–	0.6	5.2
Bauxite & Alumina	1.6	–	4.3	0.3	0.3	6.5
Minerals	1.4	1.2	0.5	0.3	0.1	3.4
Iron Ore	0.8	–	0.1	2.1	–	3.0
Copper	1.3	–	0.2	0.8	–	2.2
Other (includes Shipping and corporate functions)	0.1	–	–	0.5	–	0.6
Total	14.0	6.4	5.6	4.0	1.1	31.1

2021 equity greenhouse gas emissions by location (Mt CO ₂ e)	Scope 1 emissions (Mt CO ₂ e)	Scope 2 emissions (Mt CO ₂ e)	Total emissions (Mt CO ₂ e)
Australia	12.8	6.0	18.8
Canada	6.0	0.0	6.0
South Africa	0.3	1.1	1.4
US	1.0	0.0	1.0
Other: Rest of Africa	0.2	0.0	0.2
Other: Europe	0.4	0.0	0.4
Other: Asia, New Zealand, Central America, South America	2.0	1.3	3.3
Total	22.7	8.4	31.1

Scope 3 emissions - equity basis

Total equity Scope 3 greenhouse gas emissions (Mt CO ₂ e)	2021	2020
Upstream	27.5	23.7
Processing of goods sold		
Iron Ore	364.6	376.4
Bauxite & Alumina	144.5	152
Other goods sold	14.2	14.4
Other Downstream	2.7	3.0
Total – 2021 reporting method	553.5	570

1. 2020 Scope 3 emissions have been re-estimated using the 2021 methodology (using the 2020 methodology our total Scope 3 emissions were reported as 519.4Mt CO₂e). Please see our 2021 Scope 1, 2 and 3 Emissions Calculation Methodology report at riotinto.com/climate-report.

2. Historical information for copper equivalent intensity has been restated in line with the 2021 review of commodity pricing to allow comparability over time.

3. Electricity includes imported power and own generation; process heat includes diesel consumption from stationary sources such as pumps; mobile diesel sources are haul trucks, locomotives and other mining fleet.

Environment

In 2021, we improved our ability to manage environmental impacts consistently across the business. We increased our internal technical expertise and capability by recruiting subject matter experts in a number of disciplines to support practitioners at the asset level. We reviewed our control framework across all Environment disciplines and identified critical controls at a Group level to better manage risks across the portfolio. We also worked on our data collection and monitoring processes to improve data access and analysis to allow better data-driven decision-making and management practices, more transparency and improved environmental outcomes.

Water

Increasingly disrupted weather patterns and more extreme weather events due to climate change, and a growing world population, mean efficiently managing our water impacts is more important than ever. Water is a shared resource critical to sustaining biodiversity, people and their economic prosperity. The way we think about water, and manage the risks, reflects the diversity of our operations and geographic locations.

Water scarcity is an issue for some of our assets operating in desert locations, while others must remove excess water to allow safe mining operations. Some of our assets are powered by water via hydroelectricity and, in all locations, we carefully manage our use and reuse of water, and consider the potential long-term impacts on water sources. This complexity means we are developing a catchment-level approach to water management and manage our impacts, risks and potential solutions within our operations with the understanding that we share water with surrounding communities and nature. We understand this responsibility extends beyond the life of our operations.

We aim to avoid permanent impacts to water resources by carefully managing the quality and quantity of the water we use and return to the environment. We work to balance our operational needs with those of local communities and ecosystems, and factor in the impact of climate change, which is already affecting rainfall and water security at many of our sites. We use baseline water stress as determined by the World Resource Institute to identify operational catchments of most concern. Visit riotinto.com/water for more information.



Protecting a national treasure

Iron Ore's Water Resource Evaluation team is helping us meet the water target for our Pilbara operations.

Learn more about their work and the importance of water in the region at riotinto.com/stories.

To manage our water impacts well, 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 think about water issues in four ways:

1. Water resource
2. Quality and quantity
3. Dewatering
4. Long-term obligations

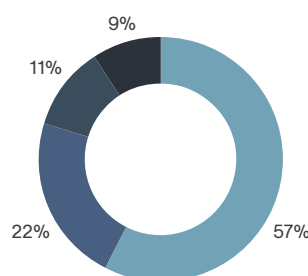
We use this framework to identify, assess and manage water risks. This comprehensive approach extends beyond our mandatory reporting obligations and allows us to have relevant conversations about water risks internally and with stakeholders in the communities where we operate.

Our Group water risk profile (below) shows the level of exposure against each of the four themes, or risks. 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.

Group water risk profile (% of managed operations)¹

Water resource

Is there enough water available for both environment and community needs, and our operational use?

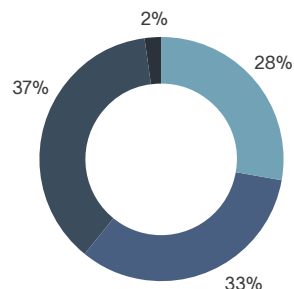


Low Moderate

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. For more information see riotinto.com/water.

Water quality/quantity

Does the way we manage water on site, or discharge excess water, cause environmental impacts or operational constraints?

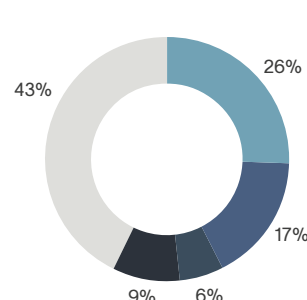


High Very high

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. For more information see riotinto.com/water.

Dewatering

Does the removal of water from the operational areas of our sites impact regional aquifers or our mine plans?

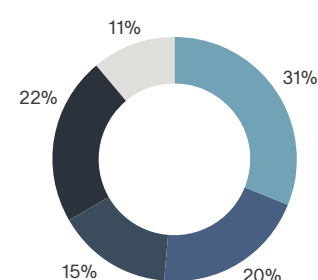


Not applicable

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. More information on our current programme of managed aquifer recharge trials in the Pilbara is available on riotinto.com/water.

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. Whether they are associated with the management of post-closure pit lakes formed in our mining pits in the Pilbara, or the ongoing management of potential seepage from our waste rock or tailings facilities in our aluminium and copper facilities, our systems and standards aim to ensure that the risk is identified early and managed appropriately and responsibly throughout the asset lifecycle.

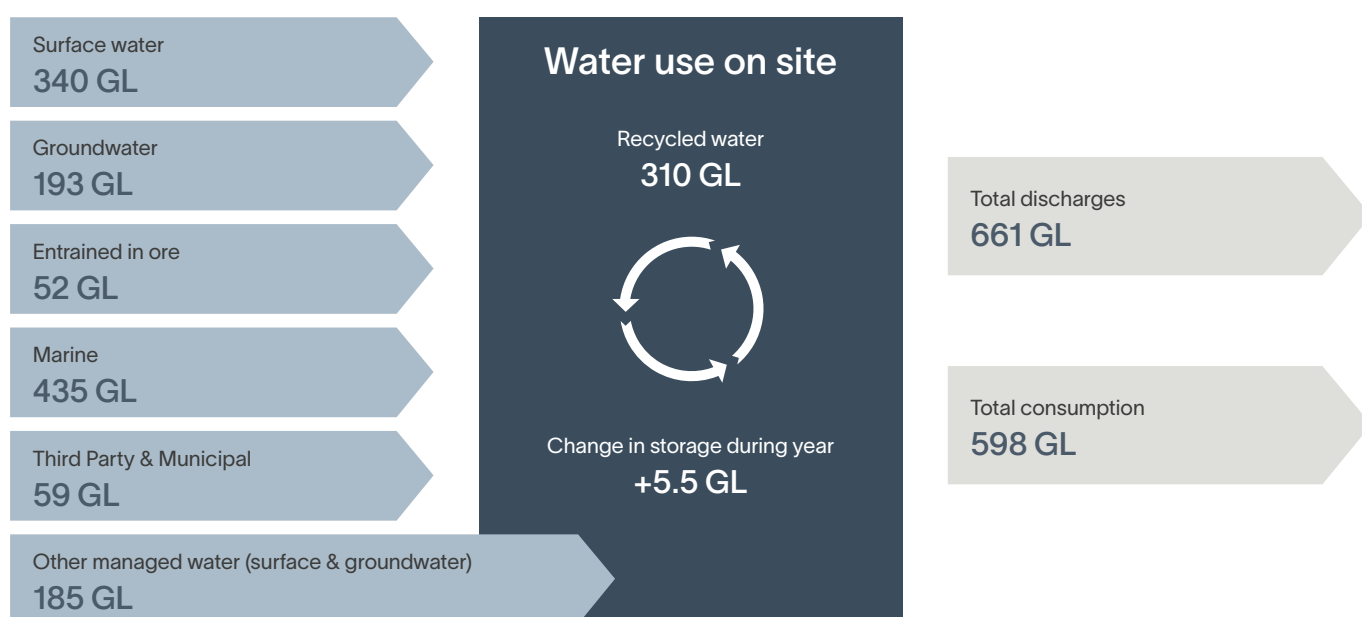
1. Queensland Alumina Limited is a non-managed operation, but is part of our water stewardship target programme.

Our water balance

The Group water balance for 2021 (below) provides a simplified visual summary of where water was withdrawn from, discharged to, recycled/reused and consumed at our operations.

With regard to operational withdrawal water quality, 439 GL¹ or 40% of overall 2021 withdrawals were of freshwater, or category 1, quality. This compares against our 2020 freshwater breakdown of 35%. Freshwater, or category 1 quality, is water that is generally suitable for consumption with minimal treatment required. Where possible, we aim to minimise our extractions from water sources of this quality.

The reported categories correlate with reporting requirements for the International Council on Mining and Metals (ICMM), Minerals Council of Australia (MCA) and Global Reporting Initiatives (GRI). See the Sustainability Fact Book for more detailed water balance information.



1. A gigalitre (GL) is 1,000 megalitres, or 1,000,000,000 litres.

439 GL is the category 1 quality water withdrawn, out of a total 1080 GL of operational water withdrawals. Please refer to the Sustainability Fact Book for additional detail.

Our 2019–2023 water targets

Our five-year water targets allow us to be more transparent about our water usage, risk profile, management and specific challenges. These targets, and the data required to measure progress against them, are helping us become better water stewards.

Our water targets were set in 2019 and consist of one Group target and six site-based targets, again 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 International Council on

Mining and Metals (ICMM) commitments, and local community and environmental interdependencies.

We continued to make progress against our Group target in 2021 and remain on track to meet it by 2023. We collected water allocation volume data for all sites and estimated surface water catchment rainfall-runoff volumes for our managed operations. We also implemented the last component of the framework – the Group water control library – which describes all controls identified to manage our water risks. In 2022, we will continue embedding our water risk framework and associated controls across our product groups and focus on delivering our site-based targets.

Progress against our targets

Group target	Water risk theme	Status	Commentary
Rio Tinto Group (Tier 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	On track	Progress remains on track against target schedule. Additional specialist water expertise added to central team during 2021.
Site-based target	Water risk theme	Status	Commentary
Pilbara operations, Iron Ore (Tier 1)			
Our Iron Ore product group will complete six managed aquifer recharge investigations by 2023.	Dewatering (aquifer reinjection)	On track	Successful completion of three of the proposed six managed aquifer recharge investigations.
Oyu Tolgoi, Copper (Tier 1)			
Oyu Tolgoi will maintain average annual water use efficiency at 550 L/tonne of ore to concentrator from 2019–23.	Water resource (intensity and efficiency)	Achieved for 2019–21	Average annual water use efficiency maintained below 550 L/tonne for 2019–21 period.
Kennecott Utah Copper, Copper (Tier 1)			
Kennecott will reduce average annual imported water per tonne of ore milled by 5% over the 2014–18 baseline of 393 gal/tonne (1,487L/tonne) at the Copperton Concentrator by 2023.	Water resource (import reduction)	At risk, recoverable	Kennecott has allocated additional budget in 2022 to prioritise the understanding of the conditions that influence water import demands at the concentrator and to determine solutions to mitigate and lower these demands.
Ranger Mine¹, 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)	At risk	Following the ASX announcement on 19 November 2021, work is continuing on the reforecast of both cost and schedule in relation to the calculation of the rehabilitation provision and timing for completion of the Ranger project area. Given this, the ERA target remains at risk subject to the reforecast of target treatment volumes as part of the Ranger water model update.
QIT Madagascar Minerals (QMM), Minerals (Tier 2)			
QMM will develop and implement an improved integrated site water management approach by 2023.	Quantity/quality (discharge quality)	On track	Progress remains on track against target schedule. Completed development of the integrated site water management approach and implementation of identified site improvements is under way.
Queensland Alumina Limited (QAL), Aluminium (non-managed joint venture) (Tier 2)			
QAL will complete the following four water-related improvement projects from the QAL five-year Environment Strategy by 2023:	Quality/quantity (discharge quality)	On track	Progress of nominated water-related improvement projects is aligned with current project schedules.
– Project L1 – integrity of bunds and drains	Joint venture performance improvement		
– Project W3 – caustic pipe and wasteline 4 integrity			
– Project W6 – residue disposal area surface/ground water impacts			
– Project W7 – residue disposal area release to receiving environment			

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

Tier 2 water targets do not form part of the Rio Tinto external limited assurance programme.

More detailed information about our progress against our site-based water targets is available at riotinto.com/water.

1. Ranger Mine is owned and operated by ERA; Rio Tinto is a 86.3% shareholder in ERA.

Biodiversity

The associated impacts of climate change and biodiversity loss pose significant risks to people and the environment on which we all rely. We recognise our responsibility to effectively mitigate the impact of our operations on nature – and we are mindful of our own dependence on healthy ecosystems to run a successful business.

Healthy natural environments with relatively intact 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 with the ambition of achieving no net loss. This means striking a balance between negative impacts on biodiversity and positive outcomes achieved through mitigation.

In 2020, we reported on the biodiversity sensitivity of our assets using a database developed by the UN Environment Programme World Conservation Monitoring Centre (UNEP WCMC) methodology that combined global datasets of threatened species and conservation and protected areas. Building on this, in 2021 we worked with Birdlife International to understand how our biodiversity programmes might also contribute to carbon sequestration and began to understand how we might apply nature-based solutions within our landholdings. This work will continue to mature in 2022.

As a founding partner of UNEP WCMC's 19-year-old Proteus Partnership, we committed to the next five-year phase of this cross-sectoral association. Through this partnership, and as part of our drive to build our internal capability, we have delivered biodiversity training to more than 200 employees across the business in 2021.

We were unable to complete an independent review of the monitoring programmes of our high-priority biodiversity sites in 2021 due to pandemic-related restrictions. However, we had independent assessments completed for five of eight sites and completed an internal assessment of all plans. We aim to complete this work in 2022 to ensure that management plans and actions adequately address risks to nature.

Land stewardship

In 2021, our land footprint – total disturbed area – was 3,734 square kilometres, an increase of 105 square kilometres compared to 2020. This includes all disturbance of our operating assets and activities, such as exploration activities, smelters, mines and supporting infrastructure.

We are temporary custodians of the land on which we operate, and our aim is to rehabilitate the land as soon as it becomes available. In 2021, we rehabilitated 20 square kilometres of land, mostly at our bauxite mines in Australia, mineral sands mines in South Africa and Madagascar, and exploration areas in the Pilbara, Western Australia.

Our rehabilitation teams work in partnership with research centres and universities to refine rehabilitation approaches and improve outcomes. In 2021, as a member of the Cooperative Research Centre for Transformations in Mining Economies, we participated in foundational projects intended to identify gaps affecting rehabilitation, closure and post-closure outcomes to guide upcoming research that will assist our Australian operations. In another example, through a partnership with the company Virotec, we are reprocessing a by-product from bauxite refining (red mud) into a commercial product that can be used in the treatment and regeneration of soils. In addition, 22 of our operations completed rehabilitation trials to improve outcomes relating to seed germination, erosion and topsoil quality.

Contributing to a resilient environment

Our environment technical experts work with our process safety and operational engineers to ensure our operating systems and processes are managed to prevent harmful discharges or releases to the environment.

At a minimum, we comply with national and local environmental regulations related to waste management, water discharge and air emissions. We also apply our own standards, which set the minimum requirements to define, monitor and manage emissions at all our managed operations to prevent harm to people and the environment. These standards require us to set performance requirements for resource efficiency, particularly relating to mineral and non-mineral waste management.

We contribute to sustainability initiatives across the value chain through our work with peers, industry associations, and customers. And we continually improve our due-diligence mechanisms and assess the environmental performance of new suppliers and customers.

Managing waste

Waste and residues from our operational activities are a key area of environmental risk management for us. In 2021, we renewed our focus on managing potential contamination from these sources. We conducted a detailed analysis of hazardous materials and non-mineral waste to assess and prioritise our contamination risks. To reduce further contamination risks, we are banning the use of PFAS (perfluoroalkyl and polyfluoroalkyl substances) in fire-suppression systems at our sites by the end of 2022.

At some of our long-life assets, waste management practices of the past have led to a need for remediation in the present. For example, at New Zealand's Aluminium Smelter (NZAS), which has operated for more than 50 years, a detailed site investigation was completed in 2021 to guide remediation work. The study identified localised areas of contamination confined to the smelter footprint, informing a targeted rehabilitation strategy for the site. NZAS has committed to removing all Spent Cell Lining waste generated in the process of relining reduction cells with refractory materials, managing waste and remediating the site.

Protecting air quality

Clean air is critical for the health of our host communities and of the surrounding ecosystems. Across the business, we continue to pursue improvements to air quality management, focusing on emissions of greenhouse gases and particulate matter and gases emitted by our operational activities, including mining, materials handling, processing and transportation. The potentially hazardous emissions we monitor at operations are:

- Sulphur oxides (SO_x), mainly at our aluminium and copper smelters
- Nitrogen oxides (NO_x), mainly from burning fossil fuels
- Gaseous fluoride emissions from aluminium smelters
- Respirable particulate emissions (PM₁₀ and PM_{2.5}), very fine particles from mining and processing operations, and from burning fossil fuels

Our emphasis is on prevention, managing air quality through operational discipline and process improvement.

Many of our assets have multi-year air quality improvement projects in place. For example, at the Iron Ore Company of Canada (IOC), plans are under way to reduce emissions with additional dust collection and to reconfigure the stacks to improve dispersion in the atmosphere. At our Atlantic aluminium smelting operations in Canada, enhanced monitoring for key air pollutants that links emissions and operational data has reduced response times for upset conditions. Phase 1 of this project has reduced, by 90%, the amount of time stack emissions exceed recommended particulate concentrations.

In some instances, we did not comply with permissible emission limits. For example, our Kennecott smelter experienced temporary equipment failures that, for safety reasons, required us to vent gases containing sulphur oxides directly to the stack. This resulted in short-term non-compliance but we remained compliant with our daily and annual limits and our continuous monitoring system indicated there was no adverse impact on ambient air quality.



Topsoil-free rehabilitation

With topsoil in short supply at our Gove bauxite mine in the Northern Territory, Australia, we have been working on a new topsoil-free rehabilitation approach to reduce reliance on topsoil in the future while minimising environmental impacts and cost.

Learn more about our rehabilitation work at riotinto.com/stories.

Operational environment overview (2017-2021)

	2021	2020	2019	2018	2017
Significant environmental incidents	3	0	0	0	0
Fines and prosecutions – environment (\$'000) ⁴	7.4	27.4	19.0	284.7	89.5
Land footprint – disturbed (square kilometres)	3,734	3,629	3,626	3,595	3,616
Land footprint – rehabilitated (square kilometres)	495	491	490	485	497
Mineral waste disposed or stored (million tonnes)	1,005	987 ³	905	886	1,188
Non-mineral waste disposed or stored (million tonnes)	0.65	0.47 ³	0.28	0.27	0.33
SO _x emissions (thousand tonnes)	70.2	75.7 ³	79.0	84.2	86.9
NO _x emissions (thousand tonnes) ¹	88.5	85.6	64.3	62.0	65.8
Fluoride emissions (thousand tonnes)	2.36	2.27 ³	2.34	2.61	2.49
Particulate (PM ₁₀) emissions (thousand tonnes) ²	139.6	143.2 ³	131.5 ³	136.2 ³	112.4 ³

1. The increase of NO_x emissions from 2019 to 2020 is due to a change in the calculation method from emissions factors to direct measurement using stack sampling data.

2. PM₁₀ emissions have increased due to a change in calculation methodology, figures for 2017 to 2020 have been restated.

3. Numbers restated from those originally published to ensure comparability over time.

4. In 2021, we paid environmental fines totalling \$7,414 resulting from non-compliance for snow management at Alma, Canada; the death of a goitered gazelle in Mongolia; and the violation of Eastern Kern Air Pollution Control District Rules and Regulations at Boron Operations, US.

Please refer to the Sustainability Fact Book at riotinto.com/sustainabilityreport for more details.

Tailings

Responsibly managing waste from mining operations is essential, as is being transparent with our stakeholders about our tailings storage facilities and how we manage them. We engage with stakeholders throughout the lifecycle of our tailings storage facilities, from design to closure.

We manage 106 tailings storage facilities (TSFs) across our global assets. There are a further 41 non-managed TSFs. Altogether, there are 65 active TSFs, 36 are inactive and 46 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 at riotinto.com/tailings and we periodically update the list of TSFs to reflect operational and ownership changes, including changes due to the transition of closure or remediation obligations for legacy assets and reclassification of facilities. Our list of TSFs also includes those managed by our joint venture partners.

In May 2021, we updated previously disclosed information on each of our global TSFs. All facilities were assigned a consequence classification in accordance with the regulatory or industry body that oversees tailings in each region or jurisdiction. Additional technical data from updated downstream impact assessments, required under the Global Industry Standard on Tailings Management (GISTM) and Rio Tinto's internal standard for tailings and water storage facilities, resulted in a modification to hazard classifications of some facilities. Consequence classifications are not ratings of the condition of a facility or the likelihood of failure; instead, they rate the potential consequence if they were to fail.

Our facilities are regulated, permitted and have been managed for many years to comply with local laws, regulations, permits, licences and other requirements. Tailings management has been included in the Group risk register since 2010, and our Group safety standard for tailings and water storage facilities has been in place since 2015. Our internal assurance processes verify that our managed TSFs operate in accordance with this standard, which we updated in 2020.

Our operational TSFs have emergency response plans – tested through training exercises in collaboration with stakeholders such as local emergency services – and follow strict business resilience and communications protocols.

Since the launch of GISTM in August 2020, we have continued work on our implementation plan. We completed a gap analysis against our internal tailings management, environment, and communities and social performance standards, and developed improvement plans to close identified gaps. While COVID-19 restrictions delayed a few items, we plan to complete all outstanding actions as quickly as possible, while adhering to restrictions in each jurisdiction. We are on track to have all TSFs with a potential consequence rated “extreme” or “very high” in conformance with GISTM by August 2023, with all remaining facilities in conformance by August 2025.

We played an active role in the International Council on Mining and Metals (ICMM) tailings working group in 2021, which focused on the development of the GISTM conformance protocol as well as a tailings good practice guide designed to help support industry-wide adoption.

This year, we also:

- Appointed Accountable Executives for tailings and established the Tailings Management Committee, which provides governance of tailings management practices across the Group to ensure we meet the GISTM and the relevant Rio Tinto standard requirements.
- Updated our tailings disclosure information and released our updated D5 Standard for the management of tailings and water storage facilities on our website in May 2021.
- Published our Tailings Policy on our website in August 2021.
- Consolidated our Group-wide controls for tailings management in our centralised risk management system so that, no matter where in the world our people are, controls relating to tailings can be consistently applied and verified.
- Continued to support the Future Tails partnership, a collaboration between Rio Tinto, BHP and the University of Western Australia (UWA), launched the first micro-credentials, and enrolled the first cohort of more than 90 students for the Graduate Certificate in Tailings Management at UWA.

Caring for society and people

We know our operations have a far-reaching impact on society. Our longevity and success depend on the enduring relationships and strong partnerships we develop with our people, our host communities, governments and broader society. The ability to work together to deliver positive outcomes is increasingly important as society comes together to address global challenges like climate change. We are engaging with our people and our stakeholders to learn how we can play our role.

Seeds collected by Traditional Owners as part of the Community Collection programme for Weipa Operations. These seeds will be used for rehabilitation in areas post-mining, providing the opportunity for Indigenous peoples to participate economically in the area. Weipa, Australia.



Communities

The communities where we live and work are fundamental to our business. They include Indigenous peoples, landowners, governments, business partners, neighbours and our colleagues – without their support, we cannot operate. We aim to contribute to a shared future and positive legacy by developing lasting relationships with people, learning about and supporting their goals and aspirations, avoiding or mitigating adverse impacts, and respecting connections to lands and waters.

The destruction of the rock shelters at Juukan Gorge in May 2020 was a clear breach of our values and the trust placed in us by the Indigenous peoples to respect the lands on which we operate. It was a tragedy that prompted us to review our mindset and practices and commit to improve. In May 2021, we recognised a year since the destruction of the Juukan Gorge rock shelters by reflecting on the loss and hurt that we caused and renewing our commitment to learn the lessons from Juukan Gorge.

How we work with communities

Mining and processing, by its very nature, disturbs the environment and can impact surrounding communities. It also delivers significant economic and social benefits, including the production of essential materials, employment, small business development, tax and royalty streams, training and skills development, and socioeconomic programmes. We recognise that while many of the benefits of our activities are widespread, many of the negative impacts are localised. Our teams work in partnership with communities to understand how our activities impact their lives, culture and heritage. Through meaningful engagement, we can respond to community concerns, optimise socioeconomic benefits and mitigate negative impacts.

Engaging with communities on a low-carbon future

We believe we have an important role to play in ensuring that the green energy transition is progressed in a fair and socially inclusive way. This will be a key focus for our Communities and Social Performance teams from 2022 and will include active community engagement, managing potential adverse social and human rights impacts, and exploring and enabling ways for host communities to share in economic opportunities. In 2021, QIT Madagascar Minerals (QMM) and its partners laid the foundation stone for a new solar and wind energy plant. This, in addition to allowing Rio Tinto's operations in Madagascar to reach carbon neutrality by 2023, will replace the majority of the electricity it currently supplies to the town of Fort Dauphin and its 80,000 community members with clean energy. QMM and its partners are working with local authorities to develop manufacturing capacity to produce equipment for the renewable industry locally.

Strengthening social performance

We have strengthened our social performance structure, governance approach and processes. In September 2021, we released our Communities and Social Performance Commitments Disclosure Interim Report, our first report dedicated to sharing the progress on the actions from the 2020 Board Review of cultural heritage management. Read more about progress on our commitments on pages 94–95.

Working with First Nations, Canada

In Canada, we continue to work with Indigenous peoples on the implementation of agreements signed with communities, and we are progressing discussions on four new agreements with Indigenous communities in Quebec, Saskatchewan and British Columbia.

To advance reconciliation efforts in 2021, we focused on strengthening our employees' cultural awareness. In June, our business celebrated National Indigenous History Month by supporting a series of events across the country, including a fireside chat between Former National Chief Phil Fontaine and our Aluminium Chief Executive, Ivan Vella. In September, we commemorated National Truth and Reconciliation Day by hosting an awareness session which provided employees with information on the residential schools in Canada, including a first-hand account from a survivor.

Resolution Copper project, Arizona, US

At our Resolution Copper project in Arizona, we continue to build relationships with impacted communities and Native American tribes. We recognise the enduring historical connection Native American tribes have with the land at, or near, the proposed mine. We are committed to ongoing consultation with Native American tribes and working together in a manner consistent with the International Council on Mining and Metals (ICMM) Statement on Indigenous Peoples and Mining. We are progressing partnerships with over half of these tribes and our aim is to have a mutual dialogue with all tribes. Since 2013, the US Forest Service (USFS) has led a rigorous review of the project, including consulting 11 Native American tribes with historic connections to the land around Resolution Copper. This dialogue has led to changes in the project design and the implementation of other measures to address stakeholder concerns. While the USFS published the Final Environmental Impact Statement in January 2021, the US Department of Agriculture directed the USFS to review and engage further with consulting Native American tribes. We support the National Environmental Policy Act process and continue to engage with local communities and Native American tribes to further shape the Resolution Copper project.

Richards Bay Minerals (RBM), South Africa

We are committed to fostering broad-based development of the four local communities that host our RBM mine in the province of KwaZulu-Natal. However, following a series of business disruptions that put the safety of our employees at risk, we declared force majeure at the operation in June 2021. Significant work has been done to improve the situation, including reaching milestone agreements with traditional leaders, local youth and business forums. In August 2021, RBM and representatives of all four communities reached an agreement to release 130 million rand from the community trusts. These funds will be channelled towards local economic development initiatives. The agreement also aims to secure improved community trust governance.

Simandou project, Guinea

At our Simandou iron ore project in Guinea, we continue to engage with stakeholders and local communities to deliver a range of economic development and community health initiatives, including COVID-19 and Ebola response programmes. We are working with communities to help them prepare for future operations, identify and manage our impacts, and design and deliver regional and local economic development programmes. We engaged with other mining projects in Guinea to discuss the potential for enhancing offset options, as well as supporting the Centre Forestier N'Zérékoré and Pic de Fon Classified Forest management committee.

Oyu Tolgoi, Mongolia

Oyu Tolgoi supports economic opportunities through livelihood and economic diversification initiatives for communities in Umnugovi aimag. We support herders' cooperatives and work with local subject matter experts to improve livestock health services, increase the productivity of livestock, encourage vegetable and dairy production, and foster new business development through capacity building, strengthening market linkages and nurturing entrepreneurial mindsets amongst local communities. Our Oyu Tolgoi South Gobi Development Strategy will expand on this work over the next five years to boost local procurement and employment above their current levels of 24.5% and 24.8%, respectively.

Jadar lithium-borates project, Serbia

In 2021, we committed \$2.4 billion to the Jadar lithium-borates project in Serbia, one of the world's largest greenfield lithium projects.

In January 2022, the Government of Serbia cancelled the Spatial Plan for the Jadar project and required all related permits to be revoked. We remain committed to exploring all options and are reviewing the implications for our activities and our people in Serbia.

We acknowledge the concerns from local communities and are committed to meaningful engagement to explore ways to address these concerns.

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 an uprising against the mine and a civil war. Rio Tinto has not had access to the mine for over 30 years. In 2016, Rio Tinto transferred its 53.83% majority shareholding in BCL to the Autonomous Bougainville Government (ABG) and the Papua New Guinea (PNG) Government for no consideration, enabling the ABG and PNG to hold an equal share in BCL of 36.4% each.

In September 2020, the Human Rights Law Centre (HRLC) filed a complaint against Rio Tinto on behalf of 156 Bougainville residents with the Australian National Contact Point (AusNCP) regarding the Panguna site. The complaint alleges that we are accountable for significant breaches of the OECD Guidelines for Multinational Enterprises relating to past and ongoing environmental and human rights impacts arising from the Panguna mine.

In July 2021, following months of constructive discussions facilitated by the AusNCP, Rio Tinto and Bougainville community members, represented by the HRLC, announced an agreement to identify and assess the legacy impacts of the mine.

A joint committee of stakeholders, the Panguna Mine Legacy Impact Assessment Committee, has been formed to oversee a detailed independent assessment of the Panguna mine to identify and better understand the environmental and human rights impacts of the mine. The Committee was established by the ABG and the parties to the AusNCP process (Rio Tinto, the HRLC and the community members the HRLC represents). It is chaired by an independent facilitator with representatives from the Independent State of PNG and BCL, as well as other clan landowners and community representatives. The first meeting of the Committee was held on 30 November 2021. This was a constructive and important first step towards resolving the highly complex legacy of the Panguna mine.

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%). We participate on the boards of Halco and CBG, with representation on various shareholder oversight committees.

Through our board and committee roles, we have been proactively monitoring CBG's approach to environmental protection, community issues and human rights. We are aware of the concerns regarding access to land and water, the pace of livelihood restoration programmes as well as aspects of CBG's stakeholder engagement.

In 2021, sustainability advisory committees were created at Halco and CBG levels, strengthening our oversight and providing support to CBG for the improvement of its social and environmental practices, including their 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 reached an important milestone in 2021 with an agreement to adjust the mitigation measures related to blasting.

Halco continues to participate in the mediation process as an observer, alongside the IFC.

Socioeconomic contribution

In 2021, our direct economic contribution was \$66.6 billion, including the total value of operating costs, employee wages and benefits, payments to providers of capital, payments to governments, development contributions, payments to landowners and community investments. Catalysing economic opportunities for our host communities and regions continues to be a priority. We strive to employ local people, buy local products and engage local services. For example, we awarded contracts valued at over A\$500 million to local Western Australian and Pilbara Aboriginal businesses for the Greater Tom Price operations.

Through social investment, we seek to deliver positive, measurable social outcomes and support communities to achieve their goals and aspirations. Our total voluntary global social investments amounted to \$72 million, covering health, education, environment, agricultural and business development programmes. This is an increase of approximately 53% on our 2020 voluntary social investment spend. This increase is associated with the completion of the \$25 million COVID-19 pledge, a review of social investment strategies across product groups, and the launch of a number of significant multi-year partnerships, particularly through Rio Tinto Iron Ore.

Social investment highlights (in figures)

In 2021, some of our social investment activities included:

- Delivering life opportunities to young Indigenous peoples through a A\$1.265 million Indigenous Advancement partnership with the Western Australia Football Commission.
- Investing A\$12 million over three years to improve the health and wellbeing of children in Western Australia and supporting further research into mental health and juvenile diabetes with the Telethon Institute.
- Providing 1,800 community members with access to Computerised Tomography (CT) services in Weipa, North Queensland, through the provision of a CT scanner. The A\$1.15 million partnership between Rio Tinto and Old Mapoon Aboriginal Corporation to leverage a A\$1.35 million contribution from the Queensland Government.
- Supporting charities through the RioGivers programme, enabling our employees to make donations to selected charities and have these matched by Rio Tinto on a dollar-for-dollar basis. In 2021, A\$222,000 was matched through the RioGivers Australia programme, and C\$660,000 through the Canada Employee Giving programme.
- Investing in future Canadian leaders through C\$1 million in *Let's Talk Science* experiential STEM-learning programmes over the next four years.
- Renewing our partnership with the Breakfast Club of Canada with C\$750,000 over three years to provide nutritious meals to over 4,000 students in 18 Indigenous schools in British Columbia and Quebec.
- Establishing an institutional research structure dedicated to the indigenisation of higher education through a C\$1.5 million partnership with Université du Québec à Chicoutimi (UQAC). The structure will be established in collaboration with several Indigenous communities and will focus, among other things, on training the next generation of Indigenous scientists.
- Supporting STEM and robotics programmes in local schools in Superior, Arizona, US through a \$1.2 million partnership with the Superior Unified School District.
- Building the capability of geotechnical and mining professionals in Mongolia through a \$2.75 million partnership with the Mongolian University of Science and Technology.
- Supporting increased COVID-19 testing capacity through a \$1.66 million partnership with the Regional Public Health Directorate in Fort Dauphin, Madagascar.

Economic contributions (\$ million) (2021)

	2021	2020	2019	2018	2017
Gross product sales	66,568	47,018	45,367	42,835	41,867
Net cash generated from operating activities ¹	25,345	15,875	14,912	11,821	13,884
Underlying earnings	21,380	12,448	10,373	8,808	8,627
Underlying earnings per share (US cents)	1,321	770	636	512	483
Profit/(loss) after tax for the year	22,575	10,400	6,972	13,925	8,851
Net cash/(debt)	1,576	(664)	(3,651)	255	(3,845)
Capital expenditure ²	(7,384)	(6,189)	(5,488)	(5,430)	(4,482)
Employment costs	(5,513)	(4,770)	(4,522)	(4,728)	(4,765)
Payables to governments ³	(12,789)	(8,224)	(7,175)	(7,217)	(6,637)
Amounts paid by Rio Tinto	n/a ⁴	(8,404)	(7,635)	(6,575)	(5,138)
Amounts paid by Rio Tinto on behalf of its employees	n/a ⁴	(1,353)	(1,284)	(1,342)	(1,402)

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

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

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

4. Our Taxes Paid Report will be published later this year on riotinto.com.

	2021	2020	2019
Community investment (discretionary) ⁵	(72.1) ⁸	(47)	(36.4)
Development contributions (non-discretionary) ⁶	(19.1)	(12.8)	(12) ⁹
Payment to landowners (non-discretionary) ⁷	(222.9)	(165.9)	(147)

5. 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.

6. 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.

7. 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.

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

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

Progress on our communities and social performance commitments

Following the destruction of the rock shelters at Juukan Gorge in May 2020, we have strengthened our approach to managing Indigenous cultural heritage. We are determined to build more meaningful and genuine relationships with Indigenous peoples and host communities around the globe.

As part of our efforts to improve transparency, we have committed to providing updates on the work we are undertaking to enhance our communities and social performance practices. In September 2021, we released our first Communities and Social Performance Commitments Disclosure Interim Report.

On 18 October 2021, the Joint Standing Committee for Northern Australia (JSCNA) released its final report. JSCNA restated the recommendations made in the December 2020 interim report and focused on the legislative frameworks governing the protection of cultural heritage. Recognising that there is still much work ahead, we are learning from the outcomes of the review and our ongoing dialogue with stakeholders as we continue to deliver on our commitments to ensure a tragic incident like Juukan Gorge never happens again.

An update on our commitments is provided below.

1. Remediating and rebuilding our relationship with the PKKP people

We are working under the direct guidance of the Puutu Kunti Kurrama and Pinikura (PKKP) people to remediate Country. Throughout our journey with the PKKP people, they have graciously shared their knowledge to ensure our remediation efforts deliver the best possible outcomes. During this time, we have been reminded of the importance of trusted relationships and valued partnerships through listening and continuously demonstrating mutual respect.

We continue to work in partnership with the PKKP people to finalise co-management principles under which we can work together to enhance protection of heritage and achieve better outcomes. The new model will involve earlier and more detailed consultation, increased sharing of information and greater involvement of PKKP representatives in Rio Tinto's decision making throughout the lifecycle of the mine.

2. Partnering with Pilbara Traditional Owners in modernising and improving agreements

During the year, we continued to actively engage with Traditional Owners in Western Australia to better understand existing and historic issues and define ways we can jointly deliver more effective outcomes. We have developed a set of principles to guide the agreement modernisation process which seeks to address areas where current agreements have not met the Traditional Owners' aspirations of partnership.

It is our intention that revised agreements will seek to agree on a clear pathway for resolution of any differences of views that may emerge. We will also continue to work with Traditional Owners and local communities to build sustainable business development and employment participation opportunities.

In Canada, we currently have 11 active long-term Life of Mine agreements and are engaging on four new agreements with Indigenous communities in Quebec, Saskatchewan and British Columbia.

3. Establishing the new Communities and Social Performance model

In 2021, we established our new Communities and Social Performance (CSP) model to increase our social performance capacity and capability across the business. We now have more than 400 technical CSP professionals working on 60 sites in 35 countries (compared with 250 professionals in 2020).

A central CSP Area of Expertise complements our asset-based teams by monitoring external societal trends, developing and reviewing standards, systems and risk and assurance processes, building capability, and providing strategic regional and technical advice to our businesses.

4. Building local capability and capacity to support the site General Manager

Operational leaders play a critical role alongside our CSP teams in our social performance. Product group Chief Executives have overall accountability for relationships with Indigenous peoples, supported by line managers who have direct responsibility for maintaining relationships with host communities, including Indigenous peoples.

5. Improving our governance, planning and systems where it relates to communities

In 2021, we designed a new social performance strategy and set CSP targets for 2022 to 2026 to support its achievement. We also strengthened our governance including a review of our global CSP Standard and Cultural Heritage Group Procedure for Australian businesses, and improved assurance and risk management processes.

As part of our global Risk Control Framework, we created a standardised library of cultural heritage controls across the Group. This will enhance control effectiveness across our business.

A substantive independent review of our cultural heritage performance is currently under way at all our businesses, to redefine best practice for cultural heritage management in our organisation. Phase one of the review focuses on Australian assets, in consultation with a number of Indigenous groups, and is being led by the sustainability consultancy Environmental Resources Management. Phase two is due to be awarded at the end of the first quarter, with completion planned for the end of 2022.

We have also established an internal global Indigenous Coordination Committee which meets monthly to ensure cross-functional alignment on Indigenous strategy and activities.

6. Reducing barriers to, and increasing, Indigenous employment

We know that a diverse workforce is an important factor in business performance, and we are committed to Indigenous peoples having a stronger voice. In Australia, we have committed \$50 million over five years to attract, retain and grow Indigenous leaders, and we have increased the number of Australian Indigenous leaders in our business fivefold since November 2020.

We are partnering with Traditional Owners and local stakeholders to deliver initiatives that contribute to improving the pathways to employment for Indigenous peoples, increasing the number of employment opportunities and providing positive experiences for current and future employees. In 2021, 76 Indigenous employees paired with senior leaders participated in our two-way mentoring programme across our Australia business to deepen cross-cultural understanding and responsiveness. In Western Australia, we have launched an Indigenous participation strategy which seeks to improve the opportunities for Indigenous peoples to participate in employment.

7. Increasing Indigenous leadership and developing cultural competency within Rio Tinto

The Indigenous leadership commitment is designed to fast-track Indigenous Australians into professional and leadership roles. During the year, 126 Indigenous employees earned promotions across Australia.

In Australia, 80% of our senior leaders completed our Cultural Connection programme in 2021. We also launched a digital cultural onboarding platform to enhance and support cultural safety and understanding. In the second half of 2021, 65 employees and new starters completed the experience with their leaders.

A component of our 2021 ESG short-term incentive was linked to an increase in cultural awareness training. The target was risk-based, by identifying cohorts of employees and contractors whose roles interface with cultural heritage. Business units and product groups identified their training cohorts, and training programmes were designed to reflect the local context. The length of programmes varied according to context and risk profile.

In our Iron Ore group, our immersive virtual reality cultural awareness training was rolled out in 2021 and is now part of our onboarding process. We are also implementing regionally specific, Traditional Owner-led cultural awareness training.

In North America, two virtual cultural awareness sessions were facilitated by an Indigenous-owned business, and numerous site-based sessions were held in 2021, including at our IOC operations, which have introduced mandatory cultural awareness for employees and contractors and achieved full compliance in 2021. We have also launched online cultural awareness training on Canadian Indigenous peoples' history, culture and industry interaction.

8. Establishing a process to redefine and improve cultural heritage management standards

In Iron Ore, our Integrated Heritage Management Process (IHMP) ensures heritage considerations are embedded throughout the mine development process, from early resource planning and studies through to closure. By the end of 2021, we had reviewed over 2,200 heritage sites in the Pilbara, adding further protection controls. Through ongoing consultation with Traditional Owners, we have removed 100 million dry tonnes of iron ore from reserves in 2020 and 2021 through this process.

The core principles from IHMP have informed the Cultural Heritage Group Procedure update and our cultural heritage global control library, and we continue to explore opportunities to embed these across the business.

9. Establishing an Australian Advisory Group

We have established an Australian Advisory Group (AAG) to provide guidance on current and emerging issues, and better manage policies and positions that are important to both Australian communities and our broader business. We have confirmed the inaugural Chairperson as Professor Peter Yu, and other members include Michelle Deshong, Nyadol Nyuon, Yarlalu Thomas, Djawa Yunupingu, Cris Parker, and Shona Reid. The first AAG meeting will be held in the first quarter of 2022.

10. Elevating external consultation

In 2021, we established the Chief Executive Australia role to focus on rebuilding trust and strengthening external relationships across Australia, and a Chief Adviser Civil Society and Outreach role to expand our capacity to engage on key matters globally. We continue to increase our dialogue with government, civil society organisations, Indigenous leaders, Traditional Owners and other stakeholders at all levels of our organisation, and will explore further opportunities to engage in 2022.

11. Elevating employee engagement

We are focused on keeping our people informed of our commitments and achievements, through the implementation of new communications tools, channels and platforms. And through training, networking opportunities and cultural competency programmes, we are increasing cultural awareness at every level of our business.

Progress on best practice cultural heritage management

We remain committed to achieving best practice cultural heritage management. We will continue to work with Indigenous peoples and communities to ensure we better understand their priorities and concerns, minimise our impacts, and responsibly manage Indigenous cultural heritage within our operations.

We support the strengthening of cultural heritage legislation and advocate for more meaningful engagement, the protection of heritage values, strengthened agreement-making, and certainty for all stakeholders.

More information is available in our Communities and Social Performance Commitments Disclosure Interim Report. Our next dedicated report is due to be released in the third quarter of 2022.

Closure

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.

Although mining and processing activities extend over decades, we recognise they are temporary and that other activities and land use will follow. To mitigate the impacts of a shift to a new use, we engage our stakeholders early and transparently, to contribute to a shared vision for the future of the land and associated communities. We balance environmental and social considerations with costs and look for opportunities associated with progressive closure, remediation and repurposing, and where appropriate, long-term monitoring and maintenance.

Closure execution

In 2021, we progressed closure execution work at a number of assets, including the Gove refinery and the Argyle diamond mine, and our subsidiary Energy Resources of Australia Ltd (ERA) continues to progress the closure of the Ranger uranium mine.

Argyle diamond mine

Our Argyle diamond mine, in Western Australia, ceased production in 2020. We are in the first year of a four-year plan to dismantle the operational infrastructure, reshape the land and undertake revegetation activities to enable the re-establishment of a natural ecosystem. Once completed, as agreed with the Traditional Owners and the Western Australian Government, we will release our landholding and support the land being returned to the Traditional Owners for activities such as cattle grazing, Indigenous cultural tourism, cultural use and possibly small-scale agriculture and native food production alongside longer-term monitoring activities. We are committed to support the development of long-term sustainable local businesses and local employment. In 2021, we spent 14% of our annual closure budget with Traditional Owner business.

Gove refinery and residue disposal areas

While mining continues at our Gove bauxite operations in the Northern Territory, we are implementing progressive closure activities, including the decommissioning and demolition of the refinery and progressive capping of the red mud ponds. The refinery demolition is one of the largest in Australia. The Gove closure execution programme will take approximately ten years to complete followed by ongoing monitoring, with mining operations expected to cease no later than 2030. This year's work saw the commencement of the capping of pond 5 within the Residue Disposal Area; the completion of the feasibility study of the refinery complex; and optimisation of our waste liquor treatment plant performance. Our Closure team is working with the Gove operations team, Traditional Owners, local business, and the Northern Territory Government, to contribute to the Traditional Owners' future vision for the Gove Peninsula, with the intention to maximise commercial opportunities that Rio Tinto has available through to closure. As agreed with stakeholders, the refinery will be demolished and the underlying land will be remediated. It can then be used for industrial purposes with the intent that certain assets, such as the light fuel farm, cargo wharf, warehouses and administration buildings may be retained for future use by Traditional Owners.

Ranger uranium mine

The Ranger uranium mine in the Northern Territory is owned and operated by ERA. ERA's shares are publicly held and traded on the Australian Securities Exchange, with Rio Tinto holding 86.3% of ERA's shares. In accordance with the Ranger s41 Authority, production at the Ranger uranium mine ceased in January 2021.

On 2 February 2022, ERA released the preliminary findings from its reforecast of the cost and schedule for the Ranger rehabilitation project, which had been subject to an independent review. Rio Tinto is reviewing the preliminary findings of this reforecast and have advised ERA that we are committed to working with the company to ensure the rehabilitation of the Ranger Project Area is successfully achieved to a standard that will establish an environment similar to the adjacent Kakadu National Park.

Legacy sites

We also manage a number of historic sites – known as legacy sites – some we did not operate but acquired through corporate acquisitions after they were closed. Where required, we rehabilitate these sites and, where and when we can, transfer them to local authorities or third parties for future land use. In North America, we are progressing the remediation of a number of sites. We have settled our obligations at the Vernon, a former aluminium cast plate facility in California, and are undertaking seven studies at other sites to develop a path to divest our landholdings or optimise ongoing monitoring and maintenance.

In Europe, we are remediating the historic white and red mud deposits at Salindres, France, and have commissioned a soil treatment plant at Dammarie to enable the site to be repurposed in the future. In the UK, we continue to optimise our long-term treatment of water at Whinnyhall, a historic bauxite residue disposal site.

At the end of 2021, closure provisions on our balance sheet totalled \$14.5 billion (compared with \$13.3 billion in 2020). We continue to optimise closure costs through sharing good practice with product groups, finding more efficient closure execution methods, building synergies through sequential closures, and targeting research and development opportunities (including water and waste treatment, material movement, community engagement methodologies and partnering).

Strengthening our approach

Successful closure needs to meet our host communities and long-term stewards' expectations. To achieve this, we are working with host communities, including Indigenous partners, on rehabilitation, revegetation and long-term monitoring of the land at many sites. In 2021, the first Argyle Rangers completed their Conservation and Land Management traineeship and joined our team full-time. The programme was developed to upskill Traditional Owners on various land management, community and cultural activities that will be undertaken during the closure execution phase, and post-closure monitoring and maintenance phase. Our focus is to support Traditional Owners to ultimately lead the important environmental monitoring and maintenance work required on site until approximately 2035.

In some locations, our landholdings are a significant contributor to land, water and biodiversity value. We have earmarked land for transfer to national parks and support a number of protected forests and parks across our portfolio. We are exploring options to repurpose several legacy sites for renewable energy, such as our pilot photovoltaic cell facility at Marignac, France, a former ferroalloy plant.

We have expanded our partnerships with universities and other organisations to find opportunities to repurpose and reprocess waste, improve water and waste treatment, and explore the social aspects of mine closure.

For example:

- Together, with our partner RESOLVE, we developed a business model and signed a memorandum of understanding to form Regeneration Enterprises, a for-purpose and for-profit company that will combine the re-mining and processing of waste with site closure and rehabilitation, with the ambition to create full restoration outcomes.
- As part of RemovAL, a European Commission H2020-funded Innovation Action, we continue to work with ZaaK Technologies to demonstrate at pilot scale the upcycling of bauxite residue into Smart Spheres® – an engineered lightweight aggregate that can be used in a range of civil engineering applications.
- We are a partner in the ReActiv project, which looks at new uses for bauxite residue produced during alumina refining in cement production.
- We are a member of the Social Aspects of Mine Closure Research Consortium, an initiative of the University of Queensland's Centre for Social Responsibility in Mining. The consortium was established in 2019 and is a multi-party, industry-university research collaboration to conduct research that challenges industry norms and practices, and places people at the centre of mine closure activities.

To realise these opportunities, we must have the basics in place. All our operating assets have closure plans aligned with our closure framework. We regularly update these plans to ensure they reflect stakeholder expectations and build on experience from closure practices as we learn from them. We have an internal assurance programme, and closure plans are audited every five years against our internal requirements. At operations with joint ownership structures, we work in partnership with the asset owners to embed closure into asset design, planning and operations.

In 2021, we completed asset closure strategies covering another six of our operating assets. These strategies are now in place for 42 assets, contributing to host communities' vision for future land use after our operations cease and ensuring closure is considered throughout the asset lifecycle to identify opportunities while in operation.

This year, to enhance our internal governance processes, we updated our Closure Standard that outlines our minimum closure requirements to mitigate risks associated with the permanent cessation of exploration, mining, processing, and logistics operations. We also updated the internal procedure for how we estimate and report on closure costs. More information on closure provisions and financial statements can be found on pages 229–230 ^{AR} of this report.



Holden mine remediation leads to land conservation

In 2021, we contributed to the Chelan-Douglas Land Trust's establishment of the Chelan Coulees Reserve for permanent conservation as part of an environmental offset for work on the Holden remediation project. The long-term conservation will support native species and habitats unique to the Chelan area and provide benefits for generations to come.

Learn more about our remediation work at riotinto.com/stories.

Health, safety and wellbeing

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

We believe all incidents and injuries are preventable, so our focus is on identifying, managing and, where possible, eliminating risks. In 2021, for the third year in a row, we had zero fatalities. While we recognise the commitment made by all our employees and contractors to achieve this milestone, we know we can always do better.

Although we have had no fatalities on our managed sites in 2021, we are saddened by the loss of life at our suppliers and non-managed operations this year. Two people tragically drowned when a marine vessel delivering materials sank while en route to our Kemano operations in British Columbia, Canada. Three mariners also lost their lives in incidents on chartered vessels. At one of our non-managed joint-ventures, the Compagnie des Bauxites de Guinée SA (CBG), three workers lost their lives in three separate workplace incidents. We are working closely with our partners to understand what happened in each of these events. We will work with our contractor partners and joint venture owners to support the implementation of actions to make these facilities and operations safer and eliminate fatalities in our industry. We also felt immense sadness this year when one of our colleagues from Richards Bay Minerals (RBM) lost his life tragically to violence on his way to work.

We still see some serious incidents at our own operations. A significant risk at our sites is falling objects, accounting for 38% of our potentially fatal incidents (PFIs). Focused improvements are under way to manage this critical risk. In the second half of the year, three people fell from significant heights in three separate events causing serious injury that could have resulted in a fatality. These incidents are stark reminders that we must continue to share the learnings across our business, both among our employees and our contractor partners. Over the last year, we have included contractors more in our safety efforts and are taking action across our product groups to support greater consistency in the application of our safety systems.

We had another challenging year managing the pandemic and we saw a small increase in the number of people hurt on the job. Our all-injury frequency rate (AIFR) in 2021 was 0.40 compared to 0.37 in 2020. While we continue to build our safety maturity, we are seeing the impacts of COVID-19 restrictions on our operations, with fatigue across the organisation and, in some areas, tightness in the labour pool.

In 2021, we launched our Health, Safety, Environment and Security (HSES) Transformation programme, a three-year programme to transform the way we access and use our health, safety and environment data, improving our data collection processes and, ultimately, our strategic decision making.

Safety and health performance¹ 2017–2021

	2021	2020	2019	2018	2017
Fatalities at managed operations	0	0	0	3	1
All-injury frequency rate (per 200,000 hours worked)	0.40	0.37	0.42	0.44	0.42
Number of lost-time injuries	218	187 ²	229 ²	226	199
Lost-time injury frequency rate (per 200,000 hours worked)	0.25	0.22	0.27	0.27	0.25
Safety maturity model (SMM) score ³	5.7	5.4	4.5	–	–
New cases of occupational illness (per 10,000 employees)	12.1 ⁵	16.9 ²	21.3 ²	29.6	24.6
Number of employees ⁴	49,000	47,500	46,000	47,500	47,000
Fines and prosecutions – safety (US\$'000)	646.2 ⁶	25.4	40.7 ⁷	59	29
Fines and prosecutions – health (US\$'000) ⁸	5 ⁸	0	1.4	0	7.1

1. Data relating to fatalities, all-injury frequency rate and lost-time injury frequency rate includes all employee and contractor exposure hours and incidents at managed operations. New cases of occupational illness are reported for employees only.

2. Numbers adjusted from previous years to ensure comparability over time.

3. Figures in the table represent the Rio Tinto Group average SMM score at the end of each year. Each year, assets are added or removed from the SMM programme based on Project and Closure cycles. New assets to the programme are baselined in the first quarter of each year and added to the Group average at the end of the year.

4. Includes our share of joint ventures and associates (rounded) and excludes contractors.

5. Fewer health assessments were completed in 2021 due to COVID-19 restrictions, which may have impacted the frequency of new cases of occupational illness.

6. In 2021, we have incurred safety violations fines whilst MSHA inspections at our Boron Operations, California, USA; Kennecott Copper and Bingham Canyon mines, Utah, USA. Our Kitimat smelter, Canada, received a fine from WorkSafe BC regarding implementation of exposure control plan for process dust.

7. Safety fines and prosecution amount for year 2019 is restated as WorkSafe BC has reversed the penalty at Kitimat in entirety in 2021.

8. In 2021, we have incurred a fine from the Department of Environmental Quality for misplacing a radioactive gauge at our Kennecott Copper mine, Utah, USA.

Contributing causes for newly reported illness cases (2021)

	2021
Noise-induced hearing loss	14 (27%)
Musculoskeletal disorders	27 (53%)
Mental stress	1 (2%)
Other	9 (18%)

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

Mental health and wellbeing

Mental health is a core part of our safety culture. We have continued to support several initiatives, including flexible work schedules, greater access to health and medical resources, improved benefits for better access to mental health specialists and virtual care packs, to help our people manage the impacts of COVID-19 on their mental health and wellbeing.

In 2021, we progressed the implementation of our mental health framework to raise awareness of mental wellbeing, reduce stigma and increase the capacity of our leaders to recognise and support individuals experiencing mental illness. We have used this framework in our product groups to better understand the current state of our employees' mental health, and to put in place control measures for mental wellbeing based on ease of implementation and breadth of impact.

To support the proactive management of mental wellbeing and to give our employees the tools and skills they need to build resilience and positive mental health, we continue to provide and promote the Employee Assistance Programme (EAP), our mental health toolkit and our Peer Support Programme, which has expanded globally to now include 1,200 peer supporters worldwide.

In October 2021, we held our mental health week, with the aim of increasing mental wellbeing in the communities where we operate and encouraging our people to support and look out for one another. We also continue to support global mental health campaigns, including World Mental Health Day and R U OK? Day.

In 2021, we continued the rollout of our domestic violence support programmes, which now cover 100% of our employees.

Our mental health strategy has moved us from an individual wellbeing mindset to a psychological health and safety risk management focus. We plan to progress our efforts in 2022 by addressing psychosocial hazards in the workplace using a risk management approach to further support better workplace mental health.

Occupational health

In 2021, we recorded fewer occupational health illnesses compared to the previous year, with 51 (2020: 68). However, we conducted fewer health assessments due to COVID-19 restrictions. We completed more than 366,000 health control verifications, of which 221,000 were COVID-19 control verifications, to assess the efficiency of our health controls, such as physical distancing and hygiene controls.

This year, we were able to return most of our operations to their routine hygiene-sampling activities to gather data on exposures to noise, dust and other contaminants, to evaluate the risk to people and determine control effectiveness and compliance. We reinstated health surveillance activities for those with exposures in the workplace, including fitness assessments as well as hearing and blood tests. We have not yet universally returned to lung-function testing due to difficulties with COVID-19 controls, but we are looking at strategies to reinstate this activity as soon as it can be safely conducted.

Strengthening our safety performance

Eliminating fatalities requires a strong safety culture and systems designed to mitigate risk and continually improve the safety of our work. Much of the success of our safety culture is a result of the work accomplished through the implementation of our safety maturity model (SMM), now in its third year. The SMM provides a roadmap for leaders to advance the foundations of safety without being overly prescriptive. These foundations include leadership and engagement, learning and improvement, risk management, and work planning and execution. We assess our assets' progress annually against each of these elements.

In 2021, we undertook an extensive review of the model and committed to introducing some enhancements from 2022 onwards, addressing areas where we can improve, including bridging the disparity in safety performance between employees and contractors and assessing the maturity of core systems, symbols and behaviours that drive safe operations. We will also place a greater emphasis on our people and their mindsets to build psychologically safe operations and extend our leadership maturity approach to environment and health management.

Our critical risk management (CRM) system, a tool used to verify controls to prevent fatalities are in place before starting each task, is fundamental. In 2020, we expanded CRM to include COVID-19 critical controls and, in 2021, we further strengthened the system with improvements to the existing set of control verification checklists, in consultation with frontline leaders, and the addition of new checklists to address emerging risks such as the use of autonomous equipment.

We have also identified opportunities to improve safety in our Marine business and have embarked on a multi-year programme to improve all aspects of safety, health and the wellbeing of seafarers. A key focus will be the increased data collection of safety incidents and sharing learnings through training and coaching to avoid repeat incidents. Our goal is to drive visibility and accountability by engaging and partnering with other organisations to foster a safer future for the industry.

Transforming our HSES systems

The three-year HSES Transformation Programme was established in 2021 to simplify our health, safety, environment and security processes and technology systems into a handful of integrated tools. This will free up our leaders' time, and make our data more reliable and our business safer. This year's focus has been on the global design process, building and testing the processes and technology, and planning for rollout during 2022 and 2023.

Safety standards

Our standards (available at riotinto.com) and procedures provide a consistent approach to managing hazards across our managed operations. We audit managed operations against our standards and require our businesses to meet their health and safety performance requirements and targets.

In 2021, we reviewed our underground control framework, updating the underground safety standard and adding 13 new Group procedures to support our understanding of our critical controls. We trained our underground leaders and implemented improved assurance activities to ensure our underground operations and projects have the technical capability to manage major hazards. We are now applying new technology underground to support geotechnical monitoring at Oyu Tolgoi, and in 2022, we will trial Battery Electric Vehicles (BEV) at our underground project at Kennecott.

COVID-19

When COVID-19 emerged as a global pandemic, we put strict protocols in place in line with government directives, many of which still remain. In 2021, we focused our efforts on the pathway out of the pandemic. We helped governments boost vaccination rates by opening our own vaccination hubs and encouraged our communities to get vaccinated to protect their loved ones.

Building on measures introduced in 2020, all our operations and offices adopted screening measures, such as health questionnaires and temperature checks and, in most locations, virus screening. We track the situation in every region where we operate, and adapt control measures as needed, in line with government directives. Our specialist in-house team follows the latest health research and advice, and monitors new variants. Their expertise also helps to inform our policies and control measures.

The pandemic is ongoing and is continuing to present new challenges for our operations and supply chains. We are constantly evaluating the situation and addressing emerging issues as they arise.

Supporting our communities

With COVID-19, none of us will be safe until everyone is safe. While we saw hope in some parts of the world, in other parts, there was an alarming resurgence of the virus. As the pandemic continues to evolve with the appearance of variants such as Delta and

Omicron, our Business Resilience teams throughout the world, together with Group Services, Global Procurement and our Global Health teams worked to safeguard the health and safety of our people by securing medical services and equipment. We also worked with our partners to extend our care to vulnerable people in the communities.

COVID-19 vaccination support

Now that vaccines are available, we have supported government vaccination campaigns and set up vaccination clinics near our operations in several locations across the US, Mongolia, South Africa, Madagascar, Canada and Australia – for our employees, contractors, their families, and community members.

Position statement on COVID-19 vaccination

In line with our commitment to the safety, health and wellbeing of our employees, contractors, their families, and the communities where we operate, we have updated our position statement regarding COVID-19 vaccinations. It reflects our commitment to ensuring our people are vaccinated against COVID-19, based on key principles, including regional risk assessments to determine whether certain roles, locations or tasks require individuals to be vaccinated. Our approach is guided by our commitment to respect human rights. Any vaccination requirements will be closely managed with care and will consider those who are unable to be fully vaccinated.



Iron Ore Company of Canada (IOC), operations.

People

Empowered and engaged colleagues are key to our success, but we recognise that the work culture in some parts of our business has not always supported this. As a result, we have launched a number of initiatives to evolve our culture, so our people feel safe, respected and included, and they are supported to use their knowledge and experience, drive improvements, and deliver transformation and growth.

2021 was a challenging year with COVID-19 continuing to impact our ways of working and our lives at home. Our new leadership team focused on building trust and listening to our people. With the safety and wellbeing of our 49,000 employees top of mind, we have taken steps to shift our mindsets and simplify our processes.

Evolving our culture

In 2021, we launched our new strategy as well as our new values of care, courage and curiosity, which will reinforce the culture change that we are driving and enable greater performance. We recognise that embedding our values and evolving our culture will take time, but we are making important progress.

Within the mining industry, and across society as a whole, we see unacceptable behaviours such as bullying, sexual harassment, racism. To address this proactively within our own company, we commissioned expert and former Australian Sex Discrimination Commissioner, Elizabeth Broderick*, to conduct an independent review of our workplace culture, as part of our Everyday Respect task force. More than 10,000 people shared their experiences and suggestions, through listening sessions, surveys and written submissions.

The Board and Executive Committee fully endorse the recommendations set out in the report, which focus on a framework for prevention and response via three key areas:

- **Leadership and behavioural change:** A commitment from the company's leadership to create safe, respectful and inclusive working environments to prevent harmful behaviours and better support people in vulnerable situations. This includes increasing diversity within the company.
- **Safe and inclusive facilities:** Ensuring the company's camp and village facilities are safe and inclusive. This includes applying the same safety and risk processes that Rio Tinto uses to prevent harm in operations to create a safe environment for all employees and contractors.
- **Caring response:** Making it as easy and safe as possible for all people to call out unacceptable behaviours, highlight issues when they happen and receive support. This includes introducing early intervention options and improving how the company responds to formal complaints in the workplace.

In 2021, we also took part in the Western Australian Parliamentary Inquiry into sexual harassment of women in the fly-in, fly-out (FIFO) mining industry. We made our submission to the Inquiry in August and are absolutely committed to eradicating all forms of sexual harassment, racism and bullying in our workplace, wherever we operate globally. Everyone deserves to feel physically and psychologically safe at work, without exception. This is core to our values and what we stand for as a company.

This year, we also updated our confidential reporting programme, myVoice, with a number of enhancements designed to make it easier for our people to voice concerns when something at work does not feel right. The myVoice programme will continue to evolve to reflect the feedback received through the independent review. More information is available on page 107.

We know that addressing these issues will, over time, contribute to a safer, more inclusive and respectful work environment. It will help improve wellbeing, increase collaboration, and help to attract and retain diverse people. Continuing to focus on our culture will remain a key priority for all leaders in 2022.

To help catalyse change, we rolled out a major leadership development programme to our top 115 leaders. Over the next two years, a further 400 of our senior leaders will go through the same programme. We are also investing in developing our frontline colleagues, and we are focusing on more delegation and empowerment, as well as simplifying our governance processes. In 2022, we will also review our incentives and rewards to ensure they support and align with our desired culture, values and strategy.

In 2021, we also undertook two Group-wide employee engagement surveys to help us understand how our people feel about the company and our direction. In our latest survey in October, close to 27,000 employees completed the survey and provided over 62,000 comments. Results show that the new strategy was well-received, and our new values resonated for many who felt they have a stronger human connection and reflect what we want to be as a company.

However, our employee satisfaction (eSAT) score, which measures how happy people are working at Rio Tinto, has gone down from 73 to 71. This is the first decline since 2017, and is seen across most levels, geographies and parts of the business. This is consistent with what Glint, our survey provider and expert in engagement, is seeing across organisations. After a broad increase in eSAT during the first year of the pandemic, there has been a general decline across many industries and organisations as fatigue increases. This is a combination of increasing workload to cover absenteeism, additional pandemic-related work and the isolation for those working from home leading to higher levels of employee burnout.

Building a workforce that reflects the diversity of our community

In 2021, our workforce grew by 3,001 and we hired 7,895 people, of which 3,098 were contractors who became permanent Rio Tinto employees.

We continue to focus on the representation of women across all levels. This year, we expanded our gender diversity targets beyond women in senior leadership to women at all levels and increased the representation of women in our workforce by 1.5%. Overall, we increased female representation from 20.1% to 21.6%, hiring 2,524 women, 32% of all new hires. Gender diversity also improved among our senior leadership, up 1.3% to 27.4%. Also, for the first time in five years, our frontline operator female representation grew by 0.9%, from 14.2% to 15.1%.

Initiatives to increase the representation of women include the Women in Mining Forum at our Richards Bay Minerals (RBM) operations in South Africa, sponsored by the site leadership team. Discussion forums were held between senior management and female employees at the site to foster dialogue and identify areas for improvement to break down gender bias and inequality. Our Gladstone leadership development pilot programme is another example from this year where we focused on building career pathways to develop the capability of our female talent in frontline leader roles. The programme was rolled out across the Boyne Smelters, Queensland Alumina and our Yarwun refinery, and our plan is to deploy this programme across our Pacific Operations.

* Elizabeth Broderick AO, Principal, Elizabeth Broderick & Co. Elizabeth was formerly Australia's longest-serving Sex Discrimination Commissioner, and is Founder and Convenor of the Champions of Change Coalition, Adjunct Professor at The University of Sydney, and an Independent Expert to the UN Working Group on Discrimination against Women and Girls.

Our graduate programme is one avenue where we can make sure our leaders of tomorrow reflect the diversity of our community. For our 2021 intake, 58% of the graduates are female and 35% from nationalities where we are building new businesses. In Australia, 10% of the graduate intake and 15% of our vacation student programme are Indigenous, both up from 8% in 2020. We are also investing in the development of our graduates through our new graduate development programme. Due to COVID-19, this programme is now a two-year virtual journey that ensures that all graduates, regardless of where they are located, have access to the same curriculum. It prepares graduates to be future leaders with experiences including the future of work and our role in society. In 2021, the programme received an innovation award through the Human Resources Canada Awards.

We know that having an inclusive and diverse workforce improves performance, and we are committed to Indigenous peoples having a stronger voice across our business. We are one of the largest employers of Indigenous Australians, with almost 1,500 Indigenous employees and contractors working across our Australian business, but we recognise that we have more work to do to increase representation in professional and leadership roles. We have committed \$50 million over five years to attract, retain and grow Indigenous professionals and leaders in Australia, and we have increased the number of Australian Indigenous leaders in our business fivefold since November 2020. We have also developed a national cultural competence programme which was launched in 2021 and will continue to be delivered to our leaders across our business in 2022.

Ensuring equality through pay equity

Equity is intrinsically linked to our commitment to inclusion and diversity. Ensuring that employees with similar skills, knowledge, qualifications, experience and performance are paid equally for the same or comparable work remains a core focus. Our gender pay gap reporting consists of two metrics:

- Our equal pay gap, the primary lens we use when assessing gender pay, measures the extent to which women and men employed by our company in the same location and performing work of equal value receive the same pay. In 2021, we further reduced our gender pay gap compared to 2020, which is less than 1.5% in favour of men.
- Gender pay is a measure of the difference between the average earnings of women and men across the Group (excluding incentive pay), regardless of role, expressed as a percentage of men's earnings. In 2021, our gender pay gap is unchanged with just over 1% in favour of women.

Multiple factors impact this more high-level indicator, including our approach to promoting equity, reflecting higher increases in average earnings for women and an increase in the number of women in higher-paying roles. During the year, we increased our headcount by around 7%. This included a significant proportion of male hires in lower paying roles within the operational workforce, which contributed to the overall outcome. More information on our commitment to pay equity can be found at riotinto.com/payequity.

Other activities in 2021:

- Launched the development of the Rio Tinto Safe Production System (RTSPS) to support our ambition of becoming the best operator. RTSPS empowers our frontline employees, simplifies what we do, frees our people to innovate and brings consistency to our operations. We began testing the model at five sites in 2021: at our copper concentrator at Kennecott, Yandicoogina Fixed Plant, and drill and blast at West Angelas in the Pilbara, the casthouse system at Grande-Baie in the Saguenay, and the concentrator at the Iron Ore Company of Canada (IOC).
- Launched a programme to streamline processes and remove bureaucracy to further empower our people. As an example, we are ensuring authority is delegated to the appropriate level and have completed improvements to our workflows, representing approximately 16,750 approvals per year and returning almost 2,800 hours annually to our leaders.
- Expanded our technical expertise through the RioExcel programme with 36 people formally recognised as technical RioExperts, bringing our total number to 109. Of these, 18% are women and our total RioExpert population represents 14 technical disciplines across six countries.
- Partnered with Mindgym to conduct 15 virtual learning sessions for over 500 people globally (in English and French) about inclusion, being a better ally and creating a sense of belonging.
- Continued to encourage skills development through LinkedIn Learning. Since its launch in May 2020, more than 17,000 of our colleagues have registered for the platform and completed more than 16,200 courses and 24,500 hours of learning.
- Increased the employee contribution caps in our Global Employee Share Plan, myShare, further increasing the attractiveness of the programme. The number of employees who hold Rio Tinto shares through myShare increased by 14% this year – to more than 25,000 employees.
- Researched our global mobile talent to understand the impact of the pandemic on how people view international assignments and what support they need to thrive. Outcomes from this research will inform the shape of the mobility programme to ensure we provide the right support and growth opportunities.
- Established a partnership with the Australian Graduate School of Management (AGSM) at the University of New South Wales to deliver the Rio Tinto Emerging Indigenous Executive Leaders Programme (EIELP) to 20 Indigenous leaders. This programme focuses on developing executive-ready Indigenous future leaders who will have an influential role in shaping the future of our business.
- Completed the first round of the Indigenous two-way mentoring programme. We matched 31 of our Indigenous employees with senior leaders across our Australia businesses. We have now launched round two of this programme, with 45 Indigenous employees participating.



Supporting a career path for our technical experts

In many organisations, career progression means taking on responsibility for leading teams. But through our RioExcel programme, we offer our technical specialists an alternative career path – one where they can focus on building and sharing their expertise. Our RioExperts are selected by a panel of senior technical leaders and must prove they are at the forefront of their domain to share their knowledge.

Learn more about our RioExcel programme at riotinto.com/people.

Employee hiring and turnover rates^{1, 2, 3} (2021)

	Total	Gender ⁴		Age group				Region				
		Female	Male	Under 30	30-39	40-49	Over 50	Africa	Americas	Asia	Australia/ New Zealand	Europe
Employee hiring rate ^{5, 6}	18.8%	32.0%	68.0%	38.7%	32.2%	18.8%	10.2%	1.5%	27.2%	7.4%	60.3%	3.6%
Employee turnover rate ⁷	8.7%	8.6%	8.8%	11.7%	8.3%	6.7%	10.5%	5.7%	6.7%	4.9%	11.3%	7.6%

- Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as at 31 December 2021.
- Excludes Non-Executive Directors and contractors.
- Rates have been calculated over average monthly headcount in the year per category.
- Less than 1% of the workforce gender is undeclared.
- Total hiring rate is calculated as total employee hires over average employee headcount for the year.
- Hiring rate includes total employee hires per category over total hires for the year.
- 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.

Employees by employment type^{8, 9} (2021)

Category	Gender ¹⁰			
	Female (count)	Male (count)	Female %	Male %
Senior leaders	147	390	27.4%	72.6%
Managers	1,119	2,389	31.9%	68.1%
Supervisory and professional	4,729	11,597	29.0%	71.0%
Operations and general support	4,051	22,695	15.1%	84.9%
Graduates	178	119	59.9%	40.1%
Total	10,224	37,190	21.6%	78.4%

- Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as at 31 December 2021.
- Excludes Non-Executive Directors, Executive Committee, contractors and people not available for work. 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.
- Less than 1% of the workforce gender is undeclared.

Workforce data by region^{11, 12}

Region	Average employee headcount ¹³	Headcount distribution %	Absenteeism ¹⁴	Average contractor headcount ¹⁵	Headcount distribution %
Africa	2,360	5.6%	2.8%	69	1.3%
Americas	14,289	33.9%	1.6%	689	13.2%
Asia	4,144	9.8%	2.0%	430	8.2%
Australia/New Zealand	20,288	48.3%	4.2%	4,000	76.6%
Europe	1,018	2.4%	0.9%	36	0.7%
Total¹⁶	42,099	100.0%	3.0%	5,223	100.0%

- Includes our total workforce based on managed operations (excludes the Group's share of non-managed operations and joint ventures) as at 31 December 2021.
- Rates have been calculated over average monthly headcount in the year.
- Employee headcount excludes Non-Executive Directors, contractors and people not available for work.
- 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.
- Contractors include those engaged on temporary contracts to provide services under the direction of Rio Tinto leaders.
- The sum of the categories may be slightly different to the Rio Tinto total due to rounding.

Human rights

Our commitment to human rights is core to our values. It is fundamentally about treating people with dignity and respect – our employees and contractors, workers in our value chain, communities and others with whom we interact.

Our Board Sustainability Committee oversees our approach, as we work to improve our human rights performance. This includes strengthening our processes to prevent any involvement in adverse human rights impacts and, importantly, to provide for, or co-operate in, remediation when we identify that we have caused, or contributed to, human rights harm.

Our salient human rights issues are those where we could have the most severe impacts on people through our own activities or business relationships. Taking into account our operational footprint, value chain and external contexts, we updated our salient human rights issues in 2021 to include land access and use; Indigenous peoples' rights; security; inclusion and diversity; community health, safety and wellbeing; workplace health and safety; labour rights; and climate change and just transition (respecting human rights while transitioning to a low-carbon economy).

We recognise the importance of acting on any involvement we might have in human rights harm through our business relationships with our suppliers, customers and joint venture partners, in line with the UN Guiding Principles on Business and Human Rights and international standards. We look for ways to work with our business partners to advance respect for human rights in line with international standards and our values.

Using a risk-based approach, we pre-screen potential business partners on human rights and require suppliers (including subcontractors) to adhere to our Supplier Code of Conduct, which requires respect for human rights. Our standard global supply contract and purchase order terms and conditions, as well as our Marine chartering contracts, include modern slavery provisions.

We build our employees' understanding through general and targeted human rights training.

Commitment to international standards

We are committed to respecting all internationally recognised human rights, as set out in the Universal Declaration of Human Rights, and implementing the UN Guiding Principles on Business and Human Rights (UNGPs). We voluntarily uphold a range of other international standards, including the Voluntary Principles on Security and Human Rights (VPSHR), the OECD Guidelines for Multinational Enterprises (OECD Guidelines) and the UN Global Compact's Ten Principles.

Consistent with the UN Declaration on the Rights of Indigenous Peoples, we are committed to acknowledging and respecting Indigenous peoples' connections to lands and waters and strengthening the application of the principles of Free, Prior and Informed Consent of affected Indigenous communities in line with the International Council on Mining and Metals Position Statement on Indigenous Peoples and Mining. We acknowledge that the destruction of the rock shelters at Juukan Gorge was a breach of our values, standards and procedures, including those that help us respect human rights. This year, we progressed a remedy process with the Puutu Kuntj Kurrama and Pinikura (PKKP) people. We continue to engage with Traditional Owners, Indigenous groups, civil society organisations and other stakeholders, to inform our approach to the management and protection of cultural heritage.

Key actions during 2021

Governance

- Revised our salient human rights issues.
- Consulted on an updated human rights policy to be published in 2022.
- Started development of a responsible sourcing labour rights action plan to evolve our approach on labour rights risk management across Rio Tinto Procurement managed suppliers.
- Completed an external audit of our community complaints, disputes and grievance mechanisms for alignment with the UNGPs' criteria for effective non-judicial grievance mechanisms.
- Integrated human rights considerations into our refreshed marine safety and crew welfare strategy.

Training and awareness-raising

- Delivered mandatory human rights training for Rio Tinto Procurement and Logistics.
- Provided targeted human rights training for our Sales and Marketing, Ethics and Compliance, Legal, Communities and Social Performance, and Marine teams, including our ship managers for our Rio Tinto owned fleet.
- Refreshed our VPSHR training for security personnel.

Stakeholder engagement and reporting

- Published our fourth VPSHR Implementation Report and our fifth Modern Slavery Statement in compliance with the Australian and UK Modern Slavery Acts.
- Engaged with the Australian National Contact Point responsible for promoting the OECD Guidelines, the Human Rights Law Centre and community representatives regarding the former Panguna copper mine in Bougainville. More information can be found on page 92.
- Provided support to the Compagnie des Bauxites de Guinée SA, in its discussions with the International Finance Corporation's Office of the Compliance Advisor Ombudsman and community complainants regarding the Sangaredi mine in Guinea.
- Engaged with human rights-related shipping initiatives, including in relation to the risks faced by seafarers during the COVID-19 pandemic.
- Hosted more than 40 civil society organisations in three environmental, social and governance roundtables with Board and Executive Committee members in North America, Europe and the UK, and Australia which included discussions about human rights.

Transparent and responsible business

The way we do business is increasingly important to our stakeholders who want assurance that we not only conduct ourselves responsibly, but also that suppliers and customers across our value chain do so as well. We look for opportunities to improve transparency about our business practices and work to ensure our people understand and fulfil their obligations. We participate in assessment and accreditation programmes to verify our performance and identify opportunities for improvement so our stakeholders can have confidence in the way we work.



Cape Lambert ship loading operations. The Pilbara, Australia.

Value chain

As consumers become more mindful of the sustainability of the products they choose, they want reassurance that the materials consumed reflect responsible practices throughout the value chain. Materials used in products today may not be the preferred choice in the future if they cannot establish their environmental, social and governance (ESG) credentials or develop strong circular solutions. This starts with transparency and includes our suppliers, operations and customers.

We are part of a huge ecosystem that includes 37,000 suppliers and 2,000 customers across multiple industries and countries. More than 230 marine vessels transport our products. We are improving our knowledge of suppliers through enhanced due diligence and ongoing monitoring.

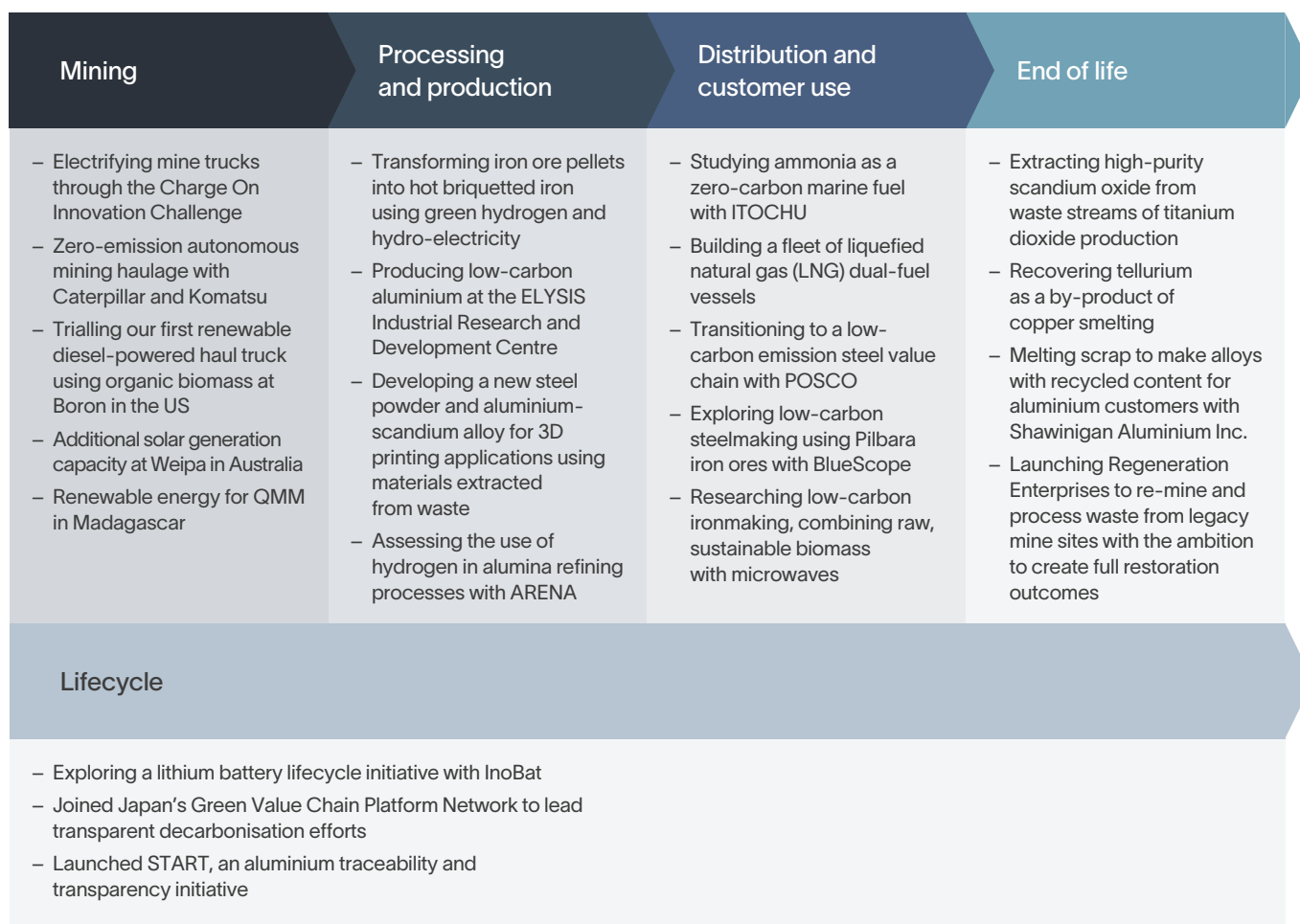
Our Supplier Code of Conduct lays out our expectations on human and labour rights, safety and environment. Our global supply contract outlines our expectations for how our suppliers should manage modern slavery risks.

In our operations, we are providing our customers with assurance that our value chain is responsible through independent industry stewardship programmes. Our Kennecott and Oyu Tolgoi copper operations have been awarded the Copper Mark, the copper industry's independently assessed responsible production programme. In 2021, our ISAL smelter in Iceland was certified under the Aluminium Stewardship Initiative, joining other aluminium assets in Canada, Australia and New Zealand. Our three Canadian mines – Diavik Diamond Mine, Iron Ore Company of Canada, and Rio Tinto Fer et Titane – are assured under the Towards Sustainable Mining programme. See the 2021 Sustainability Fact Book for more information.

We also have a product stewardship strategy and programmes that guide our approach to managing regulatory and sustainability risks and opportunities in delivering our product to market. Our programmes address the regulatory requirements of both our host countries and end markets, as well as those that apply during transport.

Working across our value chain

We progressed a number of activities to reduce our impacts in 2021.



Ethics and Compliance

We expect our people to uphold the highest standard of integrity and to act ethically. Sometimes this requires courage, which is one of our values. This expectation extends to our partners, that they behave and operate in a way that aligns with our values and priorities.

Business integrity

Our code of conduct is clear that we do not offer, pay or accept bribes, no matter where we operate, what the amount, what the situation, and who is involved. Our code of conduct applies to all our people and is available to our external partners and stakeholders at riotinto.com/ethics. In 2021, we updated the code of conduct to reflect our new values of care, courage and curiosity and the new name of our confidential reporting programme, myVoice. Our Business Integrity Standard and Procedure require our employees, core contractors and any third parties acting for, or on behalf of, the company to not commit, authorise or be involved in bribery, corruption, fraud or other economic crimes. We also have clear rules regarding third-party benefits, managing conflicts of interest, facilitation payments, sponsorships, donations and community support, mergers, acquisitions and joint ventures, and engaging third parties. Our Ethics and Compliance team helps our people navigate any grey areas.

This year, we updated our Business Integrity Standard and Procedure to simplify and optimise the efficiency of our processes and better guide our people on how to make the right decisions and demonstrate ethical behaviours. In 2021, we updated the New Country Entry Procedure outlining steps to assess the potential risks (including corruption risks), and internal approvals process, for us to enter a new country. This year, we also established the Export Controls Procedure setting out the requirements for compliance with export control laws.

We have further enhanced our Risk Monitoring Review Forum to regularly review Group-level business integrity risks, and to identify and mitigate new and existing business integrity risks across our operations. In 2021, we established the Group Ethics & Compliance Committee, a sub-committee of the Executive Committee, to provide strategic oversight and input on compliance matters. The Committee provides a formal, structured forum for senior leaders to discuss compliance risks, and ensure the compliance programme is working effectively in practice. In addition, the Board oversees ethics and compliance matters, including myVoice, our confidential reporting programme.

We encourage and equip our people to do the right thing. Our employees are required to complete annual online compliance training, tailored to suit the risks they are most likely to encounter in their specific role and team. We are also continuing our ethics ambassador programme to extend the sharing and reach of integrity initiatives and champion an integrity-driven culture across the business. In 2022, we will update our code of conduct to align with our new strategy and values. We will also ensure it reflects our increased focus on supporting a culture where everyone feels safe to challenge and speak up freely when something does not feel right.

Working with third parties

Understanding the beneficial ownership and activities of the parties with whom we transact business is an important part of living our values and maintaining impeccable environmental, social and governance (ESG) credentials.

In 2021, we amalgamated the Know Your Supplier and Know Your Customer Procedures into a single Know Your Third Party Procedure. This simplified document aligns risk criteria and clearly articulates the due-diligence requirements for all types of third parties. We have also included additional risk criteria to address human rights, labour rights, and modern slavery risk. We also implemented a new Sanctions Standard in March 2021, setting out the requirements and framework for compliance with applicable economic sanctions laws and regulations in the jurisdictions where we operate, and all our third parties are screened for sanctions.

EY completed an external review of our due diligence process. This work will help guide us to streamline and automate processes and better align the level of due diligence with the assessed third party's inherent risk.

myVoice, confidential reporting programme

In 2021, we launched our enhanced confidential reporting programme, myVoice, designed to help our people voice concerns about potential misconduct or improper behaviour. We have increased the independence and effectiveness of the programme through organisational changes and clearly defined governance, responsibilities and accountabilities. The programme is managed by a dedicated Business Conduct Office (BCO) reporting to the Chief Legal Officer & External Affairs. The BCO and the Investigations team report regularly to the Group Ethics & Compliance Committee.

Our employees' response has been positive, and we are seeing an increase in reporting and believe this means that more people are feeling comfortable to share their concerns. In 2021, for the period from 1 January to 31 December, we received 1,246 reports through the myVoice programme channels. Of these cases, 51% were substantiated including 18 cases which were reports received in 2020. The substantiation rate increase in 2021 reflects a single substantiated incident where 139 reports were received.

myVoice – confidential reporting programme

myVoice ¹ case activity	2021	2020	2019	2018	2017
Number of reports	1246	748	805	679	712
Number of reports per 1,000 employees	26.0	16.3	17.9	14.3	15.1
Substantiated claims (%)	51%	42%	34%	34%	33%

1. In March 2021, Rio Tinto launched its new confidential reporting programme called myVoice. myVoice replaces the programme formerly known as Talk to Peggy or Speak-OUT.

Transparency

Being open and transparent about our tax payments, mineral development contracts, beneficial ownership and our stance on a range of other sustainability issues – like climate change – allows us to enter into open, fact-based conversations with our stakeholders in detail, and provides a better understanding of everyone’s roles and responsibilities.

We are recognised as a leader in transparent tax reporting: we were the first in our industry to disclose our payments to governments in detail, and we have been reporting on our taxes and royalties paid, and our economic contribution, in increasing detail since 2010. 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. In 2018, we became a signatory to the B Team Responsible Tax Principles. In 2021, we reinforced our commitment to transparency over tax reporting by being one of the first companies to fully implement the disclosure requirements under the Global Reporting Initiative Tax standard GRI 207.

In 2021, we joined other leading extractive-sector companies in confirming our commitment to support beneficial ownership transparency, including through the disclosure of ownership information, and in using ownership information in undertaking due diligence on partners and suppliers.

Political integrity

We do not favour any political party, group or individual, or involve ourselves in party political matters. We prohibit the use of funds to support political candidates or parties. Our business integrity procedure includes strict guidelines for dealing with current and former government officials and politicians, and they cannot be appointed to senior employee positions or engaged as consultants, in certain circumstances, without the approval of executive management and our Chief Ethics & Compliance Officer.

We regularly engage with governments and share information and our experiences on issues that affect our operations and our industry.

We join industry associations where membership provides value to our business, investors and other stakeholders. At riotinto.com/industryassociations, we outline the principles that guide our participation, the way we engage, as well as a list of the top five associations by membership fees paid. 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.

This year, we have further strengthened our approach and disclosures on industry associations.

Training

In total, 4,307 employees and contractors in 18 countries had face-to-face training, and over 23,000 had online training in recognising and managing business integrity dilemmas.

Value chain

	2021
Due-diligence checks on third parties	4,754
Due-diligence checks on third parties – baseline screening only	8,040
Centrally monitored third parties ¹	44,495

1. Once third parties are screened, they then form part of ongoing monitoring.

We have applied the reporting principles of GRI 101: Foundation 2016 Standard in this report.



Partnering to strengthen business ethics in Mongolia

In partnership with the Mongolian National Chamber of Commerce and Industry (MNCCI), and Transparency International Mongolia, we launched a new Business Integrity Centre in 2021 to help support the country’s efforts to promote transparency, business ethics, and corporate governance.

Learn more at riotinto.com/ethics.

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. External organisations and initiatives assess and recognise our performance, and we participate in industry accreditation programmes for some of our products. These organisations and initiatives include the following:

Aluminium Stewardship Initiative (ASI)

The ASI aims to create sustainability and transparency throughout the aluminium industry. It has developed the world's first global Responsible Aluminium Standard, used to assess environmental, social and governance practices across the aluminium supply chain for responsible sourcing. We were the first company in the world to receive certification under the ASI.

Blue Green Alliance (BGA)

The BGA aims to solve environmental challenges in ways that create and maintain quality jobs and build a stronger, fairer economy. We are on the Advisory Board of the BGA.

Business for Social Responsibility (BSR)

BSR is a global non-profit organisation that works with its network of more than 250 member companies and other partners to build a just and sustainable world. As a member, we share information on sustainable practices.

Extractive Industries Transparency Initiative (EITI)

We are a founding member of the EITI and have played an active role in this global standard since 2003. The EITI promotes open and accountable management of natural resources to make sure our activities benefit the many, not the few. We are transparent about the taxes and royalties we pay – publishing an annual Taxes Paid Report since 2010.

Global Reporting Initiative (GRI)

GRI is an international independent organisation with an international framework and standards for sustainability reporting. Our Group-level sustainability reporting is informed by the GRI Sustainability Reporting Standards (Core option) and the GRI Mining and Metals Sector Supplement.

International Council on Mining and Metals (ICMM)

As a member, we commit to implementing and reporting on ICMM's Ten Principles for Sustainable Development. These cover corporate governance, environmental stewardship and community engagement. Our Chief Executive is a member of the ICMM Council, and we participate actively in various working groups, such as the climate change and energy working group. In 2021, our Chief Executive signed the ICMM Climate Change statement, committing Rio Tinto and other member companies to a goal of net zero by 2050 or sooner.

We are also committed to implementing the ICMM Performance Expectations (PEs). The ICMM Mining Principles framework focuses on the implementation of systems and practices related to a broad range of sustainability areas. Eleven Rio Tinto managed assets completed self-assessments in 2021. These assets met the requirements in the areas of ethical business practice, decision making, health and safety, social performance, and stakeholder engagement. Our teams identified opportunities to improve our performance in human rights, risk management, environmental performance, conservation of biodiversity, and responsible production.

ICMM performance expectations self-assessment outcomes



Kimberley Process (KP)

We participate in the Kimberley Process through our involvement with the World Diamond Council (WDC). The KP is a joint initiative between governments, diamond industry bodies and civil society organisations, mandated by the United Nations and the World Trade Organization, to stem the flow of "conflict diamonds".

London Bullion Market Association (LBMA)

The LBMA has renewed Rio Tinto Kennecott's responsible gold and silver certificate, which guarantees that the precious metals produced from Kennecott's refinery are accepted and traded globally. The certificate is one of the requirements for precious metal refineries to be placed on the LBMA's Good Delivery List (GDL), an internationally recognised standard for quality and responsible production. Many precious metal exchanges will accept gold and silver bars only from refiners that appear on the GDL.

Natural Diamond Council

We are a founding member of the Natural Diamond Council whose mission is to advance the integrity of the diamond and jewellery industry to inspire, educate and protect the consumer.

OECD Guidelines for Multinational Enterprises

The OECD Guidelines for Multinational Enterprises are recommendations by governments to multinational enterprises operating in or from adhering countries. They include non-binding principles and standards for responsible business conduct in a global context consistent with applicable laws and internationally recognised standards. These guidelines are a multilaterally agreed and comprehensive code of responsible business conduct that governments have committed to promoting.

Proteus Partnership

The Proteus Partnership was formed in 2003 as a collaborative effort between leading extractive companies and the United Nations Environment Programme World Conservation Monitoring Centre (UNEP-WCMC) to improve accessibility to biodiversity data for better decision making and support the development of global biodiversity resources. As a Proteus Partner, we have access to the UNEP-WCMC online biodiversity assessment tool, which allows us to scan for potential sensitive areas in places where we are seeking tenure before major investments are made.

Responsible Jewellery Council (RJC)

The RJC is an international non-profit organisation that promotes transparent and responsible ethical, human rights, social and environmental practices throughout the jewellery industry – from mine to retail. We are a founding member and were the first mining company to be certified in 2012. Since then, we have continued to uphold the ESG standards and maintained RJC certification, which needs to be renewed every three years. We were re-certified in 2021 against the RJC Code of Practice Standards. RJC certification covers operations or activities of our businesses that produce diamonds, gold or gold in concentrates that contribute to the jewellery supply chain. This includes our Diavik Diamond Mine in Canada and our Kennecott copper mine in Utah for gold.

The B Team Responsible Tax Principles

We are a signatory to The B Team Responsible Tax Principles, developed by a group of cross-sector, cross-regional companies to define what leadership in responsible tax looks like. The disclosures in our Taxes Paid Report, available at riotinto.com/taxespaidreport, demonstrate our approach to The B Team's seven Responsible Tax Principles.

The Copper Mark

Developed by the International Copper Association – with input from a range of stakeholders, including customers, NGOs and producers – The Copper Mark is a comprehensive assurance framework to demonstrate the copper industry's responsible production practices and contribution to the United Nations Sustainable Development Goals. Our Kennecott mine, in Utah, US, and Oyu Tolgoi, in Mongolia, were the first producers to be awarded the Copper Mark – verifying our copper as responsibly produced.

Towards Sustainable Mining (TSM)

We participate in the TSM programme through our membership of the Mining Association of Canada (MAC). TSM is a sustainability certification that applies to members of MAC operating in Canada.

United Nations Global Compact (UNGC)

The UNGC is a voluntary initiative based on CEO commitments to implement universal sustainability principles and to take steps to support UN goals. As members, we incorporate the Ten Principles of the UN Global Compact into our strategies, policies and procedures.

United Nations Guiding Principles on Business and Human Rights (UNGPs)

The UNGPs are a global reference point for preventing and addressing the risk of adverse impacts on human rights linked to business. We seek to operate in a manner consistent with the UNGPs.

United Nations Sustainable Development Goals (SDGs)

The SDGs are a set of 17 goals and 169 targets endorsed by the UN in 2015. These present a broad sustainability agenda focused on the need to end poverty, fight inequality and injustice, and respond to climate change by 2030. Please see page 75 for more on our approach to the SDGs.

United Nations Universal Declaration of Human Rights (UDHR)

The UDHR is a milestone document in the history of human rights, which sets out, for the first time, fundamental human rights to be respected. We respect and support all internationally recognised human rights consistent with the UDHR.

Voluntary Principles on Security and Human Rights (VPSHR)

The VPSHR guides extractives companies on how to maintain the safety and security of their operations in line with respect for human rights. Participants, including governments, companies and non-governmental organisations, agree to proactively implement or support the implementation of the VPSHR. We published our VPSHR Report for the first time in 2018 (previously only provided to other participants) and have committed to doing this each year.

World Economic Forum (WEF)

WEF brings together the foremost political, business, cultural and other leaders of society to shape global, regional and industry agendas. It is independent, impartial and not tied to any special interests. The Forum strives to demonstrate entrepreneurship in the global public interest while upholding the highest standards of governance.

External assessment

External assessment of our activities and performance, and associated ratings, provides important inputs that help us better understand stakeholder expectations, drives transparency and helps us improve.

Indices and ratings

Sustainability indices	Maximum rating	2021	2020	2019	2018	2017
Dow Jones Sustainability Index (DJSI)	100	76	68	66	67	67
FTSE4 Good	5	4.0	4.3	4.3	4.3	4.2
Rating providers	Maximum rating	2021	2020	2019	2018	2017
CDP	A	B	B	C	C	B
EcoVadis	100	55	50	53	47	45
ISS OEKOM	A+	C+	C+	C	C	–
ISS Corporate Solutions						
Environment	1	1	1	1	3	2
Social		1	1	1	1	1
Governance		6	2	3	3	1
MSCI	AAA	A	A	A	BBB	BBB
RMI (Responsible Mining Index)	6	³	–	–	–	–
Economic development		³	1.43	–	1.20	–
Business conduct		³	3.08	–	2.69	–
Lifecycle management	6	³	2.01	–	1.13	–
Community wellbeing		³	1.49	–	0.83	–
Working conditions		³	2.26	–	2.13	–
Environmental responsibility		³	2.17	–	2.06	–
Sustainalytics	Risk rating – Low	High	High	Medium	High	–
Environment	100 ¹	–	–	–	–	56
Social		–	–	–	–	60
Governance		–	–	–	–	98
Disclosure		–	–	–	–	97
Vigeo Eiris	100	53	53	54	Responded	–
Other initiatives	Maximum rating	2021	2020	2019	2018	2017
Corporate Human Rights Benchmark	100, 26 (2020)	–	23.5	76	76.3	63
Transition Pathway Initiative	Level 4	Level 4	Level 4	Level 4	Level 4	Level 4
Workforce Disclosure Initiative (WDI)	Responded	Responded	Responded	Responded	–	–

1. From 2018, ranking and metrics were changed from numerical to risk rating.
2. From 2019, the maximum scoring was against 6 compared to earlier which was 1.
3. 2021 rating pending at time of publication.

Risk management

Taking and managing risk responsibly is essential to operating and growing our business safely, effectively and sustainably.

Our risk appetite

Our commitment to position our business for the transition to a low-carbon economy is reflected in our strategic priorities, with high-risk appetite for growth and innovation.

Accelerate the decarbonisation of our assets

We support the global effort to address climate change and we are committed to taking action. We are accelerating the decarbonisation of our assets and will seek to meet our Scope 1 and 2 targets, reaching a 15% reduction by 2025 and a 50% reduction by 2030 (over 2018 levels).

We intend to invest an estimated \$7.5 billion in capital expenditure between 2022 and 2030 (inclusive) in green energy and carbon abatement projects.

We will apply an internal price of \$75 per tonne of CO₂ to incentivise energy efficiencies and carbon abatement projects – prioritised in our planning process.

Develop products and technologies to support our customers' decarbonisation

Our products enable the energy transition, giving us comfort in the level of transition risk facing our business. Some of our value chains, in particular steel and aluminium, are energy intensive and need to decarbonise. To thrive in the long term we need to be part of net zero value chains.

We are partnering with our customers, competitors, suppliers and technology developers as well as governments and universities, to find solutions.

We are increasing our investments in research and development, developing new products and breakthrough technologies that will enable our customers to decarbonise in line with our Scope 3 emission goals.

Grow in materials that enable the energy transition

We are focused on excelling in development in commodities that are essential for the drive to net zero.

We have increased our appetite for higher-risk jurisdictions and broadened our target commodities.

Our ambition is to increase our investment in growth capital expenditure up to \$3 billion per year and will maintain capital discipline in pursuit of value-accretive opportunities.

Our 2021 Climate Change Report provides further details on our analysis of transition risks to our portfolio and the decarbonisation roadmaps to meet our Scope 1 and 2 targets, as well as our approach to and goals for Scope 3 emissions.

Our determination to be the best operator and have impeccable environmental, social and governance (ESG) credentials is underpinned by our zero tolerance for non-compliance with our operational procedures, laws and our obligations. These expectations are outlined in our Group policies, standards and procedures, published on our website at riotinto.com/policies.

Details of our management of principal risks to our performance, future prospects and reputation can be found in the principal risks and uncertainties section of this report.

Managing our risks effectively ensures we deliver our strategic priorities and strengthens our social licence.

Our approach to risk management

Our Group's strategy, values and risk appetite inform and shape our risk management and internal controls 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 the environment. The Board and the Executive Committee provide oversight of our principal risks, and the Audit Committee monitors the overall effectiveness of our risk management processes and internal controls. All employees are required and empowered to identify and manage the risks that arise within their area of responsibility.

Our management system consists of six core elements (see page 114) that we continuously monitor and improve to ensure that we are effectively managing current risks and identifying emerging risks.

The risk management framework sets out clear roles and responsibilities, standards and practices. The overall effectiveness of the risk management framework requires clear expectations and consistency in the application of internal controls across the Group. To enable this, we have begun the journey to digitalise our control requirements in line with our standards and procedures, within our enterprise risk management platform.

The tragic events at Juukan Gorge in May 2020, highlighted the importance of having a strong risk culture as well as robust risk management practices and systems, to ensure a resilient organisation. To achieve this, we have enhanced our internal training and guidance materials for leaders and risk owners on risk management responsibilities and practices, including the disclosure and escalation of risk information to ensure management response is at the right level of the organisation.

We will continue to invest in ways to support and coach our leaders and teams in risk management, ensuring alignment with our risk appetite and code of conduct.

Our three lines of defence provide assurance that risks are effectively managed in line with our policies, standards and procedures. You can view our risk management policy and standard at riotinto.com/policies.

Three lines of defence	Responsibilities	Accountability
1 st – All operational leaders	Identification, management, verification, and monitoring of risks and controls	Management
2 nd – Centre of Excellence, Areas of Expertise and Group functions	Oversight of risks and control effectiveness, design of Group controls, advice on capabilities and objective assurance of compliance with the Group's policies, standards and procedures	Management
3 rd – Group Internal Audit	Independent objective assurance to evaluate the effectiveness of risk management, internal controls and governance	Board and Board committees



Emerging risks

COVID-19 continued to be prevalent in regions where we have assets and offices, including Mongolia, India, the Americas and South Africa. As the pandemic is now becoming more endemic with varying pathways to recovery across countries, the longer-term impact of how we adapt to this new normal is still uncertain. This includes the productivity of a hybrid workforce environment, the impacts of tighter labour markets, and supply chain disruptions.

The recent disruptions caused by the post-pandemic demand surge and the inability of supply chains to keep up, have highlighted the complexity and vulnerability of the global supply chain infrastructure. Supply chain disruptions can also be caused by a number of principal risk events – as described in our principal risks and uncertainties section – such as natural disasters and geopolitical tensions. Inflationary pressures may also affect the competitiveness of suppliers, leading to supplier market contraction further impacting supply chain resilience. Severe supply chain disruptions have the potential to impact not only inbound and outbound flows of our feedstock, services and products, but also the delivery of our sustaining and growth projects.

In the longer term, as the world transitions to a low-carbon future and consumer demand for sustainable goods flows through the value chain, the supply-demand dynamics of commodities are expected to shift. This will lead to increasing demand for sources and solutions with low CO₂ emissions, and a lower social and environmental footprint, in addition to a growing demand for transparent, sustainable and circular value chains. While the commodities within our portfolio are needed in a decarbonising world, this shift will shape the future of the mining industry, impacting supply cost structures, and demand for global commodities, and increasing the focus on the non-financial performance measures.

Our future reserves are increasingly overlapping with sensitive social and ecological regions, requiring new extraction and technology advancements to minimise our impact when exploring, mining and processing. Technology advancement will not only be a key enabler for us to reach our net-zero emissions ambition, but it will also play a key role in how we achieve impeccable ESG credentials.

Our 2021 Climate Change Report explains in detail our current and future initiatives and partnerships, and how they will help us meet our Scope 1 and 2 targets.

Longer-term viability statement

Business planning process

Our long-term planning reflects our business model of running our business in a way that is safer, smarter and more sustainable. To ensure we remain resilient in the long term, our business model is continuously stress tested against the key uncertainties within the emerging risks areas with recommended actions to mitigate the potential downside. These are presented to the Board annually as part of the Group strategy discussions. We then develop our strategy and make capital investment decisions based on this assessment. We also regularly assess our financial capacity to ensure our capital commitments can be funded in line with our disciplined approach to capital allocation.

Our business planning processes include preparing a one-year detailed financial plan and a longer-term life-of-asset outlook. This planning process includes modelling a series of macroeconomic scenarios and using a range of assumptions that consider both 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.

The main assumptions underpinning our long-term plan include:

- long-term economic growth and commodity demand in major markets, such as China;
- continued access to, and economic viability of, resources and reserves to support organic and inorganic growth programmes;
- pathways to reduce our carbon footprint;
- sensitivities to potentially disruptive technologies and productivity improvements;
- no operational risks materially impacting the long-term plan; and
- continued access to capital markets.

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. However, like last year, our longer-term viability assessment examines the first five years (2022–2026) of the business plan. This enables a detailed analysis of the potential impact of risks materialising in quick succession in the first three years, and to further stress test the business plan for risk materialising towards the end of the time period, although with less certainty. This allows Directors to assess Rio Tinto's capacity to exercise financial and other levers available in both the three-year and five-year timeframes to maintain the Group's viability.

Our principal risks and uncertainties, as outlined in the following section, are risks that could materially affect our performance, future prospects or reputation. For the viability assessment, we have considered principal risks that could have a severe impact on the Group's liquidity and solvency in addition to non-financial consequences.

Assessment of viability

The principal risks and assumptions considered in our longer-term viability assessment are as follows:

– Commodity economic risk (economic-focused risk):

A global financial crisis is triggered as the COVID-19 pandemic persists and global tensions intensify, resulting in positive but low growth in China and an economic downturn in the rest of the world. Large negative pricing shocks are assumed in 2022, sustained through 2023 and followed by slow growth rates.

There continues to be great uncertainty on the recovery pathway from the COVID-19 pandemic as the situation evolves with new variants and varying actions by governments. To mitigate some of this uncertainty, and to give a greater level of confidence to the Directors in assessing our long-term viability, we have assumed a cautious recovery pathway in our scenario.

– Major hazards risks (operationally focused risk):

Occurrence of a singular catastrophic event resulting from a major operational failure, such as a tailings and water storage facility failure, an extreme weather event, or an underground or geotechnical event resulting in multiple fatalities and/or the cessation of operations incurring significant financial impacts. We have assumed that two such events occur within the assessment period ie in 2022 and 2025.

– ESG-focused risk:

Materialisation of an ESG-focused risk, impacting how we operate and our ability to access current and future resources. This could include a severe deterioration in our relationship with Indigenous peoples or communities where we operate, new prohibitive laws or regulations, or water scarcity. We have assumed an impact on our current development pipeline and considered available alternatives. The financial impact assumed here is in addition to any non-financial impact, such as reputational damage to the Group or the disruption to the culture and way of life of the communities where we operate.

We quantify the expected financial impact of each risk based on internal macroeconomic and business analysis, as well as internal and external benchmarking on similar risks. We apply a probabilistic approach to quantify risks and impacts where relevant.

The first five years of the Group's business plan were stress tested for each risk to assess the impact on the Group's longer-term viability, including whether additional financing facilities would be required. In addition to liquidity and solvency, the assessment also considered other financial performance metrics as well as dividend payments. These metrics are subject to robust stress tests and reverse stress tests.

The most severe scenario considers the financial impact of all three risks materialising at the start of the assessment period, followed by a second operational risk 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 negative \$20 billion in aggregate.

The Group has 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 potentially be limited during the peak of the crisis, but the longer-term viability of the Group under all the scenarios tested remains sound.

We have also conducted reverse stress testing by assessing the impact of reducing price levels, on a synchronised basis, and concluded that the Group remains viable in a very low probability event of prolonged price declines across all commodities.

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 payout shareholder return policy based on earnings, and accordingly more sustainable.
- The objective to achieve impeccable ESG performance and, therefore, strengthening our social licence and allowing for growth and maintaining access to debt capital and bank loan markets.

Taking into account the Group's current position and the robust assessment of our principal risks, the Directors have assessed the prospects of the Group over the next five years (until 31 December 2026) 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.

The following principal risks, which have longer-dated consequences or continue to evolve, could potentially have a material impact on our business beyond the viability assessment period. Please refer to the Emerging risks and Principal risks and uncertainties sections for further details and current management responses.

– Developing products and technologies that enable our customers to decarbonise

As the global effort to tackle climate change continues, consumer demand for sustainable goods is expected to flow through the value chain. If our customers do not reduce Scope 3 emissions, demand for our products may decline as lower-carbon alternatives are developed and adopted.

– Our ability to replenish or convert resources to reserves in a timely manner

As market dynamics, regulations, cultural and environmental assessments, and societal expectations change, key assumptions underlying our ore resources and reserves and project development plans could change with material impact to the Group (positive or negative). This is addressed in our principal risks "Growing in materials essential for energy transition" and "Resources to reserves conversion of our existing assets".

– Closure, reclamation, rehabilitation and legacies

Plans and provisions for closure, reclamation and rehabilitation at our operational and legacy sites could be impacted by changes in stakeholders' expectations, legislation, standards, technical understanding and techniques.

Principal risks and uncertainties

The principal risks and uncertainties outlined in this section reflect the risks that could materially affect (negatively or positively) our performance, future prospects or reputation.

A principal risk is one or a combination of risks that emerge due to external and 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 Executive 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.

We regularly assess the potential impact and likelihood of our principal risks to support the prioritisation of our efforts and resources. The assessment of these principal risks, and the effectiveness of our associated controls, reflect management's current expectations, forecasts and assumptions, and by definition, involve subjective judgments and are subject to changes in our internal and external environments. While we deploy preventative and mitigative controls to reduce the likelihood, and to manage potential impacts, the following describes the inherent risks to our business. Certain threats remain,

such as natural disasters, where there is limited capacity in the international insurance markets to transfer such risks. We closely monitor these threats and develop business resilience plans. We also seek to bring a commensurate level of rigour and discipline to our managed and non-managed joint ventures as we do to our wholly owned assets, through engagement and influence, in line with applicable laws.

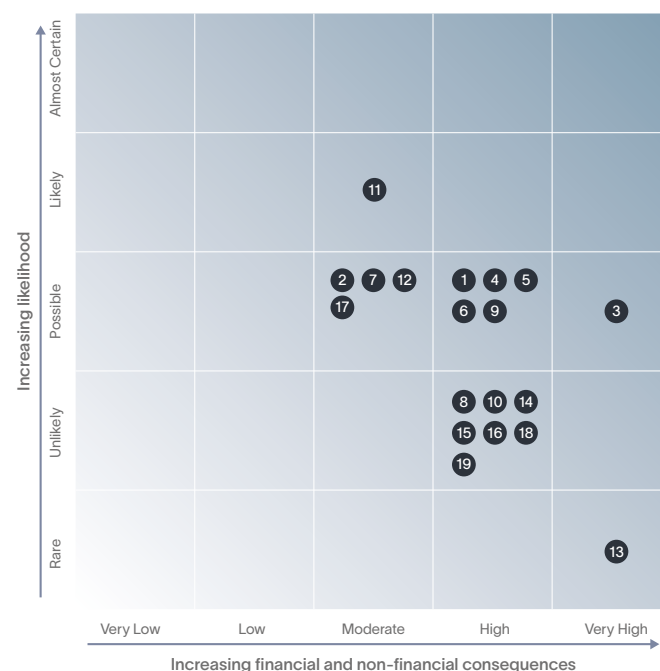
Our principal risks, in the table below, note the interconnectivity of our Strategic¹, Economic² and Operational³ risks within an Environmental⁴, Social⁵ and Governance⁶ (ESG) framework.

The timeframe of principal risks is within five years, unless explicitly stated otherwise. The principal risks, uncertainties and trends outlined in this report should be considered as forward-looking statements and are subject to the cautionary statement on page 420 [AR](#).

Current assessment of principal risks

As of February 2022

Principal risk	Focus
1 Living our corporate values	Strategic, ESG
2 Attracting, developing and retaining talent	Strategic, ESG
3 Decarbonising our business competitively	Strategic, ESG
4 Developing products and technologies that enable our customers to decarbonise	Strategic, ESG
5 Growing in materials essential for energy transition through excelling in development	Strategic, ESG
6 Building trusted relationships with Indigenous peoples	Strategic, ESG
7 Building trusted relationships with communities	Strategic, ESG
8 Maintaining our competitiveness through economic cycles	Economic
9 Resources to reserves conversion of our existing assets	Economic
10 Geopolitics impact on our trade or investments	Economic
11 Global and domestic tax policy and administration instability	Economic, ESG
12 Breach of our policies, standards and procedures, obligations or regulations	Operational, ESG
13 Major hazard or safety event	Operational, ESG
14 Physical resilience to natural disasters and extreme weather	Operational, ESG
15 Significant biodiversity-related ecological impact	Operational, ESG
16 Water scarcity and management	Operational, ESG
17 Closure, reclamation, rehabilitation and legacies	Operational, ESG
18 Cyber breach	Operational, ESG
19 Pandemic prolonged	Operational, ESG



- Strategic** – risks arising from uncertainties that may impact our ability to achieve our strategic objectives.
- Economic** – risks that directly impact financial performance and realisation of future economic benefits.
- Operational** – risks arising from our business that have the potential to impact people, environment, community and operational performance, including our supply chain. Health, Safety, Environment and Security (HSES) risks are specific operational risks.

- Environment** – risks arising from our business that have the potential to impact air, land, water, ecosystems and human health.
- Social** – risks arising from our business that have the potential to impact society, including health and safety.
- Governance** – risks arising from our workplace culture, business conduct and governance.

1. Living our corporate values

Living our values (care, courage and curiosity) 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 where all our people are trusted and empowered to be their best selves and help drive change. This begins with a workplace where everyone feels safe, respected and included.

Strategic | ESG

Potential impact

- Group reputation
- Licence to operate
- Future financial and operational performance
- Attraction, engagement and retention of our people

Opportunities

Our reputation and ability to build respectful and trusting partnerships depend on our business conduct being consistent with our values.

Threats

Greater transparency is expected of organisations on how they are preventing and addressing behaviours not consistent with their values.

Management's response:

We are embarking on a cultural change programme led by the launch of our new values in 2021. Our code of conduct, *The Way We Work*, clearly sets the standard of behaviour for our people, and provides guidance on how we should conduct our business, no matter where we work or where we are from.

Management's response includes:

- Launching our new values, and a programme to support how they are embedded
- Launching the Everyday Respect task force, to better understand and address bullying, sexual harassment and racism and other forms of discrimination in our workplace
- Reinvigorating our internal whistleblowing programme (myVoice) managed by a dedicated Business Conduct Office, open to our workforce and external stakeholders to report on conduct inconsistent with our values and code of conduct
- Offering behavioural training for leaders and employees, to reinforce positive behaviours
- Offering business integrity training tailored to role responsibilities and risk exposures
- Conducting bi-annual People Survey and presenting an annual values scorecard to the Executive Committee and the Board

2. 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 | ESG

Potential impact

- Access to skilled labour
- Future financial and operational performance
- Communities and social performance
- Group reputation

Opportunities

Enhancing productivity, innovation and business resilience through investment in critical skills required now and for the future.

Threats

Business interruption or underperformance may arise from a lack of access to capability. Tight labour markets are leading to heightened competition for diverse talent and critical skills, such as digital, climate and energy.

Changing societal expectations are placing pressure on our corporate and employer brand – who we are and what we stand for.

Management's response includes:

- Implementing Group-wide initiatives to positively shape our workplace culture and employee experience, focused on creating a safe, respectful and inclusive workplace. Examples include the Rio Tinto Safe Production System and the Everyday Respect task force
- Ensuring talent management and planning across our global assets and for critical technical capabilities
- Talent acquisition strategy which targets multiple labour markets, and a diverse range of skills
- Maintaining competitive remuneration and benefits
- Providing learning and career development opportunities for our people to build skills for today and our future
- Hosting a global graduate programme and taking part in strategic partnerships with universities
- Offering local trainee (apprenticeship) programmes and other future-skills development partnerships

3. Decarbonising our business competitively

Ensuring our ability to deliver longer-term strategic objectives and our Scope 1 and 2 targets within the required timeframe, while balancing the need to invest for growth, deliver superior shareholder returns and remain competitive.

Strategic | ESG

Potential impact	Opportunities	Threats
– Business model and value – Future financial and operational performance – Group reputation – Partner to operate – Litigation – Social and human rights impacts	Decarbonising our assets has the potential to enhance our competitive advantage as well as embed a culture of energy efficiency. It also allows us to explore economic opportunities that will benefit our host communities.	Any delay in priority initiatives threatens our Scope 1 and 2 target delivery and ability to respond proactively and competitively. The pace of electricity grid decarbonisation plays an important part in our plans for our aluminium smelters in Australia and is a key uncertainty. Successful research and development investment is a critical enabler. Failure to follow our social and human rights standards during implementation of the decarbonisation project could adversely impact people, relationships and our capacity to meet our targets.

Management's response includes:

- We intend to invest an estimated \$7.5 billion to the delivery of our targets, for example through the development of 1GW of solar and wind power in the Pilbara. We are also looking at green-energy solutions for our Boyne and Tomago smelters, and accelerating current abatement projects by introducing an internal carbon pricing of \$75/t CO₂
- Investing in new technologies and research and development, such as ELYSIS™, hydrogen pilots and cross-sector partnerships to develop zero-carbon trucks with Caterpillar and Komatsu
- Integrating our commitment to implementing core business and human rights standards, including the UN Guiding Principles on Business and Human Rights (UNGPs), into our decarbonisation plans and actions

4. Developing products and technologies that enable our customers to decarbonise

Our opportunity to decarbonise our value chain (Scope 3) by partnering with suppliers and innovating with our customers.

Strategic | ESG

Potential impact	Opportunities	Threats
– Business model and value – Future financial and operational performance – Group reputation	Collaborating on the development of new technologies with our customers, universities and research institutes to reduce emissions from the processing of our products. Technologies being developed to decarbonise our business may assist in reducing the emissions of our customers and consequently our Scope 3 emissions, capturing the increasing demand for responsibly produced products and taking advantage of low-carbon offerings.	If our customers do not reduce Scope 3 emissions, demand for our products may decline as alternate lower-carbon alternatives are developed and adopted. Exposure: Iron ore sales contributed approximately 60% of revenue in 2020 and our customers' processing of that iron ore contributed 73% of our overall Scope 3 emissions of 519Mt CO₂e. Processing of bauxite and alumina contributed 22% of Scope 3 emissions.

Management's response includes:

- Establishing a dedicated steel decarbonisation team to support the transition of the steel value chain towards net zero, collaborating with steel mills, research institutes and technology providers, focused on both blast furnace optimisation and green steel pathways. We continue to assess the feasibility of green hot briquetted iron (HBI) production with hydrogen from hydro-electricity in Canada
- Seeking to bring additional tonnes of high-grade iron ore to market from IOC and Simandou which can meet direct reduction specifications
- Partnering with our suppliers and developing sustainable supply chains with an aim to only purchase zero-emission haul trucks and locomotives and introduce net-zero emissions vessels by 2030
- Working with our customers on all ESG metrics by offering responsibly produced products, such as low-carbon aluminium RenewAl, and transparency and traceability of our aluminium products via START and the Copper Mark out of our Kennecott operations

5. Growing in materials essential for energy transition through excelling in development

Our ability to deliver our growth strategy lies in the success of our exploration and/or acquisition activities, and our ability to develop these resources faster and more competitively than others. Developing these projects organically or inorganically requires complex multi-year study and execution plans and carries significant delivery risk.

Strategic | ESG

Potential impact

- Valuation
- Future financial and operational performance
- Group reputation
- Ability to attract and retain key talent

Opportunities

Exploration and M&A have the potential to increase resources in commodities currently within our portfolio or diversify into new commodities. Our ESG credentials may provide a competitive advantage in accessing deposits. Through operational efficiencies, deployment of new technologies or improved understanding of our orebodies, we may convert a greater proportion of resources to reserves available more competitively.

Threats

Our Scope 1 and 2 targets may limit the target pool for M&A activity. New high-quality deposits are increasingly scarce and may require advances in processing technology and/or significant capital investment in infrastructure.

As studies and projects progress, they are susceptible to changes in technical requirements, approvals, societal expectations or changes in underlying commercial or economic assumptions. Current material threats include the delivery of our large underground projects, ie Oyu Tolgoi underground expansion, Resolution and Jadar. In the short term, project delivery remains susceptible to COVID-related supply chain disruptions and travel restrictions.

Management's response includes:

- Increasing our appetite for growth capital expenditure
- Implementing our objective to excel in development to deliver inorganic and organic growth through alignment across the Group, leveraging our in-house capabilities and focusing on capital intensity
- Broadening our scope of jurisdictions and targets, ie include higher-risk jurisdictions and consider minimum viable projects that can grow and create optionality
- Ensuring a disciplined approach to all material acquisitions, including a detailed, objective due diligence and a stage-gate approval process
- Conducting post-investment reviews on divestments and acquisitions to identify key learnings and embed them in future initiatives
- Ensuring robust ESG and human rights due diligence during M&A and new country entry

6. Building trusted relationships with Indigenous peoples

Our partnerships with Indigenous peoples play a material role in delivering on our operational and strategic goals, and a loss of trust may impact current and future partnerships and our ability to operate. Our partnership approach is with a view to the long-term development of trusted relationships with Indigenous peoples.

Strategic | ESG

Potential impact	Opportunities	Threats
– Future financial and operational performance – Withdrawal of social licence to operate restricting access to orebodies – Valuation – Group reputation	Partnerships offer opportunities to create mutual benefits and shared value for all parties involved by leveraging the differing strengths of the participants. This may be realised through increased Indigenous participation in employment and procurement opportunities, access to resources, increased shareholder returns, or reduced political, portfolio and operational risks.	Mining activities may strain relationships with Indigenous peoples, particularly where actual or perceived damage (cumulative and/or acute) of significant cultural value occurs without consent. This may result in loss of trust between Indigenous peoples and our company, impacting our ESG credentials or ability to excel in development. Exposure: Resolution, modernisation of agreements in the Pilbara, British Columbia

Management's response includes:

- Implementing an integrated cultural heritage management system and ensuring Community and Social Performance (CSP) metrics are embedded in approvals and decision-making processes at all levels of the organisation
- Strengthening consultation and engagement processes to demonstrate progress towards, or achievement of Free, Prior and Informed Consent of affected Indigenous and land-connected communities across all stages of the asset lifecycle, in accordance with the ICMM Indigenous Peoples and Mining Position Statement
- Modernising our agreements with Traditional Owners in the Pilbara, which includes modifying clauses to ensure respect, transparency and mutual benefit
- 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, CSP standard and Human Rights policy
- Building cultural responsiveness and competence (including for cultural heritage) across our leadership teams and workforce

7. Building trusted relationships with communities

Rio Tinto may not be viewed as a trusted partner by communities and broader society, impacting our performance, future prospects and reputation.

Strategic | ESG

Potential impact

- Group reputation
- Future financial and operational performance
- Growth projects
- Communities and social performance
- Safety and security of employees and communities

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 stable and predictable investment and operating environments, and help shape mutually beneficial economic social and environmental outcomes.

Threats

Access to land and resources may be impacted if we are not considered a trusted partner that respects people's rights, manages adverse social and environmental impacts and sustainably improves the social and economic outcomes in existing or potential host communities. Other potential actions 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.

Exposure: RBM, CBG, Resolution, QMM, Jadar and Simandou.

Management's response includes:

- Setting out clear accountability of asset leaders for relationship management with host communities
- Uplifting capability in our leadership and teams across our organisation supported by our CSP Area of Expertise to coach in and elevate CSP expectations
- Implementing an integrated cultural heritage management system and ensuring CSP metrics are embedded in approvals and decision-making processes at all levels of the organisation
- Establishing appropriate social performance targets and reporting
- Delivering sustainable, long-term outcomes through strategic community investment, regional economic development and mutually beneficial partnerships
- Setting local procurement policies and targets, including local content commitments for major capital projects
- Deploying specialist technical resources where required to support business units to manage more complex issues and risks
- Ensuring respect for communities' human rights, aligning our commitments with international standards

8. Maintaining our competitiveness through economic cycles

The viability of our business is most sensitive to commodity economics. Our cost-competitive, diversified commodities portfolio, strong balance sheet, prudent financial policies and our decarbonisation efforts/targets help preserve the Group's resilience, including maintaining access to debt capital and bank loan markets.

Economic

Potential impact

- Future financial performance
- Liquidity
- Group reputation
- Credit risk/rating
- Financial flexibility

Opportunities

Favourable market conditions and strong internal capital discipline increase our liquidity and/or balance sheet strengths, allowing us to pursue investment or growth opportunities, pay down debt and/or enhance returns to shareholders. China continues to be the largest market for our products.

Threats

Falling commodity prices reduce cash flow, limiting profitability and shareholder returns. These may trigger impairments and/or impact our credit rating. Extended subdued prices impact cash flow streams and our ability to raise sufficient funds for investment and/or growth opportunities. Unfavourable changes in the cost of production can arise, such as increased labour or freight cost.

Management's response includes:

- Implementing the Rio Tinto Safe Production System (RTSPS) across the Group to find a sustainable way of working that is safer, more productive and cleaner, combined with specific improvement initiatives focused on debottlenecking, both of which aim to maintain or enhance our competitiveness
- Further diversifying our global commodity portfolio to include "greener" alternatives and alloys and critical minerals
- Maintaining a global portfolio of customers and contracts
- Working with partners to make our current portfolio more resilient to carbon pricing
- Ensuring capital discipline commensurate with a strong investment-grade credit rating including investment governance processes and a payout shareholder returns policy that adjusts returns through the cycle
- Maintaining a Revolving Credit Facility and a diversified source of funding in different capital markets and shelf programmes

9. Resources to reserves conversion of our existing assets

Our estimates of mineral resources and ore reserves are based on an assessment of geological, social, environmental, economic, commercial and technical information available at the time of reporting. As new information becomes known, the economic viability of some ore reserves, production plans, the timing of approvals and developments can be restated with material impacts (positive or negative).

Economic

Potential impact

- Future financial performance
- Valuation

Opportunities

Through the deployment of new technologies or improved understanding of our orebodies and effective management of permitting and approval processes, we may convert a greater proportion of our resources to reserves.

Threats

Failure to secure mining approvals or capture the benefits of new technologies, geotechnical variation or changes in product demand/specifications may reduce the economies of reserves or future conversion of resources to reserves in the required timeframe.

Exposure: Pilbara, Resolution.

Management's response includes:

- Increasing investment in resource development programmes to improve orebody knowledge
- Complying with the Group's Resources and Reserves Standard, and monitoring KPIs to track variation from expected asset production plans with assurance from the Orebody Knowledge Centre of Excellence
- Establishing the Iron Ore Mine Replenishment Programme (MRP)
- Progressing required regulatory and environmental approvals for future mining areas, including cultural heritage impact risk assessments

10. Geopolitics impact on our trade or investments

Geopolitical tensions have the potential to impact our key markets, operations and investments.

Economic

Potential impact

- Future financial and operational performance
- Communities and social performance
- Group reputation

Opportunities

Partnering with governments to realise their resource sustainability and security ambitions through our portfolio of products.

Leveraging new strategic alliances between countries as a result of global geopolitical alignment.

Threats

Increased trade tensions may undermine rule-based trading systems and lead to trade actions (increased tariffs, retaliations, and sanctions) potentially impacting our key markets, operations or investments. Current material threats include the potential development of further sanctions between Australia and China and the evolving situation of the coup in Guinea and, more broadly, the tensions between the US and China.

Management's response includes:

- Continually testing the resilience and optionality from our increasingly diverse portfolio of commodities, markets and jurisdictions
- Monitoring on an ongoing basis of the political environments where we operate as well as our key markets and close engagement with governments and customers in those areas
- Establishing the Group External Affairs function providing subject matter expertise, global insight and intelligence to inform and guide our business strategy and decision making
- Implementing the new Sanctions Standard and Export Control Procedure

11. Global and domestic tax policy and administration instability

Instability in tax policy and administration may result in significant impact to business value and/or reputation. COVID-19 recovery, resource nationalism and the recent G20 and Inclusive Framework consensus on the OECD digital global tax framework, are creating a time of unprecedented change in global and domestic tax policies.

Economic

Potential impact

- Future financial performance
- Valuations
- Stakeholder relations
- Licence to operate

Opportunities

While additional tax cost is expected as a consequence of these developments, there is an opportunity to work with local governments on domestic policy proposals to strike a balance which raises additional revenue while also supporting growth and investment.

Where additional tax is expected under the OECD digital reforms there is potential to increase tax payments to host governments rather than HQ locations, to support local communities.

Threats

Political imperatives driving tax policy may result in aggressive proposals. Implementation of these proposals poses the threat of contagion across other jurisdictions. The OECD digital reforms may incentivise additional domestic proposals, raising the risk of double taxation and/or bi-lateral and multi-lateral disputes. The translation of the new global tax framework into domestic law poses significant uncertainty and potential for double taxation/disputes. Increasing pressure on stabilisation/investment agreements is expected.

Exposure: The potential financial consequences of these risks are significant given the political dynamic and the COVID-19 economic recovery effort. Domestic resource tax proposals in countries like Chile would have a material impact on business value and pose contagion threat across that region. The OECD digital proposals are expected to result in material additional taxation and will place additional strain on stabilisation arrangements.

Management's response includes:

- Engaging constructively in local and international tax reform dialogue to contribute to the development of sustainable and effective tax systems, including becoming a trusted adviser to the OECD to support the development of the new global tax framework
- Ensuring our tax policies and governance seek to keep pace with increasing community expectations, increasing tax authority and government expectations, and civil society initiatives promoting responsible tax and transparency
- Maintaining our commitment to the B Team Responsible Tax Principles, which are intended to provide a leadership standard driving best practice in tax governance, reporting and interactions with tax authorities. These principles are embedded in our Tax Policy
- Verifying our compliance to our Tax Policy through our Internal Audit which sets the following expectations:
 - Ensuring full compliance with statutory obligations accompanied by full disclosure
 - Ensuring high standards of tax risk management
 - Fostering constructive working relationships with tax administrators
 - Proactively managing taxes pursuant to a robust tax governance framework

12. Breach of our policies, standards and procedures, obligations or regulations

This risk can materialise through the illegal actions of just one employee through inappropriate conduct or through a lack of competency or governance, but can greatly impact our reputation and licence to operate. We need to foster a culture aligned with our values, provide regular education and guidance and proactive compliance monitoring to maintain the highest standards in the way we conduct our business.

Operational | ESG

Potential impact

- Group reputation
- Licence to operate
- Future financial and operational performance
- HSES & communities

Opportunities

Good corporate citizens are acknowledged to operate to a high ethical standard, thus attracting talent and securing access to resources and investment opportunities.

Threats

A serious breach in our operations or in our value chain of anti-trust rules, anti-corruption legislation or sanctions, human rights or inappropriate business conduct, could result in serious harm to people and significant reputational and financial damage.

Management's response includes:

- Integrating our commitments to core business and human rights standards, including the UN Guiding Principles on Business and Human Rights (UNGPs), into our business plans and actions
- Ensuring dedicated legal and compliance teams to assist our businesses in identifying, understanding and complying with current and emerging regulatory obligations
- Ensuring a centralised Litigation team and Centres of Excellence in the areas of Anti-Bribery and Corruption, Anti-Trust, and Export Controls & Sanctions
- Providing training and awareness on regulatory obligations for employees working in high-risk roles and third parties
- Ensuring compliance with our policies, standards and procedures, including the new third party due diligence procedure and human rights due diligence in the supply chain
- Implementing the Voluntary Principles on Security and Human Rights and a strong security management framework
- 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

13. Major hazard or safety event

Our operations and projects are inherently hazardous, with the potential to cause illness or injury, damage to the environment, and disruption to communities. Major hazards include process safety, underground mining, slope geotechnical and tailings management.

Operational | ESG

Potential impact

- Multiple fatalities
- Operations disruption
- Communities and social performance
- Group reputation
- Financial loss

Opportunities

Meeting and exceeding our commitments in safety and hazard management.

Threats

Failure to manage our major hazards or mass passenger transport, could result in a catastrophic event or other long-term damage.

Exposure: mass passenger transport; tailings facility; underground operations; open pit walls or dumps; processing facilities.

Management's response includes:

Nothing is more important than the safety and wellbeing of our employees, contractors and communities.

Management's response includes:

- Providing oversight by the Sustainability Committee and support by the Group's Risk Management Committee, with quarterly Major Hazard Steering Committee meetings at each product group
- Providing the second line assurance by our central support functions and technical CoE teams to verify compliance with Group policies, standards and procedures
- Implementing slope geotechnical, tailings management, underground mining and process safety technical and safety standards and procedures
- Focusing on fatality elimination through our critical risk management
- Conducting regular review and audit of HSES processes, training and controls to promote and improve effectiveness at managed and (where practicable) non-managed operations
- Reporting, investigating and sharing learnings from HSES incidents and ensuring monthly monitoring of HSES performance at the Group level including Group-wide PFI sharing
- Building safety targets into personal performance metrics to incentivise safe behaviour and effective risk management (see page 175 ^{AB} of the Remuneration report)
- Planning for business resilience and execution exercises for severe but plausible scenarios

14. Physical resilience to natural disaster or extreme weather

Our operating sites may be vulnerable to natural disasters or extreme weather events. Climate change may increase the frequency and severity of these events including rising sea levels, floods, droughts, bushfires or extreme temperature impacts on operating environments.

Operational | ESG

Potential impact

- Multiple fatalities
- Operations disruption
- Financial loss

Opportunities

By understanding specific exposures across our portfolio, our capital programmes can incorporate measures to improve resilience in the event of a natural disaster or extreme climatic event.

Threats

Natural disasters or extreme weather events can endanger our workforce and communities, damage our assets or cause significant operational interruption.

Exposure: An extension of the tropical cyclone season in the Pilbara would impact our Iron Ore operations and surrounding communities. A significant warming trend, particularly influencing maximum temperatures, may impact the way we operate, including the impacts on employee health and assets operating outside optimal conditions. Physical resilience of our supply chain also requires monitoring.

Management's response includes:

- Incorporating potential changes to climate into the way we design, operate and close our assets through increased understanding of our exposure at each asset, eg Critical Risk Assessment (CRA) Programme and Climate Change physical impact assessments
- Assessing medium and long-term risks by the Energy and Climate Change Centre of Excellence
- Developing business resilience plans and emergency response plans, training and annual exercises to prepare for a natural disaster event, including established communication plans and co-ordination with local, regional and state agencies
- Providing capital expenditure for resilience projects, such as those planned for Cape Lambert jetty and Dampier to Yurranyi Maya Power Station

15. Significant biodiversity-related ecological impact

Our operations and projects are inherently hazardous, requiring proactive management to minimise potential biodiversity loss or ecosystems degradation.

Operational | ESG

Potential impact	Opportunities	Threats
– Group reputation – Environment – Communities	Development of a carbon-credit business, in collaboration with governments and host communities, that generates carbon and biodiversity credits for the Group, while remediating disturbed lands, protecting existing pristine areas and supporting the development of associated socioeconomic opportunities independent of mining (thus addressing dependencies).	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 through improved practices and technological solutions. Exposure: QMM, Simandou, RBM, Weipa, non-managed operations.

Management's response includes:

- Fostering proactive relationships with international civil society organisations, governments and environment departments to support protective legislation
- Applying protective principles—instead of a compliance-driven approach—at all our operations
- Ensuring operations proactively manage their land and water stewardship risks to protect ecosystems that rely on these resources
- Identifying and acting on opportunities to contribute to nature conservation

16. Water scarcity and management

Across geographies and commodities, proactive water management is required in new asset developments, existing operations and closures. In some regions where we work, water scarcity is an inherent risk. Many other sites also experience variations in rainfall and water availability due to climate change.

Operational | ESG

Potential impact	Opportunities	Threats
– Financial – Valuations – Production and growth constraints – Reputational impact – Ecosystem impacts – Stakeholder relationships	Improving the way we design and run our operations, to avoid permanent impacts to water resources and carefully manage the quality and quantity of the water we use and return to the environment.	Our water management may cause unacceptable operational, environmental, cultural heritage or community impacts. Exposure: Gobi Desert, Pilbara, Northern Queensland.

Management's response includes:

- Balancing our operational water needs with those of local communities, Indigenous peoples and ecosystems by managing against four risk areas: water resource, quantity and quality, dewatering and long-term obligations
- This framework allows us to identify, assess, manage and communicate water risk, controls and actions both internally and to the communities where we operate
- Providing water management plans and controls and Annual Environmental Certification across all assets
- Actively supporting and reporting our practices against the commitments outlined in the International Council on Mining and Metals' position statement on water stewardship

17. Closure, reclamation, rehabilitation and legacies

Our closure, reclamation, rehabilitation and legacy plans, assumptions and expectations may change, impacting financial outcomes and reputation.

Operational | ESG

Potential impact	Opportunities	Threats
– Valuation – Future financial and operational performance – Group reputation – Communities and social performance	We are actively assessing opportunities to find solutions to repurpose and reuse sites for future economic or social benefit through working collaboratively with our stakeholders. For all new asset developments, we incorporate closure into the design of our assets, and find ways to optimise decommissioning, remediation and any long-term management obligations. For existing operations, where possible, we aim to progressively rehabilitate land throughout the life of the operations.	Plans and provisions for closure, reclamation and rehabilitation may vary over time due to changes in stakeholders' expectations, legislation, standards, technical understanding and techniques. In addition, the expected timing of expenditure could change significantly due to changes in the business environment and orebody knowledge that might vary the life of an operation. Exposure: Pilbara operations and near-term closure including Channar, NZAS, Argyle, Diavik and ERA.

Management's response includes:

- Complying with Group policies and standards, which provide guidance concerning risk management, communities and social performance. This is overseen by our Closure Steering Committee
- Maintaining a central closure capability to develop leading practices, influence operations, manage closure execution to realise efficiencies and synergies across assets, and proactively manage the legacy portfolio
- Collaborating with key stakeholders and participating in strategic partnerships and/or governance structures to create opportunities and mitigate threats

18. Cyber breach

Cyber risk, if materialised, may disrupt our operations, affect how our employees work and/or breach data privacy and other sensitive information related to customers, contractors and suppliers.

Operational | ESG

Potential impact	Opportunities	Threats
– Operational disruption and/or breach of operational integrity – Breach of data privacy or commercially sensitive data – Group reputation – Financial loss	N/A	Cyber breaches can come from malicious external or internal attacks, but also inadvertently through human error. In addition, Rio Tinto data may reside on service provider systems and rely on the effectiveness of controls on those networks.

Management's response includes:

- Improving IS&T asset management with executive-level sponsorship and oversight from our Cyber Security Steering Committee
- Investing on an ongoing basis in IS&T infrastructure, technology solutions and upskilling to advance our automation projects, safeguard our assets and improve cyber threat detection and response for critical assets
- Ensuring business resilience plans for cyber breaches across all critical assets

19. Pandemic recovery prolonged

The potential for transmission across our teams, communities and supply chains continues to be a threat that requires proactive management. The pathways and speed of recovery remain variable across our markets, operations, communities and supply chains.

Operational | ESG

Potential impact

- Health, safety and security
- Future financial and operational performance
- Group reputation

Opportunities

N/A

Threats

While COVID-19 continues to circulate, the chance of further variants developing remains. A new variant could lead to further health impacts to our workforce and disruption to our operations and/or supply chain. Global supply chain disruptions and reduced freight capacity could continue if further outbreaks occur, impacting the inbound and outbound flow of our feedstock and products, eg recent disruptions have increased the risks of stock shortages for alumina and aluminium at our North American operations. In Mongolia, the situation continues to be challenging, with high case rates in Ulaanbaatar.

Management's response includes:

- Fostering proactive relationships with governments and health departments to support vaccination programmes and align responses to outbreaks. This includes travel management protocols to sites and offices to prevent transmission among vulnerable people and communities
- Ensuring supply chain resilience planning by our operations and procurement teams, eg securing alternative sources for critical goods and services

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 2021 financial statements and notes thereto. The financial statements as included on pages 212–311 ^{AR} have been prepared in accordance with IFRS as defined in note 1 ^{AR}.

Rio Tinto Group

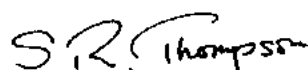
Income statement data

For the years ending 31 December Amounts in accordance with IFRS	2021 \$m	2020 \$m	2019 \$m	2018 \$m	2017 \$m
Consolidated sales revenue	63,495	44,611	43,165	40,522	40,030
Group operating profit ¹	29,817	16,829	11,466	17,687	14,135
Profit for the year	22,575	10,400	6,972	13,925	8,851
Basic earnings for the year per share (US cents)	1,303.4	604.0	491.4	793.2	490.4
Diluted earnings for the year per share (US cents)	1,295.0	599.8	487.8	787.6	486.9
Dividends per share					
Dividends declared during the year					
US cents					
– interim	376.0	155.0	151.0	127.0	110.0
– interim special	185.0	–	61.0		
– final	417.0	309.0	231.0	180.0	180.0
– special	62.0	93.0		243.0	
UK pence					
– interim	270.84	119.74	123.32	96.82	83.13
– interim special	133.26	–	49.82		
– final	306.72	221.86	177.47	135.96	129.43
– special	45.60	66.77		183.55	
Australian cents					
– interim	509.42	216.47	219.08		
– interim special	250.64	–	88.50	170.84	137.7
– final	577.04	397.48	349.74	250.89	228.5
– special	85.80	119.63		338.70	
Dividends paid during the year (US cents)					
– ordinary	685.0	386.0	331.0	307.0	235
– special	278.0	–	304.0	–	–
Weighted average number of shares basic (millions)	1,618.4	1,617.4	1,630.1	1,719.3	1,786.7
Weighted average number of shares diluted (millions)	1,628.9	1,628.6	1,642.1	1,731.7	1,799.5
Share buy-back (\$ million)	–	208	1,552	5,386	2,083
Balance sheet data					
Total assets	102,896	97,390	87,802	90,949	95,726
Share capital/premium	8,097	8,302	7,968	8,000	8,666
Total equity/Net assets	56,590	51,903	45,242	49,823	51,115
Equity attributable to owners of Rio Tinto	51,432	47,054	40,532	43,686	44,711

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 excludes equity accounted operations, finance items, tax and discontinued operations.

Directors' approval statement

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



Simon Thompson
Chairman

23 February 2022



Independent Reasonable and Limited Assurance Report

of KPMG (KPMG Australia) to the Directors of Rio Tinto plc and Rio Tinto Limited

CONCLUSION

a) Assured Sustainability Information – Limited assurance

Based on the evidence we obtained from the procedures performed, we are not aware of any material misstatements in the Assured Sustainability Information presented in the Sustainability sections of the Rio Tinto Annual Report 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021 for the year ended 31 December 2021, which has been prepared by Rio Tinto plc and Rio Tinto Limited (together Rio Tinto) in accordance with the Reporting Criteria.

b) GHG Emissions – Reasonable assurance

In our opinion, in all material respects, Rio Tinto's total Greenhouse Gas (GHG) emissions (equity basis) of 31.1 MtCO₂-e (Scope 1 and 2) presented in the Sustainability sections of the Rio Tinto Annual Report 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021 for the year ended 31 December 2021, has been prepared by Rio Tinto in accordance with the Reporting Criteria.

Assured Sustainability Information and GHG Emissions data

The Assured Sustainability Information is summarised below:

- Rio Tinto's assertion that it has incorporated the requirements of the International Council on Mining and Metals (ICMM) 10 Principles for sustainable development, and the mandatory requirements set out in the ICMM Position Statements, into its own policies, strategies and standards.
- Rio Tinto's assertions regarding the approach it has adopted to identify and prioritise its material sustainable development risks and opportunities set out in the Sustainability sections of the Rio Tinto Annual Report 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021.
- Rio Tinto's assertions regarding the existence and status of implementation of systems and approaches used to manage the following selected sustainable development risk areas:
 - Health, safety and wellbeing
 - Business integrity and governance
 - Climate change
 - Local community relations
 - Cultural and heritage site management
 - Water management
- The following Rio Tinto performance data related to the selected sustainable development risk areas:

- Fatalities at managed operations	- GHG emissions intensity (equity basis)
- All injury frequency rate (AIFR)	- Total energy (100% managed basis)
- Lost time injury frequency rate (LTIFR)	- Total Scope 3 emissions (equity basis)
- Number of lost time injuries (LTIs)	- Community contributions
- New cases of occupational illness	- Cultural heritage disclosures
- Number of cases reported to the Business Conduct Office	- Tier 1 Water Target performance data and assertions

The GHG Emissions data is Rio Tinto's total GHG emissions (equity basis) disclosed in the Sustainability sections of the Rio Tinto Annual Report 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021.

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 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021 for the year ended 31 December 2021.

Reporting Criteria

The Reporting Criteria used for the reporting of the Assured Sustainability Information and GHG Emissions data 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](https://www.riotinto.com/reports).



Independent Reasonable and Limited Assurance Report

of KPMG (KPMG Australia) to the Directors of Rio Tinto plc and Rio Tinto Limited

Basis for Conclusion

We conducted our work in accordance with International Standard on Assurance Engagements ISAE 3000 (Revised) Assurance Engagements other than Audits and Reviews of Historical Financial Information and in respect of greenhouse gas emissions, International Standard on Assurance Engagements ISAE 3410 Assurance Engagements on Greenhouse Gas Statements issued by the International Auditing and Assurance Standards Board (Standards). 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 relevant to the Assured Sustainability Information and GHG Emissions data;
- analytical procedures over the Assured Sustainability Information and GHG Emissions data;
- risk analysis to validate the completeness of Rio Tinto's materiality assessment;
- substantively tested performance data within the Assured Sustainability Information, on a sample basis at corporate and operational level, which included testing a selection of six operations including Oyu Tolgoi Operations, Oyu Tolgoi Underground Project, Tom Price and Marandoo, Boyne Smelters Limited, Quebec Operations (Grande Baie and Laterriere), and Rio Tinto Fer et Titane;
- substantively tested the GHG Emissions data, on a sample basis at corporate and operational level, which included testing a selection of eleven operations including Boyne Smelters Limited, Quebec Operations (Grande Baie, Laterriere, AP40, Avida, AP60 and Strathcona), Gladstone Power Station, Queensland Alumina Limited, Tomago, Yarwun, Bell Bay, Kitimat and Kemano, New Zealand Aluminium Smelters, Escondida, and Richards Bay Minerals;
- evaluated the design and effectiveness of controls implemented by the Rio Tinto Health, Safety and Environment (HSE) Services reporting function over the Assured Sustainability Information and GHG Emissions data;
- assessed 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
- reviewed the Rio Tinto Annual Report 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021 in its entirety to ensure they are consistent with our overall knowledge of Rio Tinto.

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 Assured Sustainability Information, whether due to fraud or error;
- used our professional judgement to plan and perform the engagement to obtain reasonable assurance that we are not aware of any material misstatements in the GHG Emissions data, 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.

How the Standard Defines Reasonable Assurance, Limited 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 an assurance conclusion on the Assured Sustainability Information and GHG Emissions data and may not be suitable for another purpose. We disclaim any assumption of responsibility for any reliance on this report, to any person other than the Directors of Rio Tinto, or for any other purpose than that for which it was prepared.



Independent Reasonable and Limited Assurance Report

of KPMG (KPMG Australia) to the Directors of Rio Tinto plc and Rio Tinto Limited

Management's responsibility

Management are responsible for:

- determining that the Reporting Criteria is appropriate to meet their needs;
- preparing and presenting the Assured Sustainability Information and GHG Emissions data in accordance with the Reporting Criteria;
- establishing internal controls that enable the preparation and presentation of the Assured Sustainability Information and GHG Emissions data that is free from material misstatement, whether due to fraud or error;
- ensuring the basis of preparation in accordance with which the Assured Sustainability Information and GHG Emissions data has been determined and compiled is clearly and unambiguously set out in the Rio Tinto Annual Report 2021, the Rio Tinto Strategic Report 2021 and the Rio Tinto Sustainability Fact Book 2021; and
- telling us of any known and/or contentious issues relating to the Assured Sustainability Information and GHG Emissions data.

Our Responsibility

Our responsibility is to perform a limited assurance engagement in relation to the Assured Sustainability Information and reasonable assurance in respect of the GHG Emissions data for 31 December 2021, and to issue an assurance report that includes our conclusions.

Our Independence and Quality Control

We have complied with our independence and other relevant ethical requirements of the Code of Ethics for Professional Accountants (including Independence Standards) issued by the IFAC Ethical Standards Board, and complied with the applicable requirements of International Standard on Quality Control 1 to maintain a comprehensive system of quality control.

KPMG

23 February 2022

Adrian King

Partner
Melbourne, Australia

Annual statement by the Remuneration Committee Chair

The Committee's overarching purpose is to ensure the remuneration structure and policies reward fairly and responsibly.

On behalf of the Board, I am pleased to introduce our 2021 Directors' Remuneration report.

Strategy and business performance

This was the first year under the leadership of our new Chief Executive with a new management team.

The Board approved four objectives – to become the best operator; achieve impeccable Environment, Social and Governance (ESG) credentials; excel in development; and secure a strong licence to operate – and a new strategy, including more ambitious targets to tackle climate change. We have accelerated our target reduction of 15% in our absolute Scope 1 and 2 carbon emissions from 2030 to 2025, and established a new target to achieve a 50% reduction by 2030, more than tripling our previous target.

Despite operational challenges, Rio Tinto delivered record financial results and returns to shareholders of US\$15.4 billion during 2021. In support of our battery materials strategy, we committed to fund the high-quality Jadar lithium project, subject to receiving all relevant approvals, permits and licences, and the announcement of a binding agreement to acquire the Rincon lithium project. We continue to make progress, identifying opportunities for operational improvement, and advancing our ambitious ESG agenda.

2021 AGMs voting outcome

Although our Remuneration Policy received strong support (96.8%), shareholders registered significant concerns about the treatment of departing executives in light of the Juukan Gorge tragedy, with a significant vote against the Remuneration report. The Committee acknowledges that our pay policies, and the constraints they imposed on our ability to exercise discretion, were found to be insufficient in the unforeseen circumstances of the Juukan Gorge tragedy.

Responding to this, the new Policy approved in 2021, includes an expanded scope for the application of malus and clawback to cover events that impact on our social licence to operate. It also incorporates ESG targets in the short-term incentive plan (STIP) that are meaningful, transparent and quantifiable, and in 2021 specifically recognised the importance of communities and social performance, including heritage.

Over the past 12 months, I have engaged with shareholders and proxy advisers to explain the rationale for the decisions reached in 2021 and, most of all, to listen. The Committee revisited the questions as to whether greater sanctions could be applied. The legal advice remains that, following the agreements reached with the relevant departing executives, greater sanctions are not possible absent any new material information coming to light. However, the Committee has responded to the concerns expressed by shareholders by introducing two significant changes to our Policy.

Consequence Management Framework

We have established a clear Consequence Management Framework to provide guidelines as to how the Committee's discretion to apply malus and clawback will be exercised in the future. The framework underpins the exercise of discretion in our incentive plan rules, the scope of those discretions and their practical application across a range of circumstances. This has been informed by insight from remuneration consultants and external legal counsel, our own experience, as well as the Juukan Gorge tragedy.

We fully recognise that this framework can only ever be a guide and should avoid being overly prescriptive. Otherwise, it would deliver formulaic outcomes that fail to take account of all relevant and prevailing circumstances at any given point of time. We consider the framework to be a critical and practical reference point for future decision making in ensuring that our incentive pay is fair, transparent, appropriate, proportionate and supportable.

The Committee recognises that voting outcomes on future Remuneration reports will continue to be impacted by the actual decisions made by the Committee, and we will provide a transparent rationale for such decisions.

Equity Incentive Plan leaver provisions

We have also changed the structure of the leaver provisions in our Equity Incentive Plan 2018 (EIP) rules that will apply to prospective long-term awards. Prior to this change, the presumption is that long-term awards vest except in bad (ineligible) leaver circumstances. Going forward, awards will only vest if the Committee is satisfied the individual is an eligible leaver. This meaningfully strengthens the Committee's hand in the instances where it is appropriate, proportionate and fair to lapse all or part of unvested awards.

Pages 163–164 ^{AR} expand further on the Consequence Management Framework and leaver provisions on a forward-looking basis, and detail specific responses to investor feedback received during 2021.

Chief Financial Officer succession

The Committee also determined the remuneration of Peter Cunningham in his new role as Chief Financial Officer, following Jakob Stausholm's appointment as Chief Executive on 1 January 2021. All terms are consistent with the shareholder approved Remuneration Policy. Further details are outlined on page 185 ^{AR}.

Short-term incentive plan

Safety performance

Rio Tinto has now achieved three consecutive years fatality free. This is a significant milestone given that 2019 was the first time in 147 years we were fatality free.

The company had another challenging year managing the pandemic and regrettably we saw a small increase in the number of people hurt on the job. The all-injury frequency rate in 2021 was 0.40 compared to 0.37 in 2020. There were no permanent disabling injuries (PDI) recorded across the Group in 2021.

The safety maturity model (SMM) was introduced to the business in 2019 and is now in its third year of implementation. Once again, most sites showed improvement from their baseline score. There is an increase across the Group from a combined average baseline of 5.0 (evolving) to an average maturity of 5.7 (evolving).

Overall, the Group's safety performance is 66% of maximum.

Financial performance

As a reminder, in comparing financial performance against the annual plan, we measure half against the original plan; the other half is "flexed" to exclude the impact of variations during the year associated with quoted metal and other prices along with foreign exchange rates, which are outside management's control. When commodity prices rise, or the variation in exchange rates results in a favourable impact to the financial results, we protect shareholder returns by ensuring that 50% of the STIP opportunity (as relates to financial performance) is denied the benefit of that rise. When the reverse happens, and commodity prices fall or there is a negative impact of exchange rates, the STIP opportunity is safeguarded (by 50%) against the fall. Our view is that this approach maintains appropriate incentive for executives, even in times of significant market volatility.

In 2021, Rio Tinto benefited from attractive trading conditions and the company was able to achieve record financial results. However, certain elements of operating performance were behind expectation. The ongoing impacts from COVID-19 caused significant headwinds which resulted in labour constraints, supply chain disruptions and project delays. The Group's unadjusted financial result of 60% of maximum is underpinned by the high pricing environment experienced in 2021, driving strong financial results on an unflexed basis (the earnings result exceeded the outstanding range while the cash flow result was just below outstanding). However, the challenging operating environment during the year resulted in the financial targets being towards the lower end of the range on a flexed basis.

The Committee considered whether any adjustments were warranted to ensure the outcome was a fair reflection of underlying performance. The adjustments made related to tax prepayments and the buyout of the French pension plan which did not reflect current year performance. Accordingly, the adjusted Group performance against the financial targets is 63% of maximum.

ESG performance

As part of the new Policy, we introduced an ESG component into the STIP scorecard in 2021 to complement the long-standing safety component. Overall, good progress was made against the different dimensions comprised in this component with an overall performance outcome of 52.3% of maximum.

For the Environment component, important steps were taken in 2021 to advance towards the company's ambitious climate change targets by approving abatement projects and the delivery of goals to progress our Scope 3 partnership strategy.

For the Social component, Rio Tinto's aspiration is to foster an environment where all aspects of diversity are represented, included and respected. Representation of women in the company's workforce increased by 1.5%, which was the highest increase in the last five years. However, the target of 2% was not achieved.

Finally, for the Governance component, following the Juukan Gorge tragedy, efforts were focused on strengthening the frameworks and processes by delivering the Group communities and social performance (CSP) improvements, developing and delivering locally and regionally relevant cultural awareness training to employees globally, as well as improving the Group's assurance and risk management.

Further details on our performance against the 2021 STIP measures are set out on pages 175-177 [AR](#).

Everyday Respect

In March 2021, we launched our Everyday Respect task force to better understand, prevent and respond to harmful behaviours in the workplace, specifically bullying, sexual harassment, racism and other forms of discrimination. To support the work of the task force, we engaged Elizabeth Broderick & Co. to conduct an independent review and to make recommendations to strengthen our culture and ensure sustained change. The report was published on 1 February 2022 and the findings shared are upsetting and confronting. We are committed to making the changes required to create a safe, respectful and inclusive workplace for our people.

Our new values of care, courage and curiosity reflect who we aspire to be. They guide the Committee in its decision making and are foundational to our remuneration-related policies, principles and practices. In recognition of the findings in the Everyday Respect report, the management team recommended that a downward adjustment be made to the 2021 STIP payments. The Committee concluded that a reduction of 5% should be applied to the total STIP payment for current Executive Committee members and an equivalent adjustment be made to the 2020 unvested Bonus Deferral Awards (BDA) held by former Executive Committee members. The STIP for 2022 will also include objectives linked to the recommendations arising in the report.

2021 short-term incentive plan awards

The adjusted 2021 STIP award for the Chief Executive is 61.3% of maximum, and for the Chief Financial Officer is 57% of maximum. This includes a personal performance score in which the Committee considered their achievements against personal objectives.

The Committee considered the Chief Executive's performance against his individual objectives, which included redefining and restructuring the Executive Committee, articulating the new strategy including the four objectives, resetting the culture and launching the company's new values, further development of the projects portfolio, and making good progress in restoring our reputation and licence to operate. For the Chief Financial Officer, this included strengthening the balance sheet through disciplined focus on cost management, being a key contributor in the evaluation and approval of key growth projects and capital improvement programmes, and leading our investor relations strategies across key markets. The Committee determined the Chief Executive's performance to be 80% of maximum and the Chief Financial Officer's performance to be 50% of maximum. Refer to pages 178-179 ⁽⁴⁰⁾ for further detail.

Long-term incentive plan

The estimated vesting for the 2017 Performance Share Award (PSA), combining the two TSR and EBIT margin portions, is two-thirds of maximum. In determining the estimated vesting of the 2017 PSA, the Committee considered the Consequence Management Framework principles to ensure the vesting outcome was fair and representative of the shareholder experience.

The portion of the award relating to TSR vests on 24 February 2022. The Committee will make a final determination of the relative improvement in the EBIT margin measure when the final EBIT margin performance of the comparator group companies becomes available in May 2022. If applicable, this portion of the award will vest on 31 May 2022.

Pay in the broader context

The Board continued to engage with employees through the year, as detailed on page 140 ⁽⁴⁰⁾. These engagements enable the Board to hear directly the views of our people on pay. The Committee remains cognisant of executive pay in the broader context of a post COVID-19 world, ensuring our Policy is implemented with the desired attributes of fairness, transparency, simplicity, proportionality, and alignment to broader organisational culture and societal expectations.

The median Chief Executive pay ratio of 32:1 is materially lower than last year, primarily because Jakob joined the Group after the award of the 2017 LTIP that vests in 2022. His first LTIP award is to be performance tested at the end of 2022.

Our focus on pay equity is evident in our gender pay metrics on which we continue to make progress. Pay equity is a key pillar of our annual remuneration approach. Gender diversity in senior management roles also remains a key aspect of our broader agenda on diversity and inclusion. Further details on both equal pay and the gender pay gap, together with a wider discussion on diversity and inclusion, are provided in the Sustainability section of this report on pages 101-103.

As always, I welcome shareholder feedback and comments on our 2021 Directors' Remuneration report.

Yours sincerely,



Sam Laidlaw

Remuneration Committee Chair

23 February 2022

Summary Remuneration Report

Single total figure of remuneration (£'000)

Executive Director (£'000)	Year	Base salary	Benefits	Pension	Total fixed	Bonus – STIP payment		Value of LTIP awards vesting ^(a)		Other	Total variable	Single total figure
						Cash	Deferred shares	Face value	Share price appreciation			
Jakob Stausholm (Chief Executive)	2021	1,150	67	161	1,378	705	705	–	–	–	1,410	2,788
Peter Cunningham (Chief Financial Officer) ^(b)	2021	377	33	53	463	216	217	441	450	–	1,324	1,787
Jakob Stausholm (Chief Financial Officer)	2020	789	83	174	1,046	564	565	–	–	–	1,129	2,175

(a) Dividend equivalent shares are valued at the grant price for the LTIP award and included in the face value figure, with the impact of share price change included under share price appreciation.

(b) The details for Peter Cunningham reflect remuneration from his appointment as Chief Financial Officer and Executive Director on 17 June 2021 to 31 December 2021. The LTIP granted in 2017 was in relation to his previous role.

At the end of the performance period, LTIP values are based on estimates of both the number of shares that will ultimately vest and the share price. These estimates are restated in the following year, once actual values are known. Refer to page 181 ^{AR} for further detail.

Table 1b – Non-Executive Directors' remuneration

Stated in US\$'000 ^(a)		Fees and allowances ^(b)	Non-monetary benefits ^(c)	Post-employment benefits	Single total figure of remuneration ^(d)	Currency of actual payment
Chairman						
Simon Thompson	2021	1,010	9	–	1,019	£
	2020	937	2	–	939	£
Non-Executive Directors						
Megan Clark	2021	211	2	21	234	A\$
	2020	210	10	20	240	A\$
Hinda Gharbi	2021	204	15	–	219	£
	2020	157	5	–	162	£
Simon Henry	2021	225	8	–	233	£
	2020	209	5	–	214	£
Sam Laidlaw	2021	280	2	–	282	£
	2020	260	4	–	264	£
Michael L'Estrange ^(e)	2021	56	3	5	64	A\$
	2020	208	4	15	227	A\$
Simon McKeon	2021	276	2	4	282	A\$
	2020	233	5	1	239	A\$
Jennifer Nason	2021	204	15	–	219	£
	2020	152	1	–	153	£
Ngairé Woods	2021	197	4	–	201	£
	2020	60	–	–	60	£
Ben Wyatt ^(f)	2021	56	1	6	63	A\$

(c) The remuneration is reported in US\$. The amounts have been converted using the relevant 2020 average exchange rates of £1 = US\$1.38361 and A\$1 = US\$0.75734 (1 January to 31 December 2021 average).

(d) "Fees and allowances" comprises the total fees for the Chairman and all Non-Executive Directors, and travel allowances for the Non-Executive Directors (other than the Chairman). The payment of statutory minimum superannuation contributions for Australian Non-Executive Directors is required by Australian superannuation law. These contributions are included in the "Fees and allowances" amount disclosed for Australian Non-Executive Directors.

(e) "Non-monetary benefits" include, as in previous years, amounts which are deemed by the UK tax authorities to be benefits in kind relating largely to the costs of Non-Executive Directors' expenses in attending Board meetings held at the company's UK registered office (including associated hotel and subsistence expenses) and professional tax compliance services/advice. Given these expenses are incurred by directors in the fulfilment of their duties, the company pays the tax on them.

(f) 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.

(g) The amounts reported for Michael L'Estrange reflect the period of active Board membership from 1 January 2021 to 5 May 2021.

(h) The amounts reported for Ben Wyatt reflect the period of active Board membership from 1 September 2021 to 31 December 2021.

Further details in relation to aggregate compensation for executives, including directors, are included in note 37 ^{AR} (Directors' and key management remuneration).

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- Change address details
- View payment and tax information
- Update payment instructions

In addition, shareholders who register their email address can be notified electronically of events such as annual general meetings, and can receive shareholder communications such as the Annual Report or notice of meeting electronically online.

Rio Tinto plc shareholders

Website: www.investorcentre.co.uk

Rio Tinto Limited shareholders

Website: www-au.computershare.com/Investor

Shareholder Information

Financial calendar

2022

18	January	Fourth quarter 2021 operations review
23	February	Announcement of results for 2021
10	March	Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs quoted "ex-dividend" for the 2021 final dividend
11	March	Record date for the 2021 final dividend for Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs
29	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 2021 final dividend
8	April	Annual general meeting for Rio Tinto plc, UK
12	April	Dividend currency conversion date (Rio Tinto plc holders electing to receive Australian dollars and Rio Tinto Limited holders electing to receive pounds sterling)
20	April	First quarter 2022 operations review
21	April	Payment date for the 2021 final dividend to holders of ordinary shares and ADRs
5	May	Annual general meeting for Rio Tinto Limited, Australia
15	July	Second quarter operations review 2022
27	July	Announcement of half-year results for 2022
11	August	Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs quoted "ex-dividend" for the 2022 interim dividend
12	August	Record date for the 2022 interim dividend for Rio Tinto plc and Rio Tinto Limited ordinary shares and Rio Tinto plc ADRs
1	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 2022 interim dividend
15	September	Dividend currency conversion date (Rio Tinto plc holders electing to receive Australian dollars and Rio Tinto Limited holders electing to receive pounds sterling)
22	September	Payment date for the 2022 interim dividend to holders of ordinary shares and ADRs
18	October	Third quarter 2022 operations review

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.

Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of Rio Tinto, or industry results, to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. Such forward-looking statements are based on numerous assumptions regarding Rio Tinto's present and future business strategies and the environment in which Rio Tinto will operate in the future. Among the important factors that could cause Rio Tinto's actual results, performance or achievements to differ materially from those in the forward-looking statements include, but are not limited to: an inability to live up to Rio Tinto's values and any resultant damage to its reputation; the impacts of geopolitics on trade and investment; the impacts of climate change and the transition to a low-carbon future; an inability to successfully execute and/or realise value from acquisitions and divestments; the level of new ore resources, including the results of exploration programmes and/or acquisitions; disruption to strategic partnerships that play a material role in delivering growth, production, cash or market positioning; damage to Rio Tinto's relationships with communities and governments; an inability to attract and retain

requisite skilled people; declines in commodity prices and adverse exchange rate movements; an inability to raise sufficient funds for capital investment; inadequate estimates of ore resources and reserves; delays or overruns of large and complex projects; changes in tax regulation; safety incidents or major hazard events; cyber breaches; physical impacts from climate change; the impacts of water scarcity; natural disasters; an inability to successfully manage the closure, reclamation and rehabilitation of sites; the impacts of civil unrest; the impacts of the COVID-19 pandemic; breaches of Rio Tinto's policies, standard and procedures, laws or regulations; trade tensions between the world's major economies; increasing societal and investor expectations, in particular with regard to environmental, social and governance considerations; the impacts of technological advancements; and such other risks identified in Rio Tinto's most recent Annual Report and Accounts in Australia and the United Kingdom and the most recent Annual Report on Form 20-F filed with the SEC or Form 6-Ks furnished to, or filed with, the SEC. Forward-looking statements should, therefore, be construed in light of such risk factors and undue reliance should not be placed on forward-looking statements. These forward-looking statements speak only as of the date of this report. Rio Tinto expressly disclaims any obligation or undertaking (except as required by applicable law, the UK Listing Rules, the Disclosure Guidance and Transparency Rules of the Financial Conduct Authority and the Listing Rules of the Australian Securities Exchange) to release publicly any updates or revisions to any forward-looking statement contained herein to reflect any change in Rio Tinto's expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.

Nothing in this report should be interpreted to mean that future earnings per share of Rio Tinto plc or Rio Tinto Limited will necessarily match or exceed its historical published earnings per share.

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