Our approach to climate and water

21 April 2020

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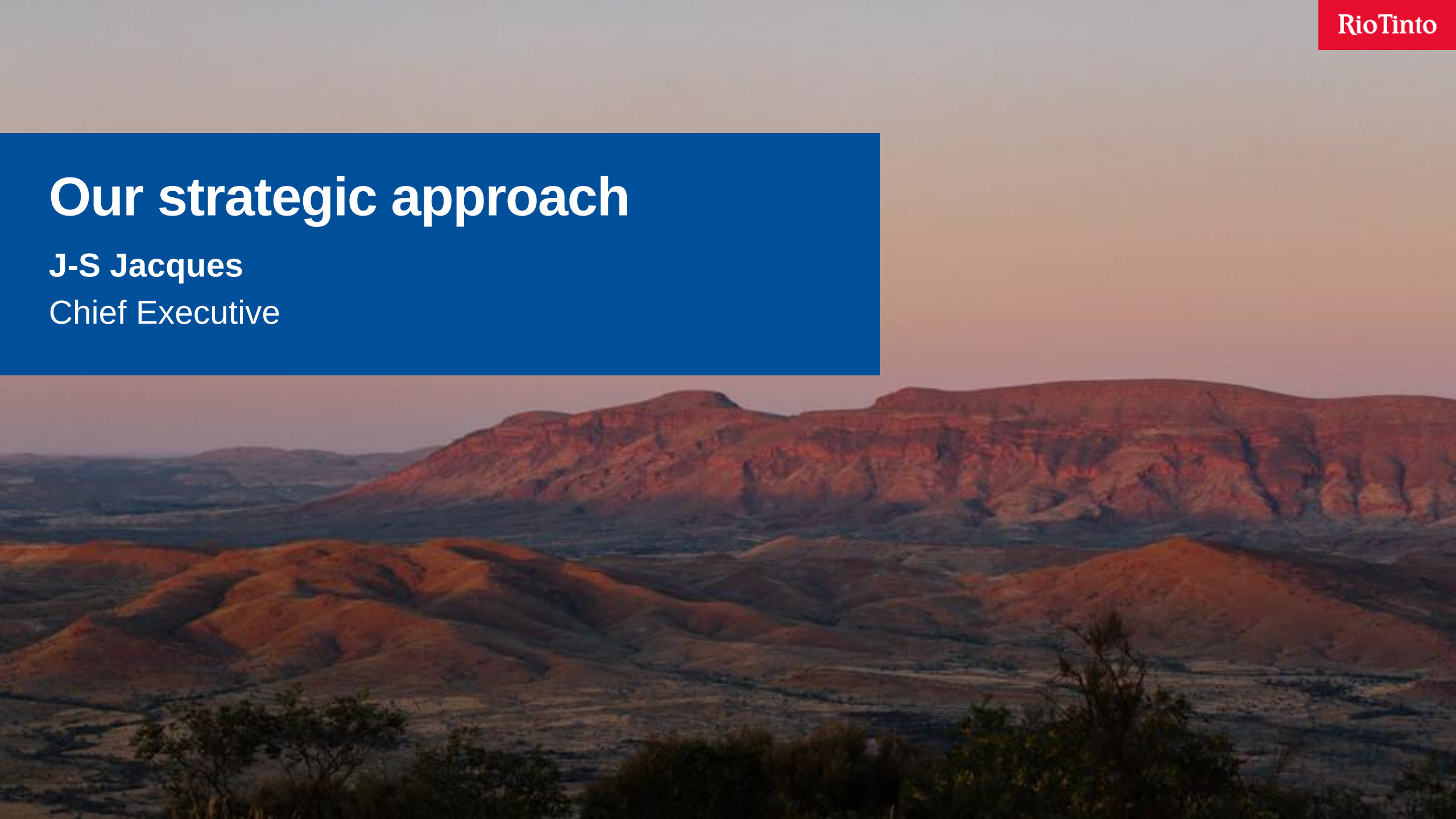
Our strategic approach

J-S Jacques
Chief Executive



Agenda

Time	Segment	Speaker
10 mins	Covid-19 response Our strategic approach	J-S Jacques, Chief Executive
15 mins	Our climate strategy and plans	Peter Toth, Head of Corporate Development
10 mins	Technology to tackle the industry's challenges	Nigel Steward, Head of Group Technical - Processing
10 mins	Our approach to water	Theresia Ott, Chief Advisor Environment
5 mins	Our investment approach	Jakob Stausholm, Chief Financial Officer
	Summary	J-S Jacques, Chief Executive

As pioneers in mining and metals we produce materials essential to human progress

Portfolio | **Performance** | **People** | **Partners**

Navigating the impact of Covid-19

Our priorities are clear, we continue to:

1. Keep our employees and communities healthy and safe

2. Serve our customers and protect our assets

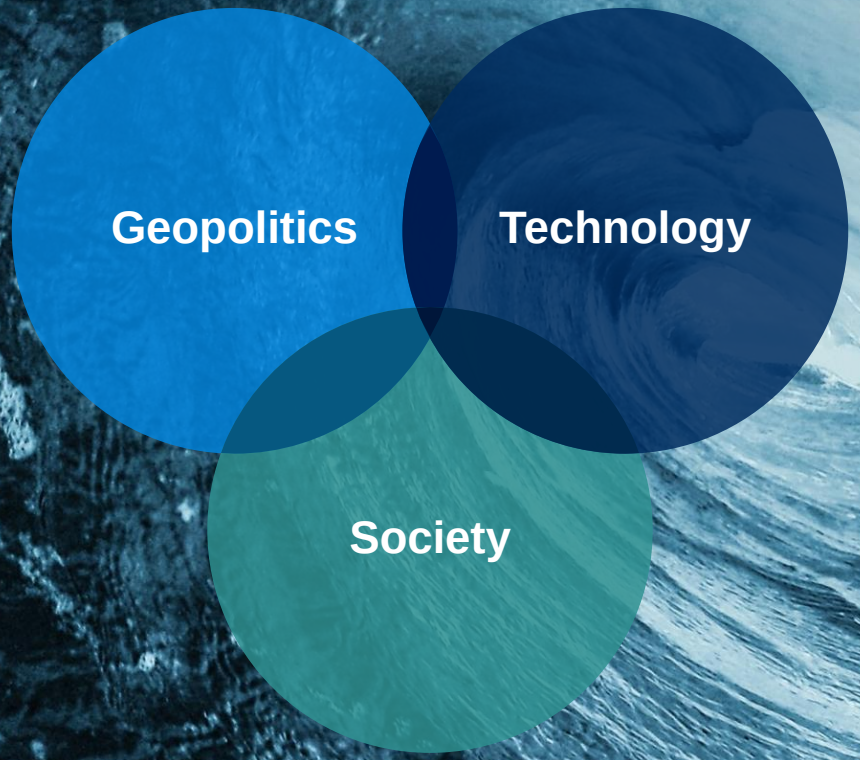
3. Keep the company and balance sheet strong

4. Maintain strong partnerships – with governments, customers, suppliers and shareholders

5. Continue to be a resilient organisation

Pressures are growing in a ‘New Era’ of complexity

Framed by three interconnected global forces



Geopolitics

- Political, economic and technological fragmentation
- Changing nature of US-China relationship
- Lack of global and regional coordination
- >3^{O}C

Society

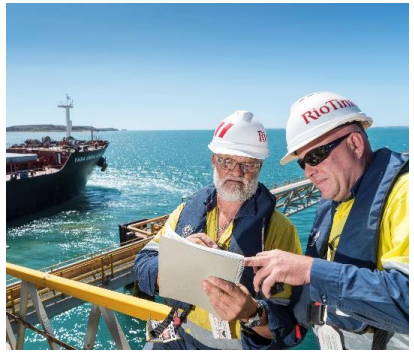
- Strong domestic, regional and global collaboration
- Coordinated carbon policies
- Rapidly rising and converging carbon prices
- <2^{O}C

Technology

- Fast-paced technology development, dispersion and execution
- Low-cost low-carbon solutions
- >2^{O}C

Our assets mirror global demand themes

Urbanisation	Electrification	Transition to the low-carbon economy



Iron Ore
World leader

Copper
Well-timed growth

Aluminium
World leader

Minerals & Ventures
Products for the future

Exploration
World leading

We do not mine coal or extract oil and gas

43% EBITDA margin
18% ROCE in the last 4 years

Our assets are at bottom of carbon intensity curves

We need an honest debate amongst stakeholders

Climate change & partnership

An integrated approach to sustainability

Running a safe, responsible and profitable business

- Health, safety & wellbeing
- People
- Human rights
- Environment
- Tailings
- Ethics & integrity

Collaborating to enable long-term economic benefits

- Communities
- Social & economic development
- Taxes paid

Pioneering materials for human progress

- Climate change
- Materials of the future
- Partnerships
- Closure

Board endorses Group's climate ambition and emissions targets

Third line

Group Internal Audit

Provides independent assurance to the Board and its sub-committees

Second line

Group level

Provided by our central support functions and technical Centres of Excellence

First line

Operational level

Role of employees, risk owners and business leaders

At Rio Tinto **climate strategy** sits within our business strategy – alongside our strategic portfolio decisions

The **Sustainability Committee** reviews the Group's **key risks** associated with HSE and social performance. 30% of time spent on climate and environment in 2019

Link between **executive remuneration** and climate targets strengthened. Exco members and leadership **incentive plans** include the delivery of Group climate strategy consistent with 2030 targets

Strong track record on sustainability performance and climate

No fatalities
in 2019

46% reduction[1]
in emissions since 2008

Employee engagement
12 point increase in net promoter score (eNPS)

76% of power
From renewables

Number 2
In global human rights index [2]

ASI [2] certified

34% decrease
In occupational illness since 2018

[1] Absolute emissions from managed operations including divestments; 18% reduction excluding divestments. [2] Index published by Corporate Human Rights Benchmark.

Our climate strategy and plans

Peter Toth

Head of Corporate Development

Our climate change strategy is in four areas

1. **Producing materials essential for low-carbon future**
2. **Reducing the carbon footprint of our operations**
3. **Partnering to reduce the carbon footprint across our value chain**
4. **Enhancing our resilience to physical climate risk**

1 Our commodity portfolio is positioned for a low-carbon future

We **do not** mine **Coal**

We **do not** extract **Oil & Gas**

High substitution threat from transition of global energy mix towards renewable energy sources

Iron Ore

Used in steel as fundamental building block of energy-efficient urban centres and infrastructure

Copper

Essential to electrification of low-carbon economy and transport due to superior conductivity

Aluminium

Essential for light weighting of fuel-efficient transport solutions and infinitely recyclable

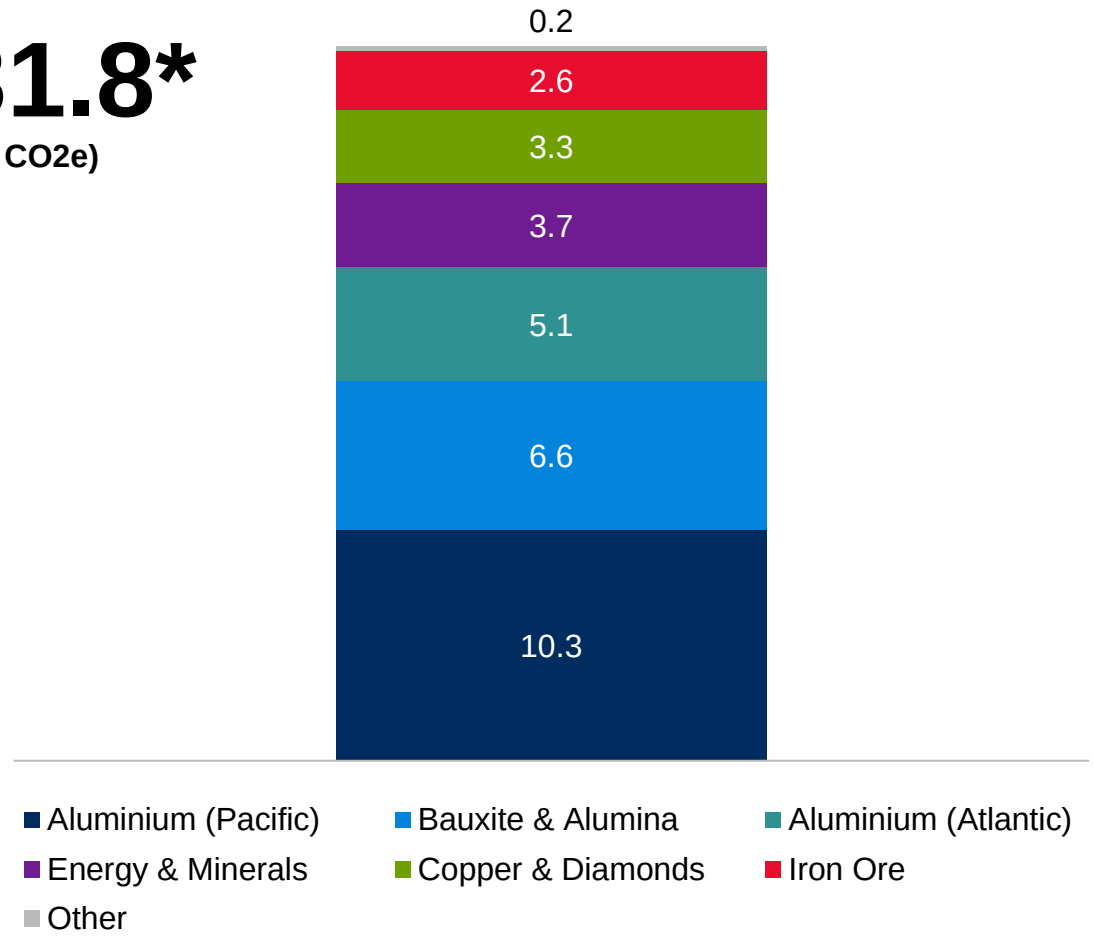
Minerals

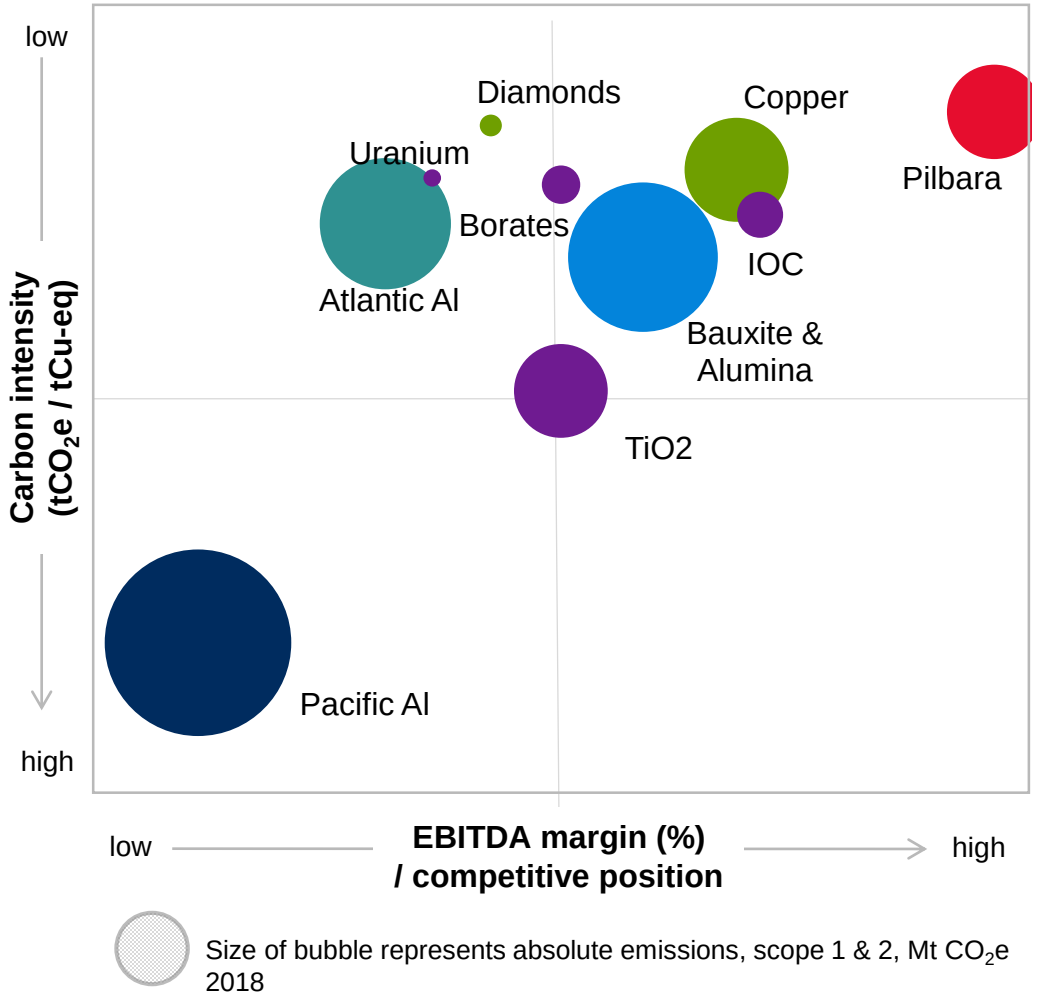
Essential for the development of electric vehicles and battery storage, supporting renewable energy

Limited substitution threat and essential materials for low-carbon future

2 70% of scope 1 & 2 emissions are from our aluminium business

31.8*
(Mt CO2e)



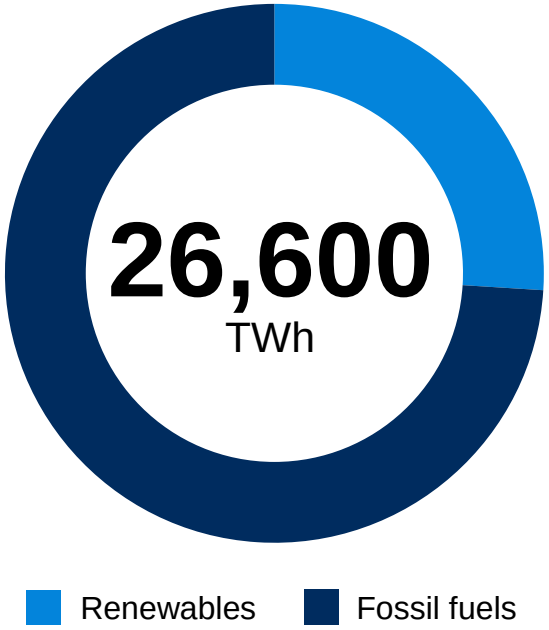


*2018 Group-wide scope 1 & 2 carbon emissions: New 2018 equity baseline for 2030 targets: managed and non-managed assets

2 We are already a very large user of renewable energy

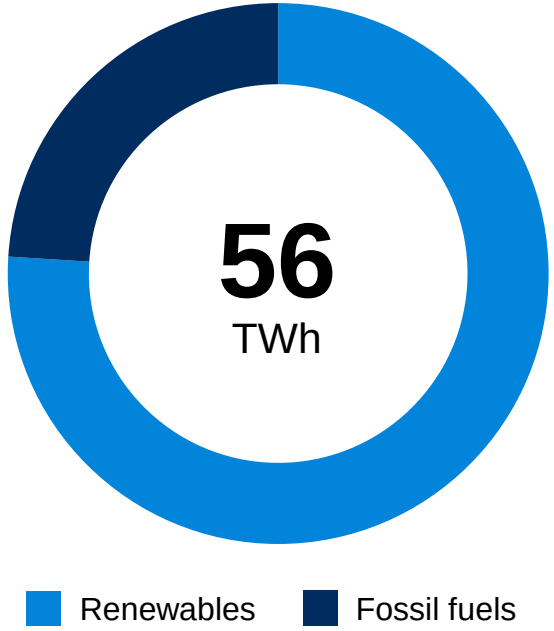
Electricity generation

World energy system*

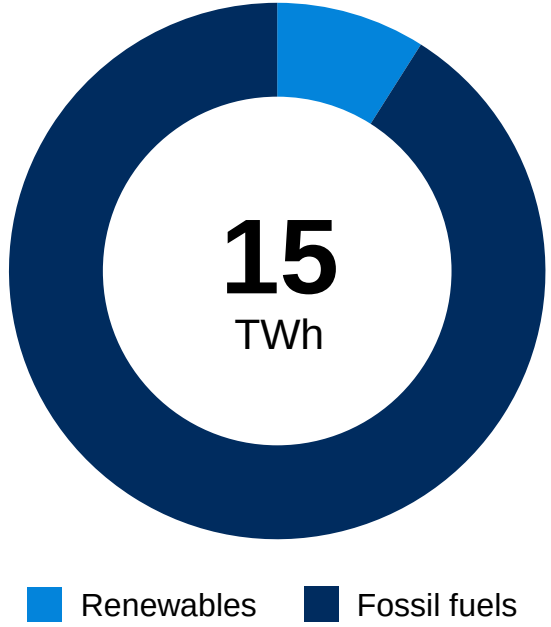


Electricity consumption and share from renewables

Rio Tinto**



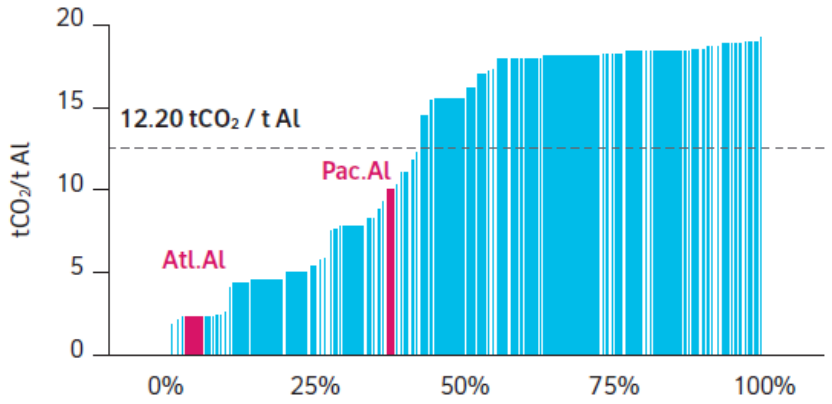
Diversified mining majors***



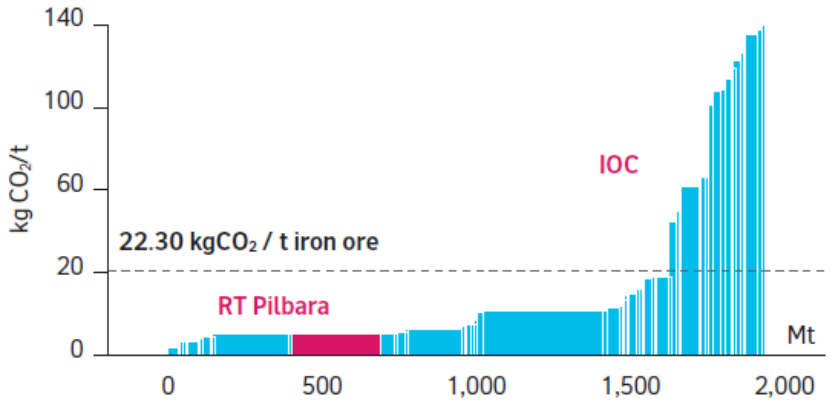
*Source: IEA World Energy Outlook 2019
**Managed-operations
***Average electricity and renewables use across Anglo American (2019 Sustainability report), BHP (2019 Sustainability report) and Glencore (2018 Sustainability report), Rio Tinto analysis

2 Our businesses are already low on respective intensity curves

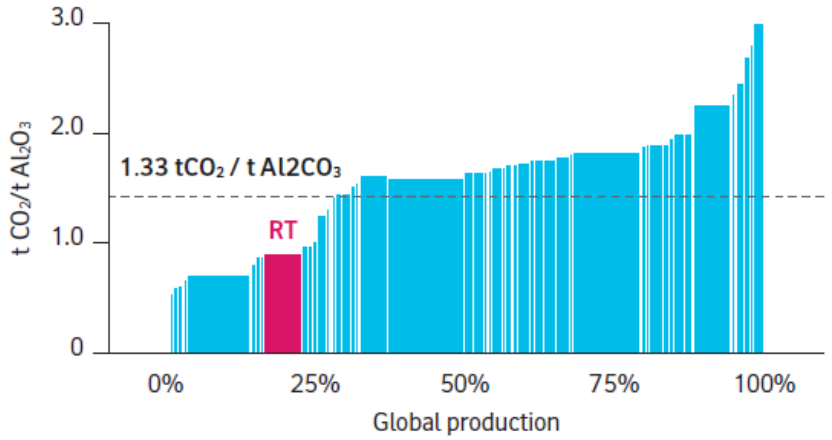
Aluminium



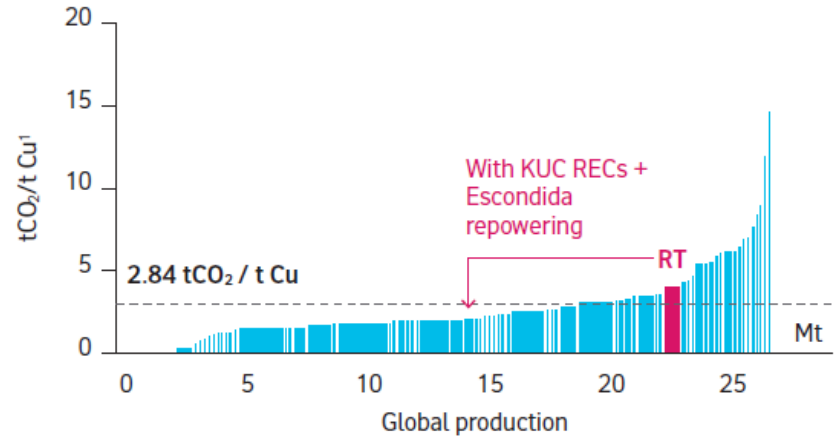
Iron Ore



Alumina



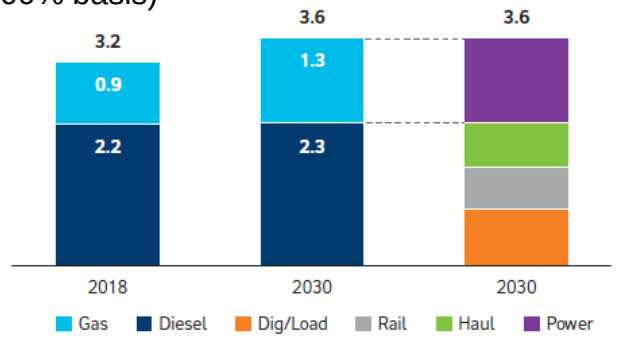
Copper[1]



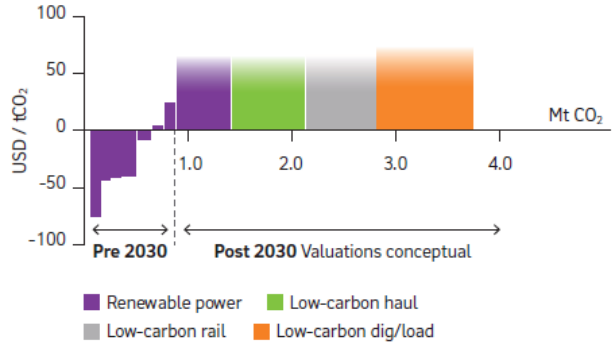
Source: CRU, Wood Mackenzie, Rio Tinto analysis
Notes: 1. excluding emissions from smelting and refining. KUC RECs refer to Renewable Energy Certificates at Kennecott Utah Copper.

2 Rigorous analysis of mitigation options informed our targets

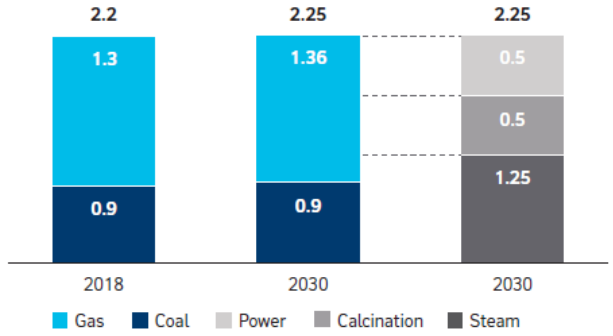
Pilbara business-as-usual emissions
(Mt CO_2,100% basis)



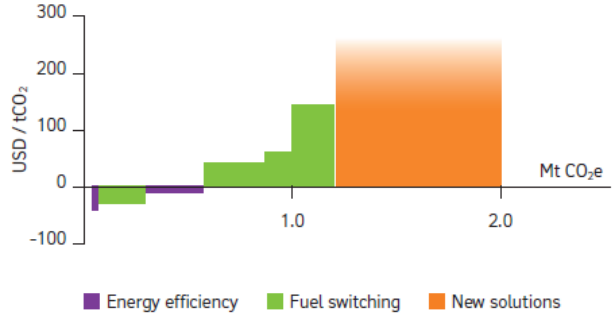
Pilbara marginal abatement cost curve
(100% basis)



Yarwun business-as-usual emissions
(Mt CO_2,100% basis)



Yarwun marginal abatement cost curve
(100% basis)



Renewable power most viable pre-2030

Battery technology improvements could see low-carbon mine vehicles post 2030

R&D required to deploy at scale technologies that are not available today for hard-to-abate process emissions

3 Committed to being part of the solution to climate change

Our climate change commitments

Essential materials
for low-carbon future

Net zero
ambition for our operations by 2050

30%
reduction in Scope 1 and 2 emissions intensity by 2030

15%
reduction in absolute Scope 1 and 2 emissions by 2030

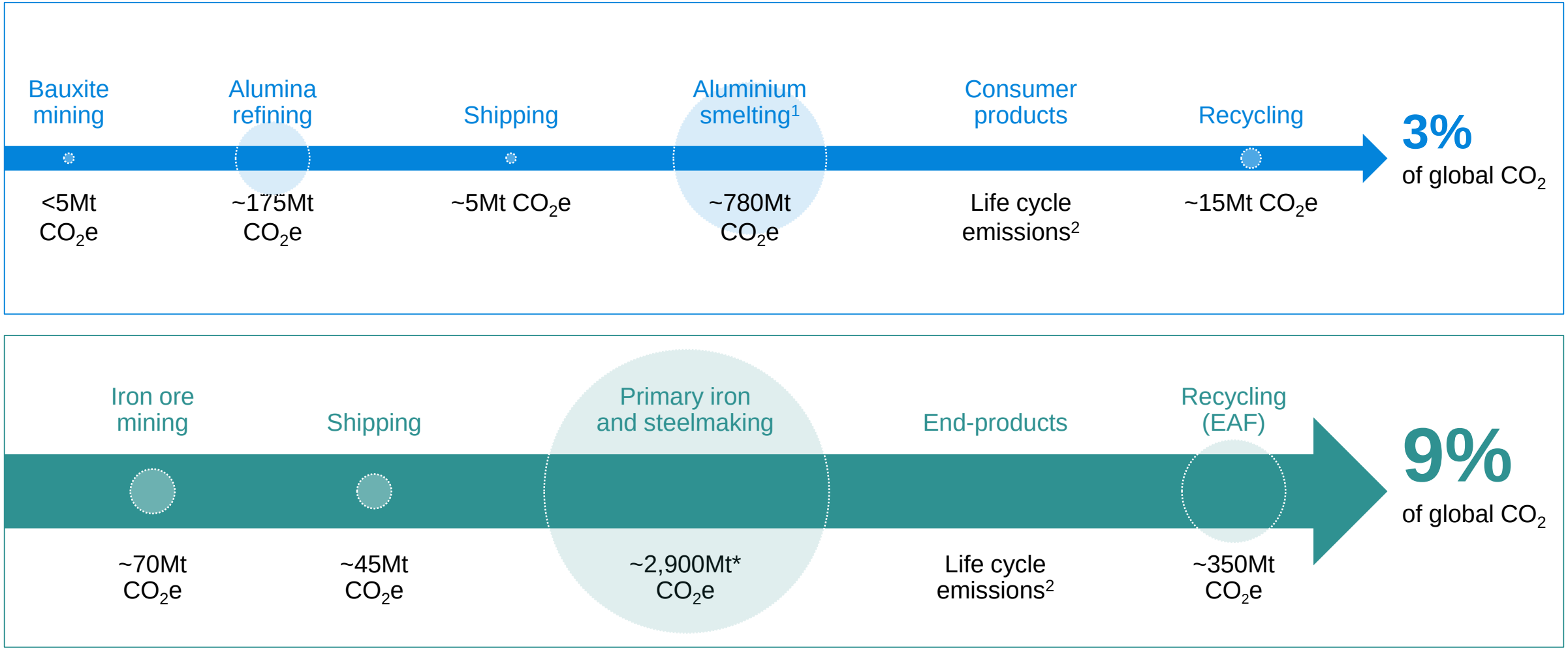
Carbon-neutral
growth overall

$1 billion
estimated spend on climate-related projects over five years

Centre of Excellence
to execute our climate change strategy

Partnerships
across the industry and value chain to develop low-carbon solutions

3 CO_2 emissions across the aluminium and steel value chains



Note: 1. Based on aluminium industry's current energy mix. Of which ~140Mt related to process emissions, baking and combustion of carbon anodes.
2. Includes emissions from fabrication and manufacturing, transportation and use of products.
*75% of Rio Tinto's Scope 3 emissions (491mt) are from the steel value chain

3 Scope 3 reduction pathways are commodity specific

Carbon in product sold
Substitutes available today

Scope 3 reductions through portfolio mix changes and depletion of reservoirs/reserves

Coal, oil and gas

Substitution with renewables (short-term)

Carbon in product sold
Harder to substitute today

Scope 3 reduction through customer deployment of CCS

Met coal

Hydrogen substitution risk (long-term)

No carbon in product sold
High carbon energy needs for processing

Scope 3 reduction is result of customer's decarbonisation pathways

Bauxite, alumina, iron ore

Limited scrap substitution risk (availability & quality)

No carbon in product sold
Low-carbon energy needs for processing

Limited scope 3 emissions and risk

Copper, aluminium

Enabler of low-carbon future

Rio Tinto portfolio

3 Our partnership with Baowu / Tsinghua University

2020 work programme

1 Carbon inventory and reporting

Steel value chain carbon model
Expand Tsinghua University carbon modelling with industry insights

2 Carbon reduction and R&D

Optimise ore consumption
R&D programmes on ore characteristics and blends to reduce carbon emissions from steelmaking

Long-term pathway to low-carbon steel
Using the resources of the RT-TU joint research centre to explore long-term commercial pathways to low-carbon steel

3 Cooperation on advocacy

2020 partnership forum
Bringing together our climate leaders to focus on decarbonisation over the full value chain

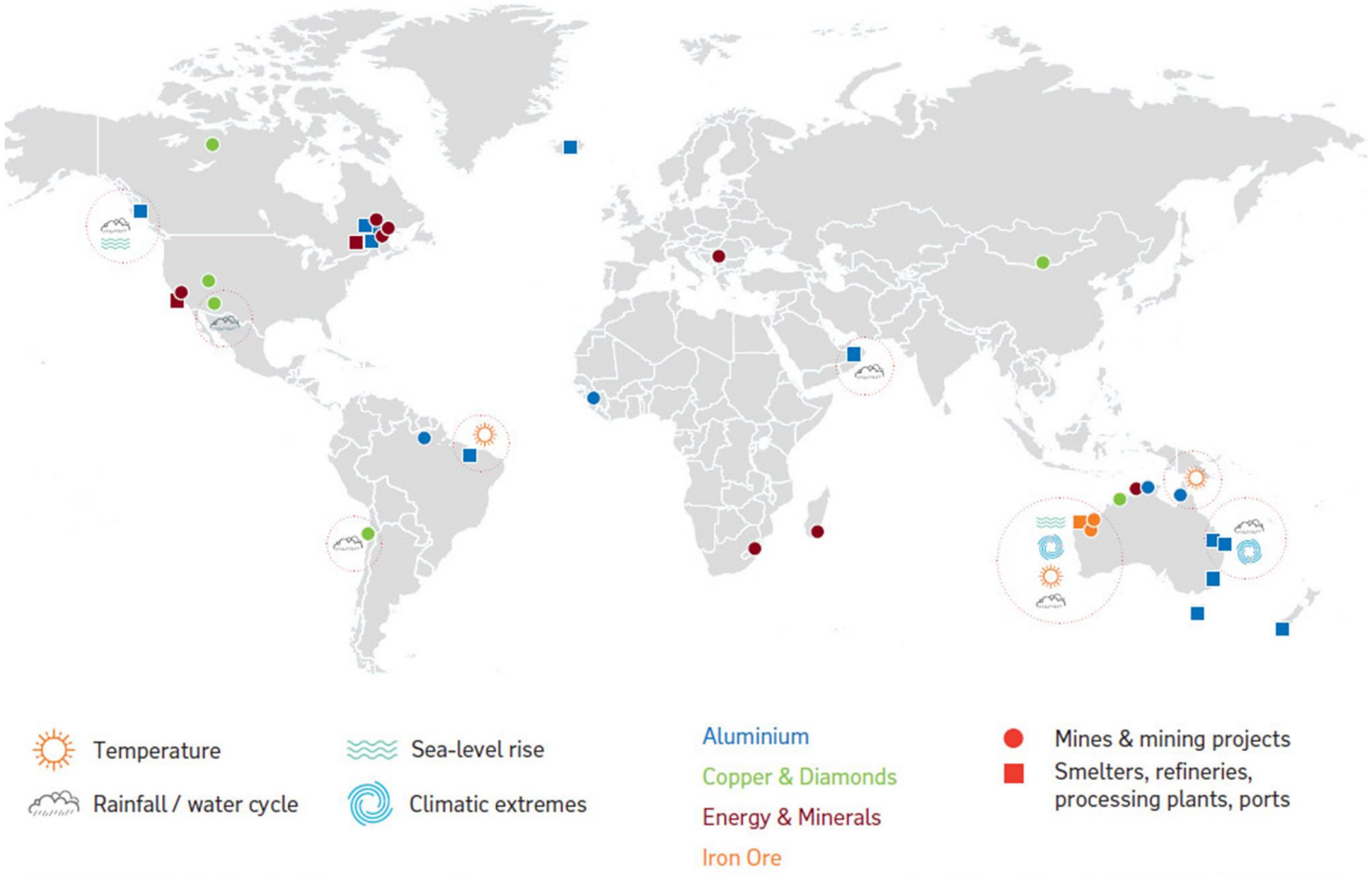
3 The world’s first carbon-free aluminium smelting process

In 2018, in partnership with Alcoa and with support from Apple and the governments of Canada and Quebec, we announced **ELYSIS™ the world’s first carbon-free aluminium smelting process**

In Canada alone, the use of **ELYSIS™** technology has the potential to reduce GHG emissions by **7 million tonnes** – equivalent to taking **1.8 million cars** off the road

4 Physical risks

Analysis across the portfolio



Analysis undertaken to identify physical risk:

Temperature

Rainfall

Sea-level rise

Extreme climatic events: cyclones (intensity and frequency); flood frequency

Physical risks built into all projects and closure processes*

2020 – work continues to refine the analysis and mitigation requirements of our physical resilience capabilities

*risk that compliance with existing engineering codes and standards provides insufficient resilience for future extreme weather events

Technology to tackle the industry's challenges

Nigel Steward
Head of Group Technical - Processing

New Energy and Climate Change Centre of Excellence key enabler of successful execution of our climate change strategy

Accountable for GHG emissions & own energy and climate change projects

GHG emissions monitoring & reporting

Technical experts

Co-ordinate across group
Relationships with partners
Energy productivity projects

Climate change strategy, targets & portfolio implications

Identify value-accretive repowering options

Develop technology roadmap post 2030

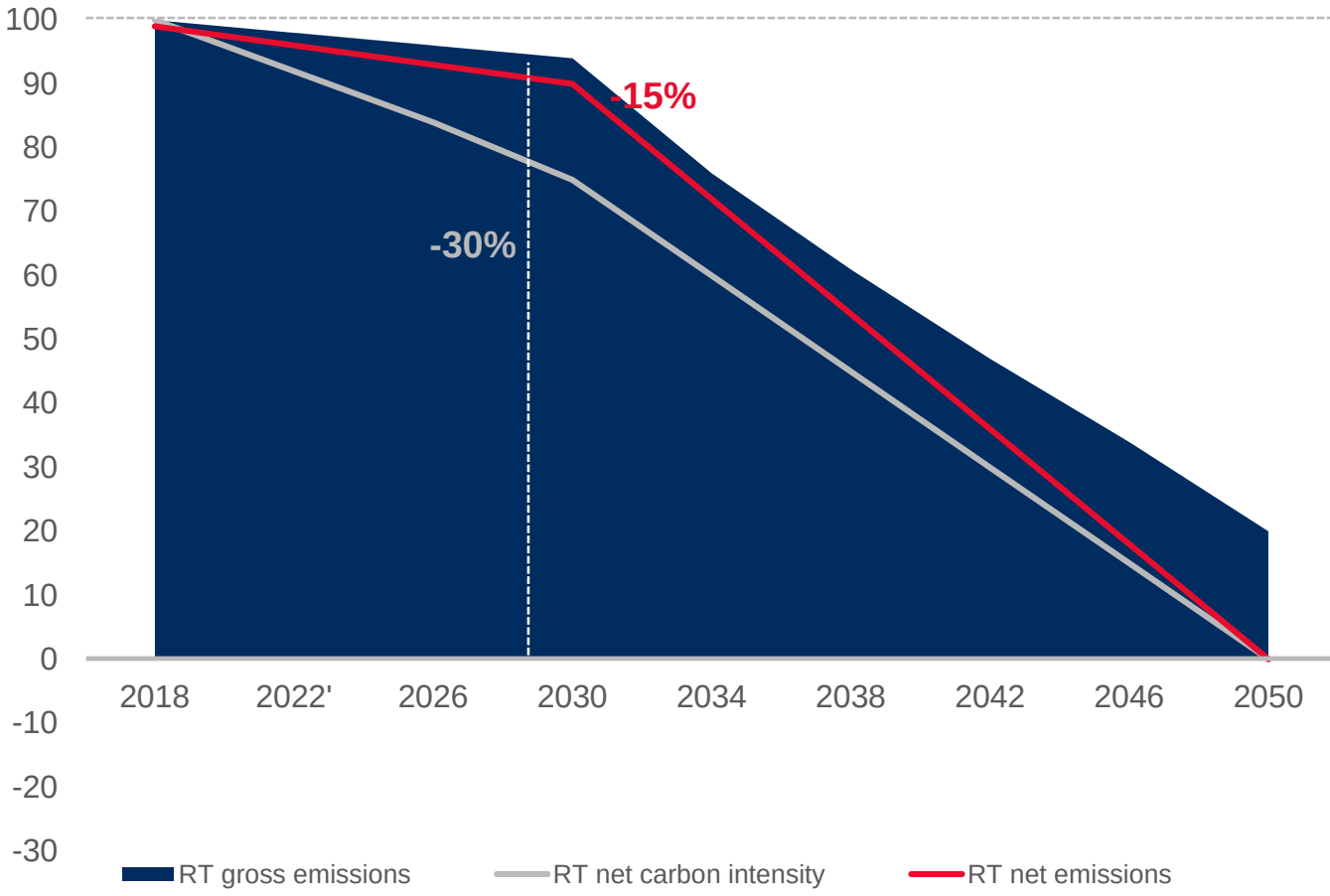
Climate scenarios & carbon prices

Development of new abatement technologies and options

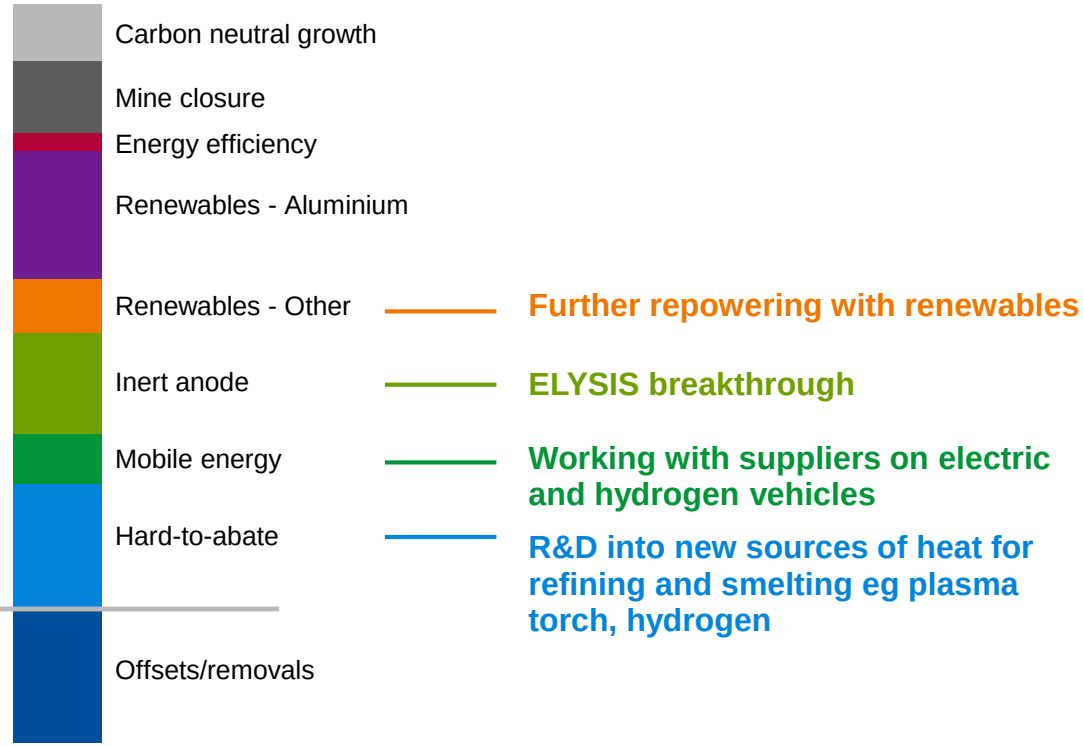
Designing and building our future low-emission operations

Technology key to achieving net zero by 2050

Rio Tinto scope 1& 2 GHG emissions (2018 = 100)



2050 decarbonisation levers



Further repowering with renewables

ELYSIS breakthrough

Working with suppliers on electric and hydrogen vehicles

R&D into new sources of heat for refining and smelting eg plasma torch, hydrogen

We have a pathway to decarbonising our electricity network in the Pilbara

Our competitive advantage

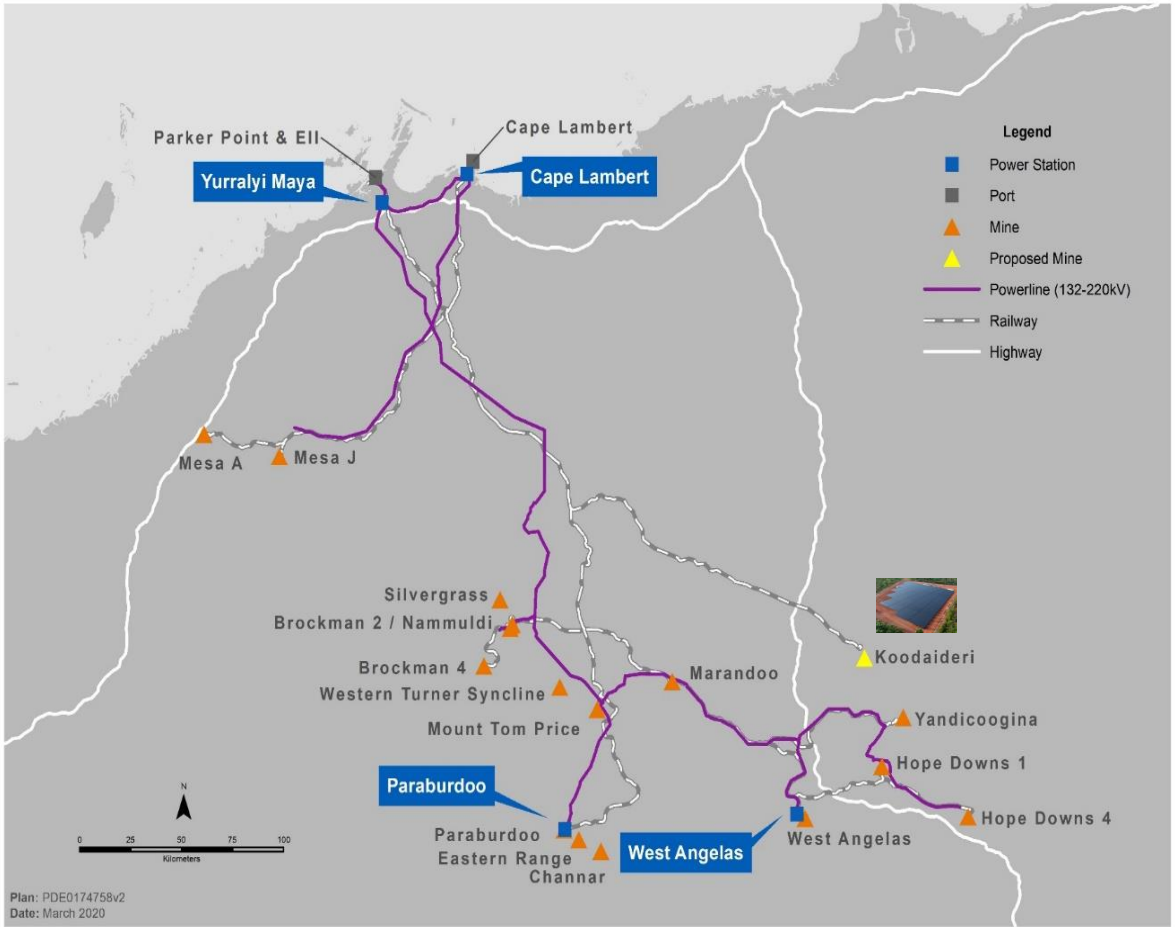
Open cycle gas turbines provide firming of intermittent renewable energy

Existing network provides pathways for expansion for future potential fleet electrification

Stage One – Approved with estimated completion 2021
- 34MW solar PV at Koodaideri
- 45MW/12MWh battery for spinning reserve at Tom Price

Stage Two – Under active study
- Additional solar and battery projects
- Installation of wind energy monitoring

Stage Three – Conceptual with technology solutions needed
- Increased renewable energy penetration
- Long-term diesel substitution



ELYSIS™ – developing direct GHG-free aluminium smelting

Inert anode technology proven at research scale to eliminate direct greenhouse gas emissions from traditional smelting process

ELYSIS™ working to scale up and commercialise technology

C$188 million investment announced with Alcoa, Apple, the governments of Canada and Quebec (Rio Tinto share C$27.5 million)

In 2019 Apple purchased the first commercial batch of ELYSIS™ aluminium for use in its products

ELYSIS™ R&D Centre under construction within Rio Tinto's Complexe Jonquière

Surface mining in 2030 – the mine of the future

Safe

Zero fatalities

Prevent and eliminate exposure to critical risks and major hazards

- Minimise the number of people exposed in the pit
- Manage water and tailings dam failure risks
- Manage geotechnical slope and waste dump failure risks

Sustainable

Sustainability and decarbonisation

Reduce our environmental footprint and transition to renewable energy

- Substantially decarbonised by 2050
- Water conservation
- Minimise product loss in waste, tailings and active mine footprint
- Manage waste & closure obligations throughout mine life
- Fossil fuel free fragmentation

Smart

Asset and equipment optimisation

Mine optimisation and overall orebody effectiveness

- In pit efficiency and flexibility
- Reduced capital intensity
- Maximise value from orebodies
- Agile mining – shorter time frames

Digitally integrated surface mine

Ore, waste, water and product controlled in real-time

- Mining adjustable product specification(s) to meet customer requirements
- Live sampling enabling real-time orebody knowledge and resource optimisation decisions
- Integrated value chains leveraging operations centres, connecting planning to execution with real-time feedback

Surface Mining Centre of Excellence

Trial of dual fuel gas and diesel at KUC

Ensuring our current diesel fleet are **most efficient**

Working with suppliers directly, and through partnerships like the ICMM's Innovation for Cleaner Safer Vehicles (ICSV) to **accelerate development of electric or hydrogen fleet**

Our approach to water

Theresia Ott

Chief Advisor Environment

We operate in areas of water scarcity and surplus

The water resource

Availability for our operations, our host communities, and the environment
e.g. Desert environment, Oyu Tolgoi

Dewatering

Access to ore requires displacement of water
e.g. Semi-arid environments, Pilbara

Water quantity & quality

Mitigating the impacts that our operations could have on water flows and quality
e.g. Sub-tropical environment, QMM

Long-term water obligations

Working to minimise the need for ongoing water management post-closure with effective management during operations

Our water targets – focusing our efforts

Our group target

By 2023, we will disclose for all managed operations:

1. Permitted surface water allocation volumes
2. Annual allocation usage
3. Estimated catchment runoff from average annual rainfalls

Our site-based targets

Pilbara Iron Ore
managed aquifer reinjection

Energy Resources of Australia
inventory reduction

Kennecott Copper
import reduction

Oyu Tolgoi
water intensity

Queensland Alumina (QAL)
joint venture performance improvement

QIT Madagascar Minerals
integrated site water management

Case study

Oyu Tolgoi, Mongolia

Water scarcity

Mine located in arid region
Local herders' culture and livelihoods

Water source

Drawn from a deep saline aquifer
No connection to shallow aquifers used by herders

Minimise water use and quality impacts

Advanced tailings thickener, and site-wide focus on recycling, results in half industry average water volumes

Restoration of existing and establishment of new herder wells

>80%
water used in production is recycled

Case study

Pilbara iron ore

Groundwater impacts

Mining below water table presents potential impact to Pilbara groundwater levels

Managed aquifer recharge

Is the method under study for mitigation of impacts

Understanding geology

Field testing provides the hydrogeological information to critically assess the viability of this method

Looking forward

Studies will inform the programme going forward

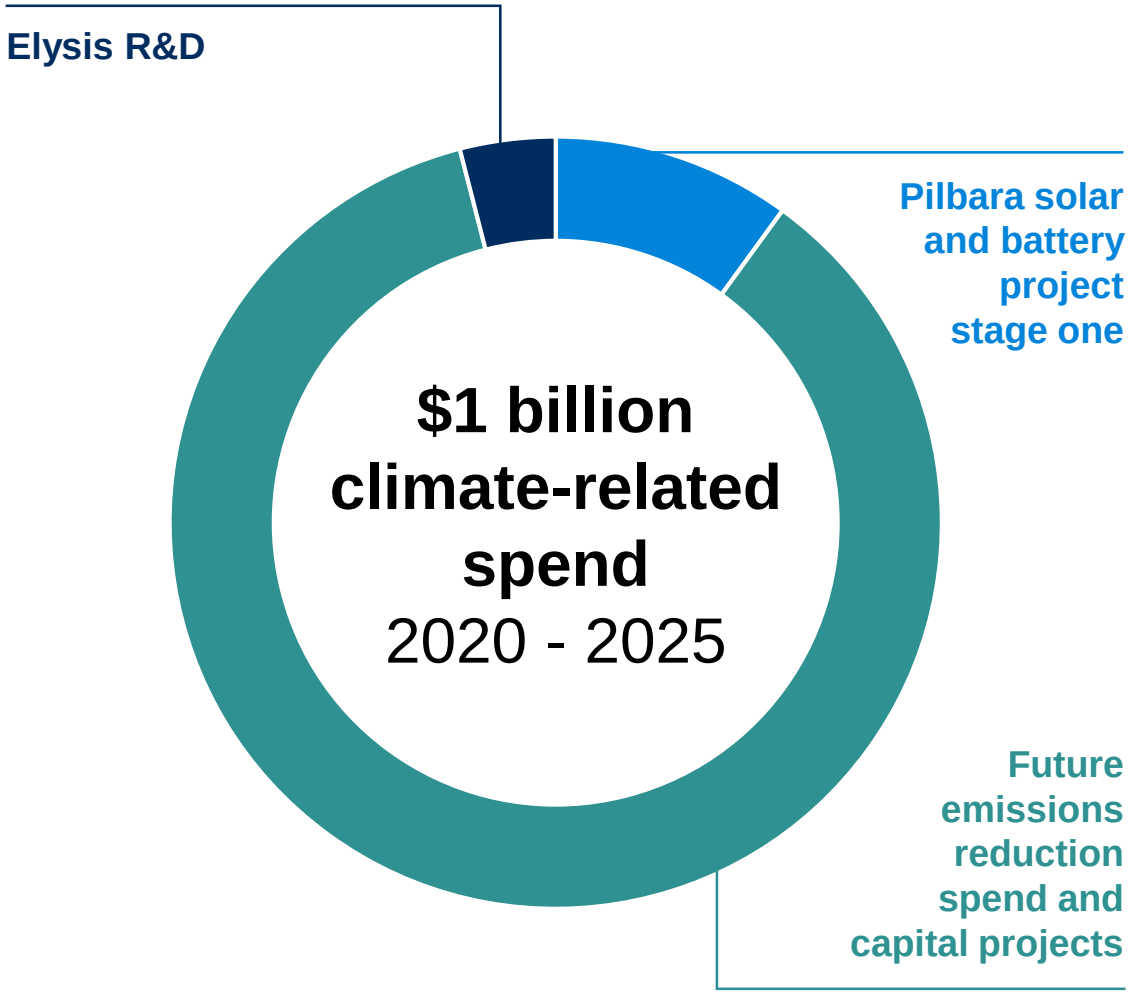
Reinstatement of groundwater levels post mining is a focus

Consideration of ecosystem impacts

Our investment approach

Jakob Stausholm
Chief Financial Officer

Our commitment: $1 billion climate-related spend over five years

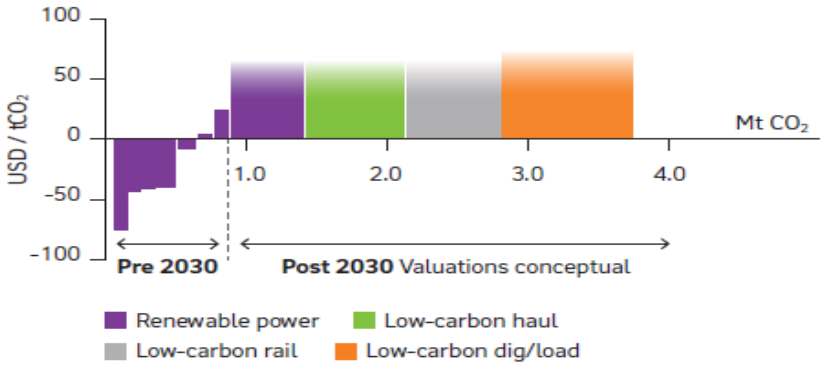


Investing in **physical assets**
Investing in **technology**

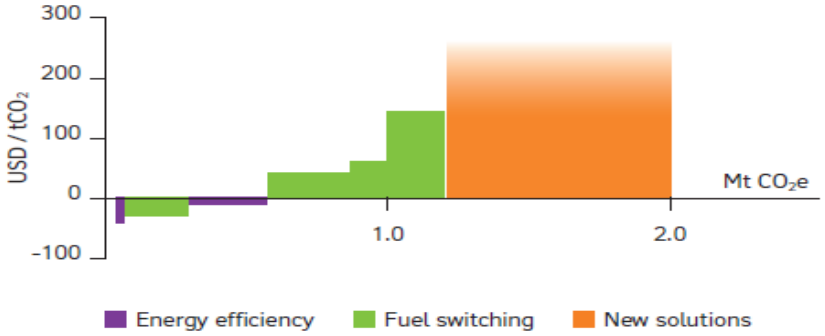
- Taking an economic approach to climate-related spend
- Centres of Excellence to provide technical support and assurance to project analysis
- So far the return on climate-related investment decisions has met or exceeded our cost of capital

Rigorous bottom-up approach to our investments…

Pilbara marginal abatement cost curve
(100% basis)



Yarwun marginal abatement cost curve
(100% basis)



A portion of the $1 billion is capital investment

Bottom-up selection of NPV positive projects

Projects developed by Business Strategy and product groups and form part of our marginal abatement cost curves analysis for each asset

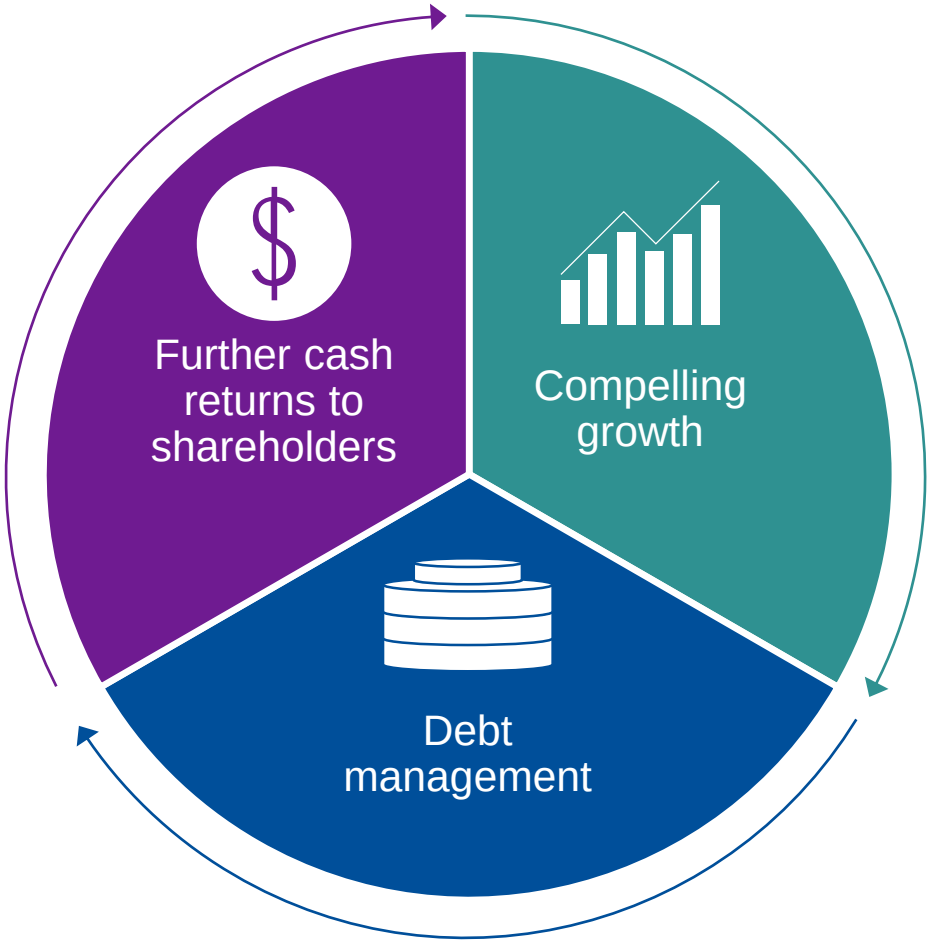
Centre of Excellence provides technical support and works to develop mid and long-term pathways

…with spend on climate integral in our capital allocation

1 **Essential sustaining capex**

2 **Ordinary dividends**

3 **Iterative cycle of**



Climate-related spending is an integral part of our capital allocation

Some of it will fall in maintenance capex

Part of it is included in our replacement and growth spending

Capital portion is already in current capex guidance

Sustainability supports our resilience and our competitiveness

Our Assets

Long life

Competitive

Expandable

Sustainable

Strong balance sheet

Our Approach

Sustainability (ESG)

Operational Excellence

Value over volume

Capital discipline

Counter-cyclical

Our Performance in 2019

$10.4 billion earnings[1]

$17.2 billion supplier payments

$5.5 billion invested in capital projects

$7.6 billion of taxes paid

$11.9 billion dividends and share buy-backs[2]

Unique strength and resilience

[1] underlying earnings. [2] Cash returns (dividends and share buy-backs) are stated on a cash flow basis.

Summary

J-S Jacques

Chief Executive

Our climate and water targets

30%
reduction in Scope 1 and 2 emissions intensity by 2030

$1 billion
estimated spend on climate-related projects over five years

Group water target
Increased disclosure of water allocations and usage for all managed operations by 2023

15%
reduction in Scope 1 and 2 emissions by 2030

Net zero
ambition for our operations by 2050

6 site based water targets
where water is a recognised risk

As pioneers in mining and metals we produce materials essential to human progress

Portfolio | **Performance** | **People** | **Partners**