### Sydney Mining Club Iluka Resources: A New Chapter

Matthew Blackwell, Head of Major Projects, Sales and Marketing

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Balranald, NSW

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# A global critical minerals

# company

Iluka is a globally significant producer of zircon and high grade titanium feedstocks; and is set to become a globally material supplier of refined rare earths

#### Operational experience

Over 70 years of critical minerals exploration, mining, processing, marketing and rehabilitation, with a pipeline of quality projects to meet growing demand



Zircon, titanium and rare earths are used in an array of everyday applications and are critical for sustainable development, including global electrification



# Sustainable supply chain

A safe, responsible and sustainable supplier of critical minerals, supporting the transition to a modern, low carbon economy

#### Sustainability pillars

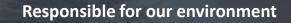


Iluka's purpose is to deliver sustainable value Our goal is to be a safe, responsible and sustainable supplier of critical minerals

#### Trusted by our people and communities



To build the capability of Iluka's workforce and embed a consistent and open approach to the relationships Iluka has with the communities in which it operates



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To be cognisant of the impact of Iluka's operations on the environment and maximise the efficiency in how the company operates Operate in and provide products for a low carbon world



To recognise that the manner in which Iluka operates and evolves its business can reduce the company's carbon footprint and provide opportunities to support the transition to a low carbon economy

#### Iluka's evolution

# Rare earths business

A globally competitive source of secure, sustainable rare earths

# Australian operations focus

Sierra Leone assets demerged

# Projects executed and pipeline replenished

Delivered with capital discipline and subject to market conditions

#### Deterra Royalties 20% stake

Provides additional financial strength and dividend stream

# lluka's future



# Iluka today

#### Rare earths refinery approved

Risk sharing partnership with Australian Government

# Global mineral sands operations

Australian and Sierra Leone mineral sands assets

#### Project pipeline execution

Technical development to deliver future production options

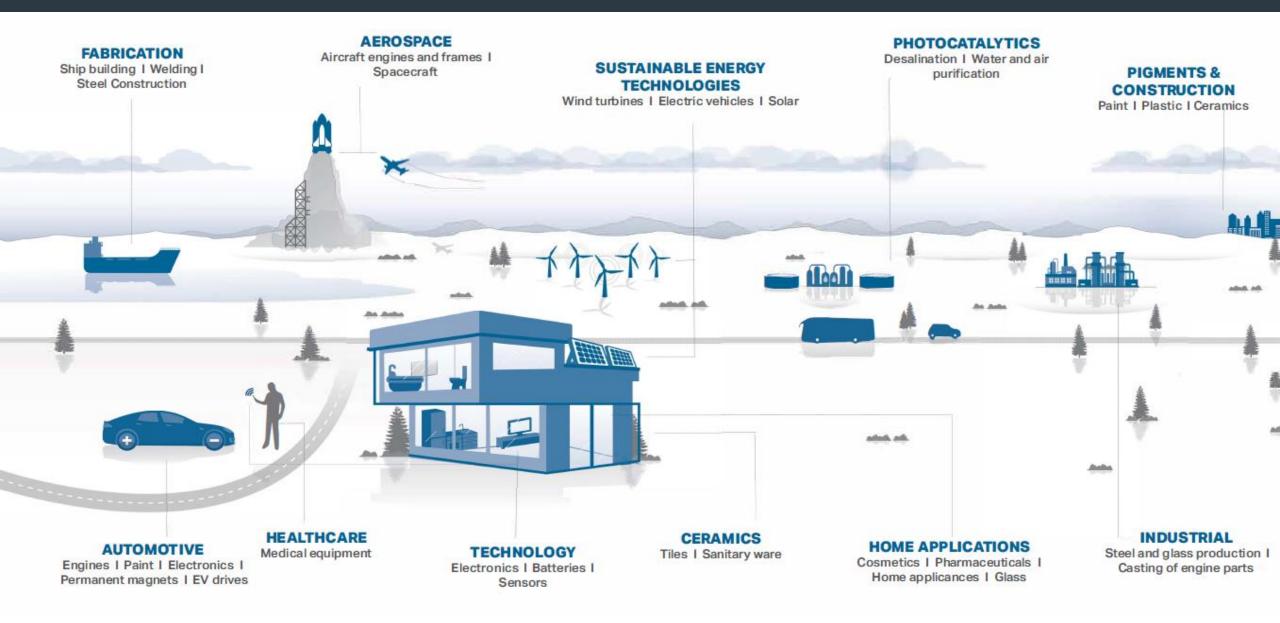
#### Deterra Royalties 20% stake

Provides additional financial strength and dividend stream

#### **Operations and key financials**



#### **Critical minerals for everyday life**



# Iluka is a major global supplier of critical minerals

Iluka is one of the world's largest producers of zircon and a significant supplier of high grade titanium feedstocks; the company's rare earths diversification is expected to make a meaningful contribution to the sustainable supply of rare earths from 2025

Zircon

# High grade titanium

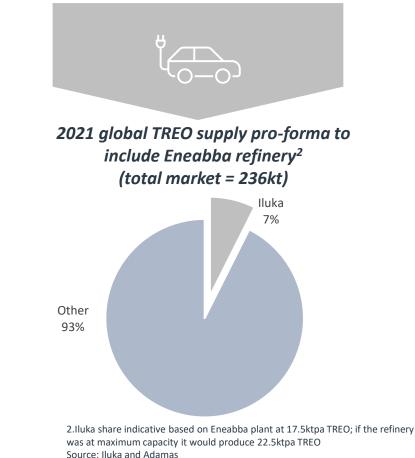
(Iluka products: rutile and synthetic rutile)

2021 global high grade titanium supply<sup>1</sup>  $(total market = 2.8mt TiO_{2})$ Iluka Sierra Rutile 4% Other 87% 1. Includes rutile, synthetic rutile, chloride slag and UGS. Source: Iluka and TZMI

2021 global zircon supply (total market = 1.2mt) Iluka 28% Other 72% Source: Iluka and TZMI

# **Rare earths**

(Iluka future production: includes high value neodymium, praseodymium, dysprosium, terbium)



#### **Stages of the mineral sands process**







#### Exploration

Mineral sands ore bodies consist of strand and beach dunal deposits

#### Mining

Mineral sands mining can involve dry (truck and shovel, dozer push) and wet (dredge and hydraulic) techniques

#### Mineral Processing

Gravity, electrostatic and magnetic processing to separate into final products

#### Value Addition

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Synthetic rutile is produced by upgrading ilmenite in a rotary kiln producing a higher grade, higher value product

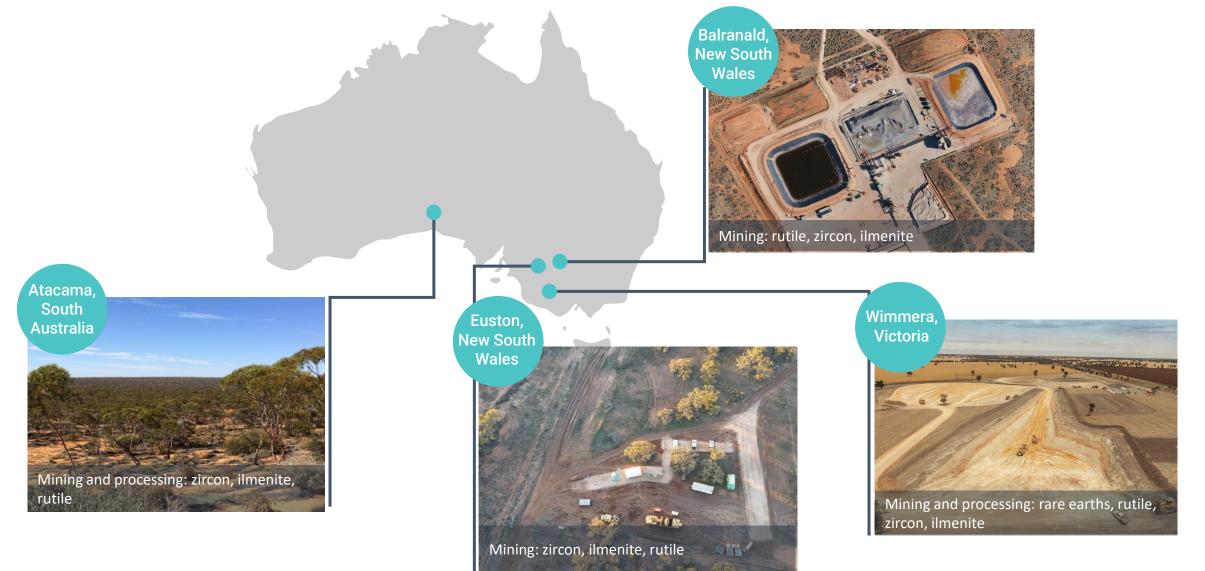
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Rehabilitation

Disturbed areas are rehabilitated to land uses similar to that existing prior to mining

#### **Project pipeline**

Leveraging technical and development expertise to deliver commercial outcomes for Australian Resources



#### Euston, New South Wales – conventional mining



Series of deposits in western New South Wales with significant rutile and zircon assemblage. Ilmenite is possible supplement feedstock to synthetic rutile kilns

Development suits conventional open cut mining and processing technologies

#### Recent progress

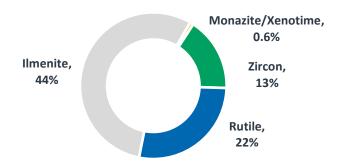
Preliminary feasibility study progressing with work programs including:

- conventional dry mining with pit dewatering
- metallurgical recovery / product quality assessment
- water table management

Early phase environmental studies underway

Stakeholder engagement with traditional owner groups and landowners

#### **Resource assemblage<sup>1</sup>**



1. The Mineral Resource estimates for the Euston Deposits (Castaway, Earl, Kerribee, Koolaman, Ki Downs and Yalong (formerly Dispersion)) were presented to the ASX and released on 20 February 2017 in the announcement titled "Updated Mineral Resource and Ore Reserve Statement". Iluka confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

#### Balranald, New South Wales – new mining technology



Balranald is a rutile-rich deposit in the northern Murray Basin, New South Wales

Owing to their relative depth, Iluka is assessing the potential to develop these deposits via a novel, internally developed, underground mining technology

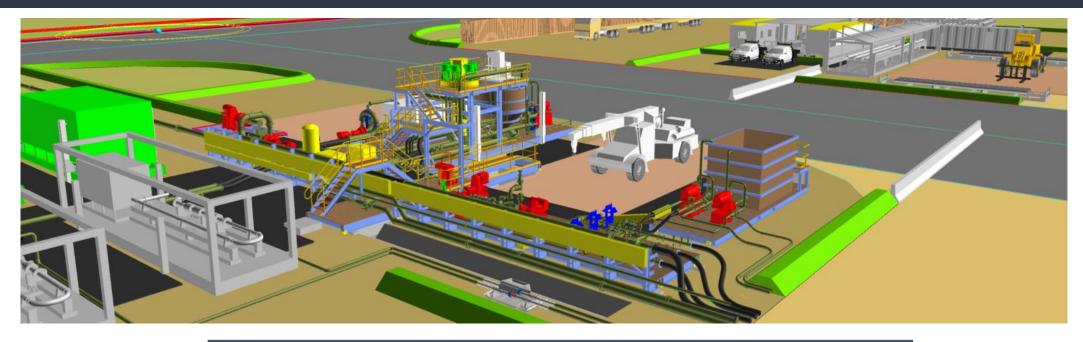
*\$23 million definitive feasibility study approved in 2021* 

Potential source of rare earths feedstock with approval of Iluka's Eneabba refinery

	Project parameters	Resource assemblage <sup>2</sup>			
Project stage	Definitive feasibility study (DFS)		Monazite/Xenotin 0.9%		
Production rate	Iluka aims for each mining unit to produce ~180-200ktpa HMC <sup>1,2</sup>	llmenite, 63%	Zircon, 11%		
Mine life	Anticipated to be 8-14 years (pending production scale-up time) <sup>1,2</sup>		Rutile, 12%		
Capital expenditure	DFS to determine capex requirements in advance of any execute decision				
Timing	FID H2 2022 Potential commissioning 2024				

Notes: 1. HMC production subject to study outcomes, mine plan and HM grade. 2. The Mineral Resource for West Balranald has been previously announced to the ASX on 20 February 2017 in the announcement "Updated Mineral Resource and Ore Reserve Statement". Iluka confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and has not materially changed.

#### Balranald, New South Wales – new mining technology



#### Balranald underground mining development pathway

- **2013-15** T1 Proof of concept underground mining trial
- **2015-16** T2 Commercial scale underground mining trial
- **2017-18** Full scale wear test at surface for key mining equipment
- **2018-19** Sonic drilling program to provide more detailed understanding of deposit mineralisation
- **2020** T3 Continuous underground mining and backfilling
- **2021** Bridging phase
- **2021-22** Definitive feasibility study

#### New chapter in mining – for Iluka and for New South Wales

New technology enables new opportunities

Lower environmental impact

Reduced mining footprint

Wide application (including beyond mineral sands)

Challenges the status quo

Advances Iluka's sustainability objectives NSW at the centre of innovation in mineral sands mining JKA



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# Iluka Resources Limited (ASX:ILU)

#### For more information contact

Luke Woodgate, Group Manager, Investor Relations and Corporate Affairs investor.relations@iluka.com

# Supplementary information

#### **Mineral Resources and Ore Reserves Estimates**

As an Australian company with securities listed on the Australian Securities Exchange (ASX), Iluka is subject to Australian disclosure requirements and standards, including the requirements of the Corporations Act and the ASX. Investors should note that it is a requirement of the ASX listing rules that the reporting of ore reserves and mineral resources in Australia comply with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the "JORC Code") and that the Ore Reserve and Mineral Resource estimates underpinning the production targets in this presentation have been prepared by a Competent Person in accordance with the JORC Code 2012.

The Mineral Resource estimates for the Euston Deposits (Castaway, Earl, Kerribee, Koolaman, Ki Downs and Yalong (formerly Dispersion)) were presented to the ASX and released on 20 February 2017 in the announcement titled "Updated Mineral Resource and Ore Reserve Statement". Iluka confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

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Iluka confirms that it is not aware of any new information or data that materially affects the information included the original market announcements and updates in the Annual Reports and that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements and updates in the Annual Reports continue to apply and have not materially changed.

#### **Mineral Resource and Ore Reserves**

Euston		Mineral Resource	Material <sup>(3)</sup>			HM Assemblage <sup>(2)</sup>					
	Deposit			InSitu HM	НМ	Clay	Ilmenite	Zircon	Rutile	M+X <sup>(4)</sup>	
		Category <sup>(1)</sup>	mt	mt	(%)	(%)	(%)	(%)	(%)	(%)	
	Castaway	Indicated	4.3	0.8	17.6	6.0	46.6	11.9	22.7		0.9
	Dispersion	Indicated	4.1	1.2	30.3	3.2	41.6	12.9	24.0		0.9
	Dispersion	Inferred	2.0	0.1	5.3	3.1	47.4	12.5	16.5		0.9
	Earl	Indicated	4.3	0.6	14.9	4.5	44.9	9.6	22.5		-
	Lan	Inferred	4.1	0.4	9.7	3.9	40.0	14.0	25.6		-
	Kerribee	Indicated	9.0	1.4	14.9	7.7	47.0	14.3	16.4		1.3
	Kembee	Inferred	2.4	0.3	11.0	15.0	43.8	10.1	17.6		0.7
	Ki Downs	Inferred	9.9	0.8	7.9	18.3	40.0	10.3	24.1		-
	Koolaman	Indicated	4.0	0.6	15.6	6.0	46.0	14.8	22.5		-
		Inferred	2.6	0.2	8.4	9.9	43.6	11.7	20.4		
		Measured Total	-	-	-	-	-	-	-		-
		Indicated Total	26	4.6	17.9	5.9	45.1	12.9	21.1		0.8
		Inferred Total	21	1.8	8.4	12.6	41.5	11.4	22.5		0.2
	Total		46.7	6.4	13.6	8.9	44.1	12.5	21.5		0.6
Balranald	Deposit	Mineral Resource	Material Tonnes <sup>(3)</sup>	InSitu HMTonnes	НМ	Clay	Ilmenite	Zircon	Rutile	M+X <sup>(4)</sup>	
	-	Category <sup>(1)</sup>	mt	mt	(%)	(%)	(%)	(%)	(%)	(%)	
	Endeavour	Inferred	7.6	1.9	25.5	2.4	58.2	9.1	13.2		0.7
	Nanaan	Indicated	8.4	2.3	27.5	4.3	59.8	14.4	14.5		1.1
	Nepean	Inferred	0.8	0.1	11.2	6.5	57.3	14.6	14.0		1.2
		Measured	11.9	3.8	31.9	5.5	64.1	10.8	12.2		1.0
	West Balranald	Indicated	19.9	7.0	35.1	5.7	64.3	11.3	12.2		0.9
		Inferred	4.5	1.2	26.5	6.1	62.4	8.3	9.4		0.7
		Measured Total	11.9	3.8	31.9	5.5	64.1	10.8	12.2		1.0
		Indicated Total	28.3	9.3	32.8	5.3	63.2	12.1	12.8		0.9
		Inferred Total	12.9	3.2	25.0	3.9	59.7	9.0	11.8		0.7
	Total		53.1	16.3	30.7	5.0	62.7	11.2	12.5		0.9

1. Mineral resources are inclusive of Ore Reserves

2. Mineral assemblage is reported as a percentage of in situ HM component.

3. Rounding may generate differences in the last decimal place. The aggregated totals may appear to reflect a greater degree of precision than individual deposits to maintain consistency in reporting.

4. Rare Earth bearing minerals comprising monazite and xenotime