

## Notice to ASX

#### **Rio Tinto Investor Seminar 2017**

#### 4 December 2017

Rio Tinto is hosting a seminar in Sydney at 10:00am (AEDT) today. The seminar will be hosted by chief executive J-S Jacques, with presentations by:

- Chris Lynch, chief financial officer
- Alf Barrios, chief executive, Aluminium
- Chris Salisbury, chief executive, Iron Ore
- Stephen McIntosh, group executive, Growth & Innovation
- Rob Atkinson, Head of Productivity & Technical Support, Growth & Innovation

The presentation material is attached and will be made available at www.riotinto.com/presentations.

The seminar will be webcast live at www.riotinto.com/webcasts.



#### Contacts

media.enquiries@riotinto.com

riotinto.com

Follow @RioTinto on Twitter

#### **Media Relations, United Kingdom** Illtud Harri T +44 20 7781 1152 M +44 7920 503 600

David Outhwaite T +44 20 7781 1623 M +44 7787 597 493

David Luff T +44 20 7781 1177 M +44 7780 226 422

**Investor Relations, United Kingdom** John Smelt T +44 20 7781 1654 M +44 7879 642 675

David Ovington T +44 20 7781 2051 M +44 7920 010 978

Nick Parkinson T +44 20 7781 1552 M +44 7810 657 556 **Media Relations, Australia** Jonathan Rose T +61 3 9283 3088 M +61 447 028 913

### Investor Relations, Australia

Natalie Worley T +61 3 9283 3063 M +61 409 210 462

Rachel Storrs T +61 3 9283 3628 M +61 417 401 018

#### **Rio Tinto plc**

6 St James's Square London SW1Y 4AD United Kingdom

T +44 20 7781 2000 Registered in England No. 719885 **Rio Tinto Limited** Level 7, 360 Collins Street Melbourne 3000 Australia

T +61 3 9283 3333 Registered in Australia ABN 96 004 458 404

## RioTinto

# **Investor Seminar**

## Sydney, 4 December 2017 J-S Jacques | chief executive

8109

## **Cautionary statements**

This presentation has been prepared by Rio Tinto plc and Rio Tinto Limited ("Rio Tinto"). By accessing/attending this presentation you acknowledge that you have read and understood the following statement.

#### Forward-looking statements

This document, including but not limited to all forward looking figures, contains certain forward-looking statements with respect to the financial condition, results of operations and business of the Rio Tinto Group. These statements are forward-looking statements within the meaning of Section 27A of the US Securities Act of 1933, and Section 21E of the US Securities Exchange Act of 1934. 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.

Examples of forward-looking statements include those regarding estimated ore reserves, anticipated production or construction dates, costs, outputs and productive lives of assets or similar factors. Forward-looking statements involve known and unknown risks, uncertainties, assumptions and other factors set forth in this presentation.

For example, future ore reserves will be based in part on market prices that may vary significantly from current levels. These may materially affect the timing and feasibility of particular developments. Other factors include the ability to produce and transport products profitably, demand for our products, changes to the assumptions regarding the recoverable value of our tangible and intangible assets, the effect of foreign currency exchange rates on market prices and operating costs, and activities by governmental authorities, such as changes in taxation or regulation, and political uncertainty.

In light of these risks, uncertainties and assumptions, actual results could be materially different from projected future results expressed or implied by these forward-looking statements which speak only as to the date of this presentation. Except as required by applicable regulations or by law, the Rio Tinto Group does not undertake any obligation to publicly update or revise any forward-looking statements, whether as a result of new information or future events. The Group cannot guarantee that its forward-looking statements will not differ materially from actual results. In this presentation all figures are US dollars unless stated otherwise.

#### Disclaimer

Neither this presentation, nor the question and answer session, nor any part thereof, may be recorded, transcribed, distributed, published or reproduced in any form, except as permitted by Rio Tinto. By accessing/ attending this presentation, you agree with the foregoing and, upon request, you will promptly return any records or transcripts at the presentation without retaining any copies.

This presentation contains a number of non-IFRS financial measures. Rio Tinto management considers these to be key financial performance indicators of the business and they are defined and/or reconciled in Rio Tinto's annual results press release and/or Annual report.

Reference to consensus figures are not based on Rio Tinto's own opinions, estimates or forecasts and are compiled and published without comment from, or endorsement or verification by, Rio Tinto. The consensus figures do not necessarily reflect guidance provided from time to time by Rio Tinto where given in relation to equivalent metrics, which to the extent available can be found on the Rio Tinto website.

By referencing consensus figures, Rio Tinto does not imply that it endorses, confirms or expresses a view on the consensus figures. The consensus figures are provided for informational purposes only and are not intended to, nor do they, constitute investment advice or any solicitation to buy, hold or sell securities or other financial instruments. No warranty or representation, either express or implied, is made by Rio Tinto or its affiliates, or their respective directors, officers and employees, in relation to the accuracy, completeness or achievability of the consensus figures and, to the fullest extent permitted by law, no responsibility or liability is accepted by any of those persons in respect of those matters. Rio Tinto assumes no obligation to update, revise or supplement the consensus figures to reflect circumstances existing after the date hereof.



## Supporting statements

#### Ore Reserves (slide 10)

Reserve grade for Oyu Tolgoi Underground – Hugo Dummett North and Hugo Dummett North Extension. Probable Ore Reserves for Hugo Dummett North and Hugo Dummett North Extension (499 Mt at 1.66% Cu, 0.35g/t Au) were released to the market in the 2016 Rio Tinto Annual Report on 2 March 2017 and can be found on p224 of that report. The Competent Person responsible for reporting of those Ore Reserves was J Dudley.

Reserve grade for Amrun (formerly South of Embley). Proved and Probable Ore Reserves (1409Mt at 52.4% Al<sub>2</sub>O<sub>3</sub>) for Amrun (South of Embley) were released to the market in the 2016 Rio Tinto Annual Report on 2 March 2017 and can be found on p223 of that report. The Competent Person responsible for reporting of those Ore Reserves was L McAndrew.

Rio Tinto is not aware of any new information or data that materially affects the above reserve grade estimates as reported in the 2016 Annual Report, and confirms that all material assumptions and technical parameters underpinning these estimates continue to apply and have not materially changed. The form and context in which each Competent Person's findings are presented have not been materially modified.

#### **Production Targets**

The production target for Amrun shown on slide 10 was disclosed in a release to the market dated 27 November 2015 ("Rio Tinto approves US\$1.9 billion Amrun (South of Embley) bauxite project"). The production target for Oyu Tolgoi shown on slide 10 is the average production 2025-2030, including open pit production. This production target was disclosed in a release to the market on 6 May 2016 ("Rio Tinto approves development of Oyu Tolgoi underground mine"). All material assumptions underpinning these production targets continue to apply and have not materially changed.

## Safety and health come first



RioTinto

# Cash focus with capital discipline delivers strong shareholder returns

Long-term strategy	Cash focus	Capital discipline and shareholder returns	Team and performance culture
World-class assets	Value over volume	Strong balance sheet	Safety first
Delivering >2% CAGR <sup>1</sup> CuEq growth	\$5 billion free cash flow from mine to market productivity by 2021	\$8.2 billion of cash returns announced in 2017	Assets at the heart of our business
Licence to Operate	Free cash flow yield	Portfolio shaping	Commercial and operational excellence



<sup>1</sup> Copper equivalent CAGR, 2015-2025

RioTinto

## Global macro indicators remain supportive



Source: CEIC, Rio Tinto

RioTinto

# Our product quality delivers strategic competitive advantage in significant markets

Our premium products				
have a strategic competitive advantage	Our 62% <b>iron ore</b> benefits from structural change following Chinese reforms	High-quality, expandable <b>bauxite</b> assets in low sovereign risk jurisdictions	Strong global <b>aluminium</b> demand: Chinese curtailments could provide growth options	Our <b>copper</b> growth profile is well positioned to benefit from EV evolution
in commodities playing a key role in urbanisation				
in significant markets <sup>1</sup>	~\$100 billion	~\$13	5 billion	~\$140 billion
<sup>1</sup> 2017 estimated market size based on YTD p	pricing			

7

RioTinto

 $\textcircled{\sc c}2017,$  Rio Tinto, All Rights Reserved

# World-class high-margin assets with attractive growth options

	Iron Ore	Bauxite	Aluminium	Copper	Specialty products
Main businesses	Pilbara	Weipa, Gove, CBG	Canadian smelters	Oyu Tolgoi, Escondida	TiO <sub>2</sub> Borates
Competitive advantages	Low-cost assets, significant resources Integrated single user infrastructure Benchmark 62% product Technical marketing leadership	Large, low-cost, expandable bauxite assets Proximity to market High alumina content Technical marketing leadership	Expandable first quartile hydro-powered smelters Low-cost, long-life renewable power Green, value-add product	Large, long-life, high- grade, low-cost Attractive growth options Block caving expertise	High-grade, first quartile assets Latent capacity with expansion options R&D driven marketing
H1 2017 margins	<b>69%</b> FOB EBITDA margin	<b>45%</b> <sup>1</sup> FOB EBITDA margin	<b>28%</b> <sup>1</sup> Operating EBITDA margin	<b>42%</b> <sup>1</sup> Operating EBITDA margin	<b>32%</b> <sup>1</sup> Operating EBITDA margin

8

<sup>1</sup> Margins relate to main businesses only, exclude product group overheads

RioTinto

## We returned 40% of cash generated<sup>1</sup> to shareholders

### Most disciplined and balanced allocation of capital in H1 2017



<sup>1</sup> Cash generated = net cash generated from operating activities, sales of PP&E and disposals Peer group comprises Anglo American, BHP, Glencore and Vale

RioTinto

## High-return growth

#### Amrun

Creating seaborne bauxite market, high-grade, expandable

>20% IRR

\$1.9 billion capex, first quartile opex

22.8 Mt/a<sup>1</sup>, project ~60% complete, commissioning H1 2019

52.4% alumina content<sup>1</sup>





Significant brownfield

Pilbara iron ore, Queensland

bauxite, Canadian aluminium

optionality and productivity

Bauxite expansion options

>15% IRR hurdle rate requirement

Pilbara iron ore: significant resource

Brownfield aluminium options: Alma,

AP60, subject to market conditions

opportunities

opportunities

### Longer-term growth opportunities

Jadar (lithium/borates), Resolution (copper), exploration

>15% IRR hurdle rate requirement

Jadar: world-class lithium/borates deposit with potential first production by 2023

Resolution: pre-feasibility completion by 2020, advancement of permitting process continuing



<sup>1</sup> Refer to the statements supporting these reserve grades and production targets set out on slide 3 of this presentation

**Oyu Tolgoi** 

>20% IRR

2030)

Largest and highest quality

copper development in the world

\$5.3 billion capex, first quartile opex

First drawbell production: 2020

1.66% Cu, 0.35g/t Au<sup>1</sup>

Full production ~560 kt/a1 (2025-

RioTinto

## Productivity will further enhance our ROCE and TSR



Source: FactSet as of 1 November 2017 and company financials for Rio Tinto and diversified peers | Note: Diversified peers: Anglo American, BHP, Glencore, Vale

<sup>1</sup> Based on average of each company's ROCE between 2013 and 1H2017, with 1H17 given 50% weighting compared to full year results | <sup>2</sup> Additional \$1.5bn of increased free cash flow from productivity in 2021.



# Delivering \$5 billion of additional free cash flow from productivity



RioTinto

## RioTinto

# **Investor Seminar**

Sydney, 4 December 2017 Chris Lynch | chief financial officer

## **Disciplined capital allocation**





# Strong balance sheet enables high cash returns to shareholders



 $\textcircled{\sc c}2017,$  Rio Tinto, All Rights Reserved

**RioTinto** 

## Sustaining capital and compelling growth

## Capital expenditure profile \$ billion



Maintained sustaining capital guidance of \$2.0 to \$2.5 billion per year, including

Iron Ore sustaining capex of ~\$1 billion per year

Pilbara replacement capital includes Koodaideri development from 2019

Other replacement capital includes

- South wall pushback at Kennecott
- Amrun replacement tonnes
- Zulti South

Development capital includes

– Oyu Tolgoi

– Amrun

## On track to deliver additional cash in 2017 and 2018





## Rigorous measurement of productivity gains

Accounting basis	<ul> <li>Free cash flow basis, Rio Tinto share, post-tax</li> </ul>
Price	<ul> <li>Actual price achieved each year – not a constant or rebased price</li> </ul>
Commercial excellence	<ul> <li>Variation of product mix included</li> </ul>
Volumes	<ul> <li>Tonnes from growth capex excluded</li> </ul>
Costs	<ul> <li>Adjustments for energy, inflation and exchange impacts</li> <li>All other changes in input costs are included</li> </ul>
Grades	<ul> <li>No adjustment or rebasing for grade</li> </ul>
Capital savings	<ul> <li>Capital savings are excluded</li> </ul>
Guidance	<ul> <li>Consensus pricing used</li> </ul>
Assets	<ul> <li>Assets scheduled for closure in the next 5 years are excluded</li> <li>Target may be rebased should any assets be divested in the 5 year period</li> </ul>



# Delivering \$1.5bn additional free cash flow each year from 2021



\* includes step up in Pilbara rail throughput

RioTinto

## RioTinto

# **Growth & Innovation**

## Sydney, 4 December 2017

Stephen McIntosh | Group Executive, Growth & Innovation Rob Atkinson | Head of Productivity & Technical Support

# Growth & Innovation enabling value generation across asset lifecycle



### **Technical Excellence**

geosciences, mining, processing, infrastructure, asset management, integrated operations

### **Information Systems & Technology**

enterprise services, platforms, digital workplace



# Our focus builds on leadership in data, technology & automation



©2017, Rio Tinto, All Rights Reserved

**RioTinto** 

## Driving Rio Tinto mine to market productivity





# Delivering \$1.5bn additional free cash flow each year from 2021



\* includes step up in Pilbara rail throughput

RioTinto

## Truck and dig unit payload increases: moving more with the same



Assets		Scope	Results
686 trucks	118 dig units	5 suppliers	+6% payload <sup>1</sup> (2017 improvement over 2016)



Payload of trucks increased by 15-20t

Collaborated with truck, loading equipment and tyre suppliers across 18 months of field trials

Dig unit payload monitoring system trialled, being installed and replicated across Group

Targeting further 10% increase in payload

Weighbridge at Kennecott

1: Payload is the weight of ore or waste loaded into the tray (bed) of a truck

**RioTinto** 

# Truck change over to increase operating hours: using our trucks more efficiently

Assets	Scope	Results
686 trucks	Operating time	<b>+7% EU</b> <sup>1</sup> (2017 improvement over 2016)



Oyu Tolgoi hot change platform

Targeting trucks to work over 75% of calendar hours

26

Targeting improvement across whole of mining cycle

Truck operator change over facility and hot seating:

- Reduced time loss and improved safety

Real-time feedback to in-field leadership

Improved maintenance practices to lift mean time between failure

1: Truck Effective Utilisation (EU) defined as: % of calendar time that the truck was performing its function (highlights impact of all time based losses)

RioTinto

# Processing plant throughput: increasing rates



Assets	Scope	Results
46 plants	Feed rate	<b>+7% tonnes per hour</b> Weipa, Oyu Tolgoi (2017 improvement over 2016)



Weipa Andoom beneficiation plant

Andoom producing at 2x nameplate with practices being replicated at East Weipa

Gove – conveying system reliability improvements and new chute designs delivering record performance in 2017

Oyu Tolgoi - process control innovations and blasting optimisation have increased milled ore +3 million tonnes in 2017

Run hard and stop - higher processing rates being used to reduce maintenance and operating costs







## Innovating for productive growth options



Innovation in ore body knowledge

Oyu Tolgoi Isometric Looking North: Feasibility Study Footprint

>2.5% CuEq Blocks and Cave Shape for Lift #1

### Designing for the future



Jadar – Illustration of proposed processing plant

Lean in construction



Amrun – Chith export facility



## Video – Amrun development





## Leading data platform to enable productivity journey



RioTinto

## Leveraging technical excellence to drive value

### **Technical Excellence**

### geosciences, mining, processing, infrastructure, asset management, integrated operations





## Driving Rio Tinto mine to market productivity





## RioTinto

# Iron Ore

Sydney, 4 December 2017 Chris Salisbury | chief executive, Iron Ore





## Strong business foundations and clear strategy



©2017, Rio Tinto, All Rights Reserved

RioTinto

# Attractive margins and pollution controls supporting a sustained focus on productivity



#### Steel stocks at traders and mills



Steel demand and prices in China supported by growth across key end-use sectors

Low steel stocks, attractive mill margins and winter controls underpin demand for higher quality iron ore

Lower quality iron ore accounts for around 70% of port inventories in China

# Demand for quality iron ore remains strong, with the high / low spread continuing



Iron ore futures market no longer characterised by the structural backwardation of recent years

The wide spread between high and low quality ores sustained

Steelmakers targeting high-grade / low-impurity iron ore products

Jan-14 May-14 Sep-14 Jan-15 May-15 Sep-15 Jan-16 May-16 Sep-16 Jan-17 May-17 Sep-17

RioTinto Source: Bloomberg, Metal Bulletin, Platts.

## Our Pilbara Blend remains the product of choice

### Blending reduces product variability





Consistency of our Pilbara Blend (PB) products gives our customers predictability in managing their blast furnace burden

PB lump is a good source of iron units as mills seek productivity in the face of sinter capacity restrictions

#### Shipments by product



Customers seek our stable, blended PB fines as the base load for their sintering operations

Yandicoogina fines has low impurities and is highly valued



## Capital for high-quality asset options to maintain Pilbara Blend and the broader portfolio



©2017, Rio Tinto, All Rights Reserved

RioTinto

## Focused on sustaining our competitive advantage



### 69% FOB EBITDA margin in 1H 2017

1H 2017 cash unit cost of \$13.8/t

**Rio Tinto Iron Ore EBITDA performance** 

#### Cost driver trend

Cost driver	2017 ► 2018	
Strip ratio		
Haul distance		
Bulk materials		
Labour costs		
Cyclic maintenance costs	A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

~10% increase in haul distance for 2018; strip ratio flat

Cyclic maintenance costs being partly offset by new tactics

### >3,500 productivity improvement initiatives

### RioTinto

## Productivity options to continue to deliver cash benefits

	Best Practice	Partnering with Suppliers	Data & Technology	Automation
	Effective equipment utilisation and maintenance optimisation		Payload op	otimisation
A MARY AND		Mine planning optimisation		
A TANK		Au	itonomous trucks (including retro-f	it)
ALL SALES			Autonom	ous drills
Mine			Smart explosi	ives charging
and the	Yard improvements			
RIO	and scheduling	Track maintenance strategy		
	Dumping improvements			Next generation train control
	Track maintenance		Brake car elimination	
NYO HIE DOG	Consist reliability		AutoHauI™	
		Roll by rail detection		
Rail				Automated inspections
	Asset health monitoring		Operations centre optimisation	
			Inter-machine	control loops
			Productivity monitoring apps	
			Ore sensitive dumper settings	
Port / other			Debottlenecking opportunities	

Iron Ore to deliver additional free cash flow of ~\$0.5 billion per year from 2021

RioTinto

# Priority is to optimise infrastructure capacity and flexibility



\*Once Silvergrass fully ramped up

RioTinto

## Significant improvements achieved across our mines....

7%

1.00

2015

Truck effective utilisation and payload improvements have delivered cost savings and capital deferrals

20 extra tonnes per load for 240t trucks provides 35 million annual tonnes of additional mining capacity

Better maintenance strategies driving longer component lives and cost savings

Yield, feed rate and cost improvements

Less rehandle while maintaining production rates



1.02

2016

Time %, indexed, Sep YTD



Curr



### RioTinto

## ...with other productivity improvements continuing to deliver results



# Along with AutoHaul<sup>™</sup>, there are many levers to optimise rail circuit capacity and improve flexibility



RioTinto

## AutoHaul<sup>™</sup> making strong progress...

World's first fully autonomous heavy haul mainline run completed in Sept 2017





**kilometres** completed in autonomous mode<sup>1</sup> this year



**Speed improvement** in autonomous mode<sup>1</sup>

AutoHaul<sup>™</sup> usage continues to be expanded and preparing for final Regulator approval. Anticipate full implementation of driverless trains by end of 2018

<sup>1</sup> Autonomous mode(s) currently in operation with drivers on-board

RioTinto



# ...with rail productivity and improved track condition the \* keys to unlocking value

### Yard improvement (minutes)

Yard scheduling automation and optimisation

Further technology to be implemented

202 183 172 2015 2016 2017 YTD

## Mainline travel times (hours)

Track maintenance improvement – 2017 and into 2018

Reductions to continue:

- Maintenance schedule optimised
- Additional track maintenance
   equipment



### Dumping - placing train improvement (minutes)



### Consist reliability - unscheduled loss improvements (hrs/Mt)

- Strategic partnership with suppliers
- Reduce number of unplanned locomotive and ore car failures

Result is improved rail cycle time





# Improving the capability of our port assets

### Leveraging technology to gain capacity

Real-time asset health monitoring supporting condition-based maintenance

Proactive dumper system adjustments optimising throughputs of differing ore types

### Operational excellence in maintenance

Increasing uptime of the asset whilst ensuring reliability and asset health

Reducing waste and frustration in work planning and execution, increasing labour efficiency



**Dumper Cycle Time** 



#### Maintenance Labour Contingency Cape Lambert, Excess Labour Ratio







### RioTinto

# Technology, innovation and people enabling an agile, market-driven organisation

### Step-change technology

Operations Centre optimisation AutoHaul<sup>TM</sup> Retrofit of autonomous trucks Expansion of Automated Drilling System Koodaideri – the intelligent mine



### Innovation projects

Drone monitoring Remote isolation Roll by rail detection Machine-to-machine control loops Productivity monitoring apps



### Skills and development

Recognising employee innovation Data analytics Collaborative and replication culture Digitally upskilled workforce Further robotics



# Strong foundations, clear strategy and key initiatives will continue to realise optimal value



# ~\$0.5 billion additional free cash flow per year from 2021

**Rail system optimisation** 

Iron Ore

- AutoHaul<sup>™</sup>
- Productivity improvement
- System maintenance

#### **Automation**

- Trucks, including retrofit
- Drills

Scheduling and planning optimisation Best practice replication High-value product suite

Strong customer relationships

Fully integrated and flexible system

Productivity-driven optionality

Disciplined allocation of resources

### RioTinto

## RioTinto

# Aluminium

Sydney, 4 December 2017 Alf Barrios | chief executive, Aluminium

# Strong global aluminium demand with Chinese production at a turning point

#### Primary aluminium production and stocks



Source: Rio Tinto, CRU Group

Aluminium demand growth ~4% p.a. next 5 years

Strict enforcement of Chinese capacity control and winter cut regulations in smelting and alumina:

- Illegal capacity cuts: aluminium ~1.4-3.6Mt, bauxite ~10Mt
- Winter cuts: aluminium ~0.1-0.6Mt, alumina ~0.7-2.4Mt

China expected to be broadly balanced in aluminium in medium to long-term

Seaborne bauxite demand driven mainly by China import requirements:

- Aluminium/alumina demand
- Domestic bauxite quality deteriorating

RioTinto

## We will maintain our low-cost position



Raw materials & energy lifting cost curve by 10% vs 2016

Costs are expected to stay elevated in 2018

#### Rio Tinto well placed

- Balanced alumina
- Self-generated hydro power
- 90% own anode production
- 55% own calcination capacity for Canadian assets
- Advantaged bauxite position: proximity to China, supply reliability, high alumina, expandable resource

Source: CRU and internal analysis. Aluminium costs include hot metal and cold metal costs net of market and product premiums. Commodity price increases calculated between 1 January 2016 and November 2017



## We continue to widen the gap over our competitors



#### **Upstream EBITDA margins (per cent)**

Margin gap: portfolio quality and performance delivery

EBITDA margin increase to 35%

Cash cost improvements \$1.7bn since 2012

Rio Tinto internal analysis which includes adjustments to externally reported EBITDA margins, trading, procurement and marine revenues to report performance on a comparable basis. Competitors included in the analysis are Rusal, Hydro and Alcoa.



## Productivity options to continue to deliver cash benefits

				itil	3
	Best Practice	Partne with Sup	ring opliers	Data & Technology	Automation
	Сгеер	Ra	il debottlenecking	& payload optimisation	
	Mine planr	ning optimisation		Shipping op	timisation
	Equipment utilisation		Pr	edictive analytics & optimisation in real-time	9
Bauxite	Bauxite grade optimisation			Bauxite integrated	operations centre
CARA AND DO	Creep & asset utilisation	Energy optimisation			
	Bauxite mix optimisation	Flocculation & additives technology			
	Sweetening		Pi	edictive analytics & optimisation in real time	9
Alumina	Fixed cost compression			Advanced pro	cess control
			(	Сгеер	
		Automated anode change			
and the first	Fixed cost compres	ssion	A	dvanced process control	
V. MIL	Casthouse utilisation	sation Autonomous metal / anode transport			
	Aluminium Operations Centre - predictive analytics & optimisation in real-time				
Aluminium					

Aluminium to deliver additional free cash flow of ~\$0.5 billion per year from 2021

RioTinto

## Increasing returns on bauxite and alumina



Managed bauxite production

Maximising value from our existing bauxite operations

- Production track record: Weipa 6% p.a. / Gove 8% p.a.
- Maximising value-in-use by customer
- Value over volume, optionality post-Amrun

Alumina productivity: maximising use of installed capacity

- Production track record: 10% p.a. since 2011
- Labour reduction > 20%
- Advanced process control

#### 2018 production guidance

- 49 to 51Mt bauxite as East Weipa transitions to Amrun
- 8.0 to 8.2Mt alumina

RioTinto

## Asset performance drives next phase of productivity

### Leveraging Rio Tinto

- Weipa: rail expertise to unlock system capacity (higher speeds and wagon loads)
- Gove: asset management expertise to unlock throughput (plant reliability)
- Integrated Operations Centre: systems and expertise to give overall bauxite system view to unlock full potential

## Applying advanced analytics through systems enhancements

- Improved data coverage, software and connectivity enabling real-time decision making
- Dynamic asset health assessment focused on debottlenecking entire supply chain



Weipa performance

### RioTinto

# Smelters creeping at 1% per annum, double industry average

#### Amperage creeping history



Long history of cutting-edge smelter productivity

- Industry-leading technology, expertise and innovation
- Creep innovation the engine of technology productivity

Low capital intensity, high-return investments

- Productivity growth on installed asset base
- Deep pipeline of next wave improvement levers

Canadian brownfield growth options

Alma, AP60 ... value over volume

2018 production guidance

- 3.5 to 3.7Mt aluminium

# Technology, process intelligence and expertise underpin our competitive advantage

### Industry-leading technology

AP Technology APxe low energy consumption Spent potlining valorisation



### Process intelligence

Advanced control systems Anode resistivity measurement Integrated casthouse management system



### **Skills & expertise**

Technology and product development Academic and industry collaboration Customer technical partnership





## Analytics and integrated operations drive the next wave " of productivity

### **Data analytics**

Anode traceability Anode spike predictive detection Asset health monitoring



### **Automation**

Anode change Automated Guided Vehicle logistics Casting process optimisation



### **Integrated Operations**

Real-time process optimisation & integration Hydropower Control Centre Aluminium Operations Centre





## Enhancing margins through VAP



### **Rio Tinto VAP product mix<sup>1</sup>**







Value added product (VAP) enhances margins

- VAP 57% of portfolio, targeting >70%
- Additional revenue \$217 per tonne<sup>1</sup>
- Cumulative free cash flow improvement of \$0.3bn by 2021

Further scope to grow margins through commercial excellence

- Customer partnerships: North American automotive light-weighting
- Market differentiation
  - RenewAl<sup>TM</sup> low  $CO_2$  aluminium
  - Proximity and reliability
  - Technology and product development

61

# Strong outlook, value delivery through productivity and growth options



Aluminium

~\$0.5 billion additional free cash flow per year from 2021 ...

- Hot metal and bauxite creep
- VAP volume & mix
- Integrated operations
- Value chain optimisation
- Value-in-use optimisation
- Asset productivity

... offsetting raw material headwinds

Strong demand outlook

China supply-side turning point

World-class first quartile assets

Near-term growth from productivity and commercial

62

Option-ready growth in bauxite and aluminium

### RioTinto

## RioTinto

# **Investor Seminar**

## Sydney, 4 December 2017 J-S Jacques | chief executive

8109

# Achieving \$1.5bn of productivity improvements a year from 2021 (\$5bn cumulative)

	Iron Ore	Aluminium	Copper & Diamonds	Energy & Minerals
Indicative exit rate	\$0.5 billion	\$0.5 billion	\$0.15 billion	\$0.35 billion
Outlining the key initiatives	<ul> <li>Rail system optimisation</li> <li>AutoHaul<sup>™</sup></li> <li>Productivity improvement</li> <li>System maintenance</li> <li>Automation</li> <li>Trucks, including retrofit</li> <li>Drills</li> <li>Scheduling and planning optimisation</li> <li>Best practice replication</li> </ul>	<ul> <li>Hot metal and bauxite creep</li> <li>VAP volume &amp; mix</li> <li>Integrated operations</li> <li>Value chain optimisation</li> <li>Value-in-use optimisation</li> <li>Asset productivity</li> </ul>	<ul> <li>Mining</li> <li>Rio Tinto Kennecott south wall pushback</li> <li>Diavik A21 development</li> <li>Processing Focus Areas</li> <li>Kennecott concentrator and smelter</li> <li>Argyle ore handling system</li> <li>Diavik diamond recovery</li> <li>Maintenance tactics</li> <li>Lightweight beds</li> <li>Shorter haul cycle times</li> <li>Integrated Operations</li> <li>Roll out of mobile platform</li> </ul>	<ul> <li>Coal</li> <li>Underground development and open pit productivity improvements</li> <li>Borates</li> <li>Refinery reliability improvement</li> <li>RTIT</li> <li>Restoring smelter capacity, increasing smelter utilisation</li> <li>IOC</li> <li>Concentrator and pellet plant reliability improvement</li> </ul>

RioTinto

## A track record of sector-leading delivery



<sup>1</sup> Based on amounts announced in Rio Tinto market releases. May vary from cash flow statement due to completion adjustments and exchange rates <sup>2</sup> 2017 cash returns comprised of 2016 final dividend, 2017 interim dividend, \$1.5bn plc on-market share buy-back and A\$750m Ltd off-market share buy-back



## Maintaining a disciplined and consistent strategy



World-class assets **Portfolio** 

Superior cash generation



**Operating excellence** Performance

Capabilities **People & Partners** 

**Disciplined capital allocation** 

Balance sheet strength	Superior shareholder returns	Compelling growth
RioTinto	©2017, Rio Tinto, All Rights Reserved	



## 2018 guidance

Iron Ore: Pilbara shipments 330-340 Mt (100% basis)

Aluminium: 49-51 Mt bauxite, 8.0-8.2 Mt alumina, 3.5-3.7 Mt aluminium

Copper & Diamonds: 510-610 kt mined copper, 225-265 kt refined copper, 17-20 Mcts diamonds

Coal: 7.5-8.5 Mt hard coking, 3.8-4.5 Mt thermal

**IOC:** 11.5-12.5 Mt iron ore pellets and concentrate

TiO<sub>2</sub>, borates, uranium: 1.2-1.4 Mt TiO<sub>2</sub> slag, 0.5 Mt boric acid equivalent, 6.2-7.2 Mlbs uranium



## Volumes relevant for productivity

Project	Capex type	In	Out
OT underground	Growth		×
OT open pit	N/A		×
Amrun			
- Weipa replacement	Replacement	$\checkmark$	
- Incremental up to design capacity	Growth		×
- Incremental in excess of design capacity		$\checkmark$	
Pilbara			
- Growth pre-AutoHaul™ completion	Growth		×
- Incremental post completion of AutoHaul™		$\checkmark$	
Kennecott			
- South wall pushback	Replacement	$\checkmark$	
Escondida			
- All volumes excluded			×

RioTinto