



# ***Corporate Presentation***

***November 2017***

*AGM Presentation*

*Nic Earner, Managing Director*



# Corporate Overview

## Capital Structure

Ordinary shares	506M
Rights	15M
Share price (22 Nov 17)	A\$0.34
Market capitalisation	A\$173M
12 Month low/high	A\$0.21/\$0.65
Share turnover (per month)	A\$9.2M

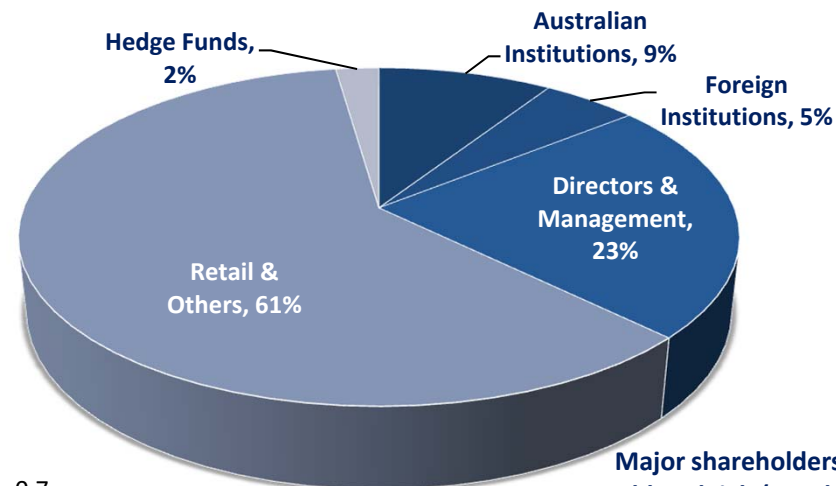
## Company Financials

Cash & Gold (30 Sep 17)	A\$53.3M
Debt	Nil
Share turnover (per month)	A\$9.2M

## Board

Ian Gandel	Chairman
Nic Earner	Managing Director
Ian Chalmers	Technical Director
Anthony Lethlean	Non-Executive Director
Gavin Smith (subject to election)	Non-Executive Director
Karen Brown	Company Secretary

## Ownership (31 Oct 17)



# FY2017 Snapshot

- **FY2017 Financials**
  - Total revenue A\$117.8 million
  - Loss before income tax A\$33.6 million (driven by impairment charges of \$40.0 million)
  - Total equity A\$164.9 million
  
- **Tomingley Gold Operations**
  - Production 68,836 ounces
  - Gold revenue A\$117.3 million
  - AISC<sup>(1)</sup> A\$1,335/oz
  - Operating cash flow A\$32.7 million (site operating cashflow after development costs)
  - Profit before income tax and non-recurring items A\$17.1 million
  
- **Dubbo Project**
  - ECI, process development/pilot plant, marketing
  - Vietnam Rare Earths (VTRE) test run and production
  - FY17 total outflows A\$9.2 million (FY16 A\$7.0 million)
  - Funded from TGO cash flows

<sup>1</sup>AISC = All in Sustaining Cost comprises all site operating costs, royalties, mine exploration, sustaining capex, mine development and an allocation of corporate costs, on the basis of ounces produced. AISC does not include share based payments or net realisable value provision for ore inventory

# Highlights – Last 12 Months

## Dubbo Project

- **Process development** of high grade ZrO<sub>2</sub> and now progressing towards high grade hafnium product
- **Strategic agreements** with marketing agreement with Mintech – (global zirconium specialists), zirconium LOIs & Siemens MOU
- **Modular design** prepared for improved capital and execution strategy for Dubbo Project

## Tomingley

- **Strong revenue**, costs falling
- **Underground resources** – drilling results show continuity of underground resource
- **Gold discovery at El Paso** – similar mineralogy to Tomingley

## Regional Exploration

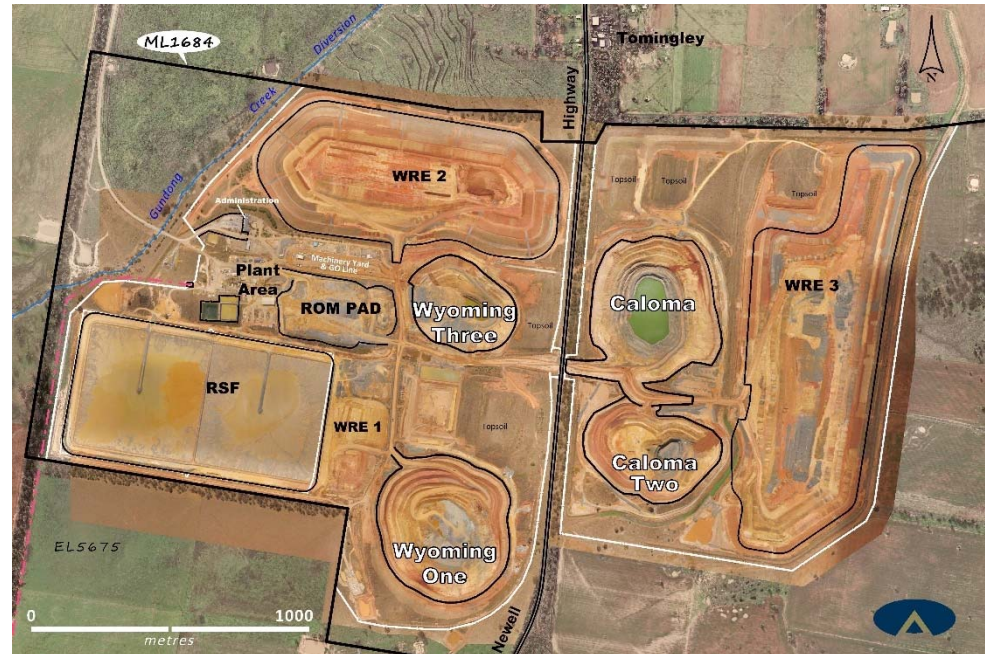
- **Mineralisation confirmation** in the Northern Molong Porphyry Project with further targets identified

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# Tomingley Gold Operations FY17

- Resource – 508,000oz of gold (3 Sept 2017)
- Reserve – 166,000oz (3 Sept 2017)
- Mine method – open cut W1, W3, C1 & C2
- Underground feasibility in progress W1
- Mine Life – 12 months without underground
- 218,000oz produced to end June 2017
- FY17 – production 68,836 @ AISC A\$1,335
- FY17 – revenue A\$117.3M
- FY17 – profit before tax and non-recurring items A\$17.1M
- FY18 guidance 65-70,000oz @ AISC A\$1,100 – 1,200
- Forward gold contracts at 30 Sept 2017 4,500oz @ A\$1,720/oz



## Resource Expansion and Exploration

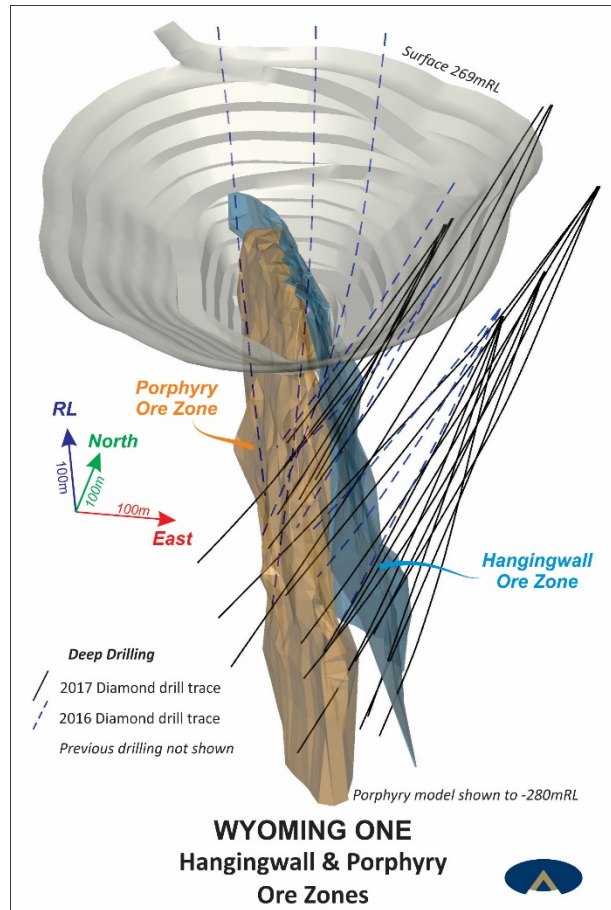
- Regional aircore drilling to test multiple targets, generated intercepts to be followed up
- Re-evaluation of large gold-copper system at Peak Hill mine site
- Major WY1 subpit core drilling programs drawing to close to expand resource/reserve base in mine environs

Note: ASX announcement 4 September 2017 - the Company confirms that all material assumptions and technical parameters underpinning the estimated Mineral Resources and Ore Reserves, and production targets and the forecast financial information as disclosed continue to apply and have not materially changed.

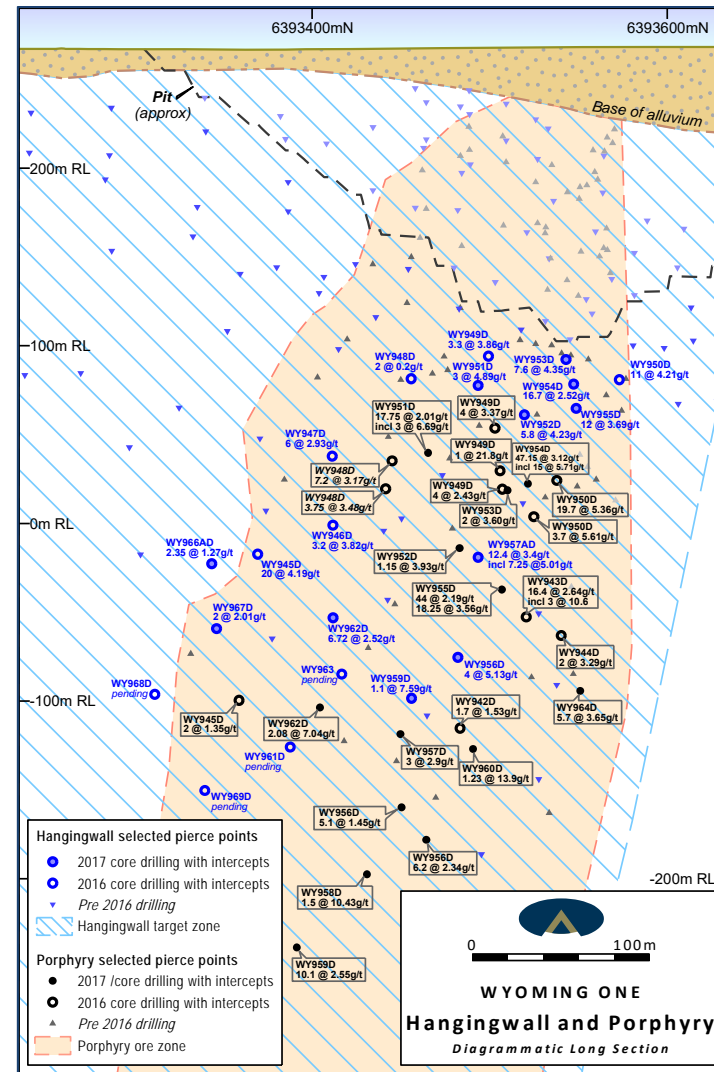
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# TGO Underground



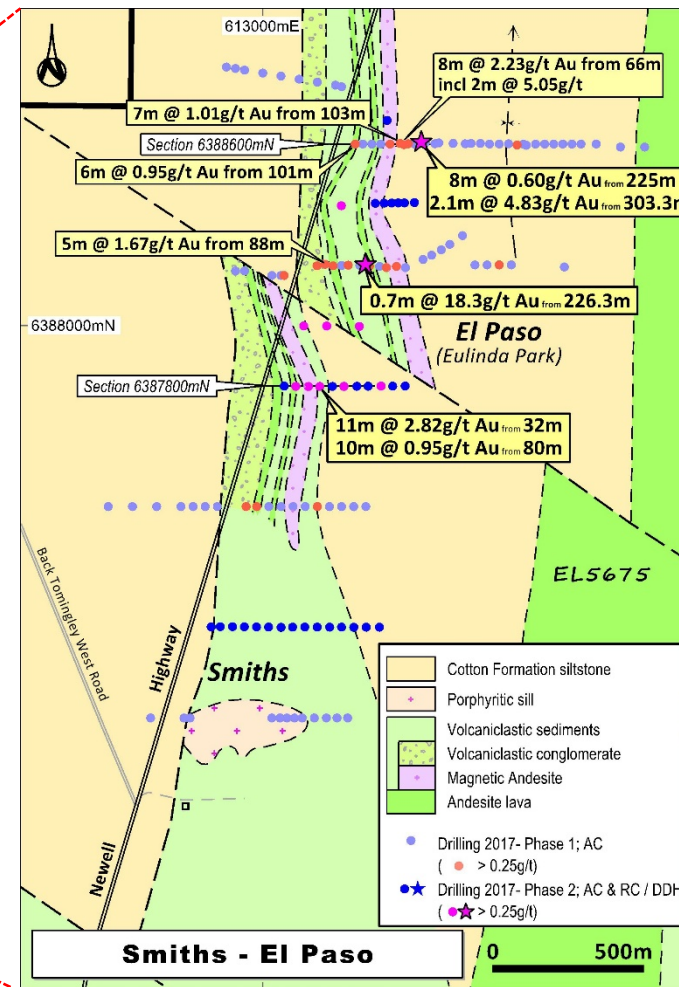
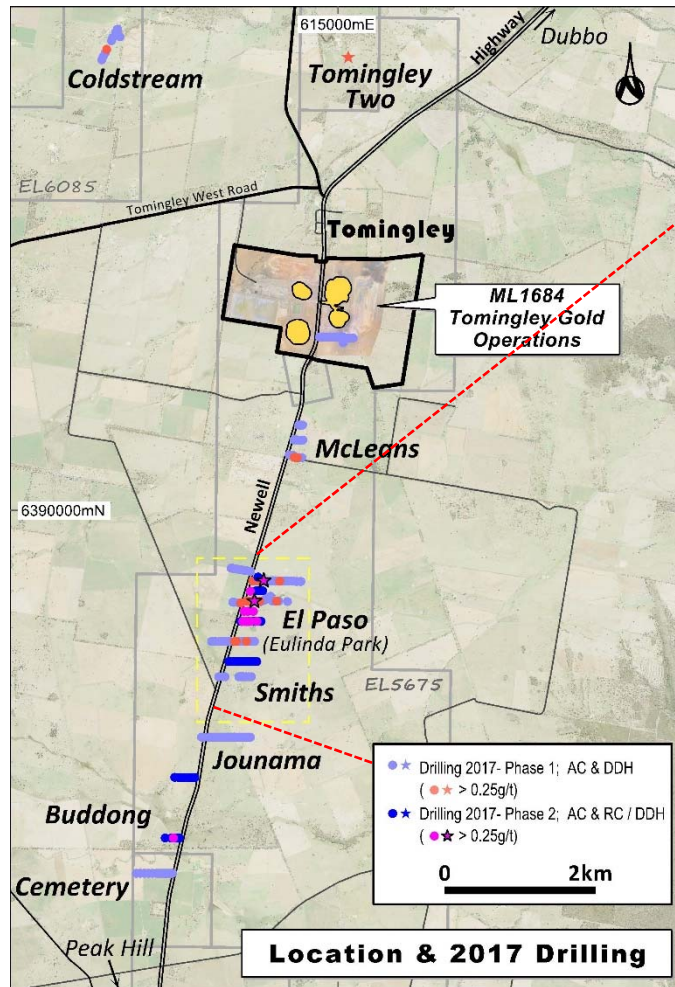
**Core drilling below the Wyoming One pit  
Continuity and Extensions to Hangingwall  
and Porphyry zones**



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# Tomingley Regional Exploration

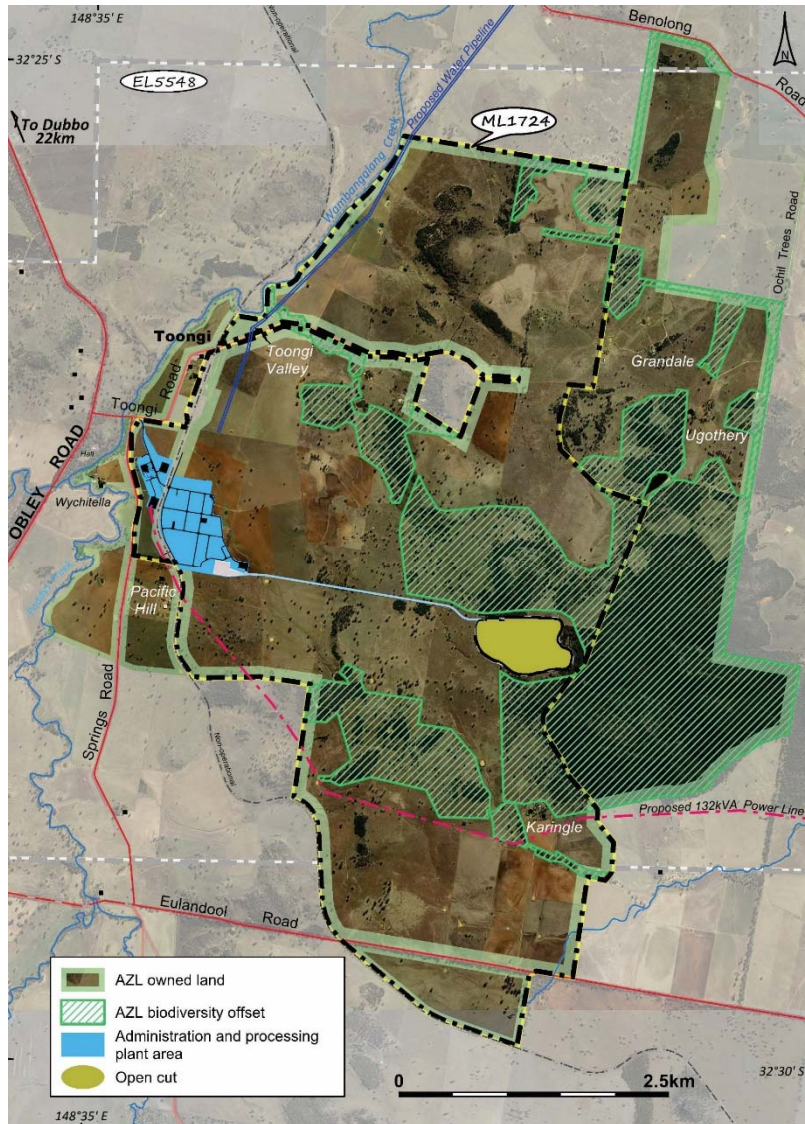


1.2km long mineralised zone, open to the north. Mineralisation similar to TGO.

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# Toongi Pastoral Company (TPC)



- 3,500 Ha (incl. 1,021Ha of biodiversity offsets)
- Farming, mining, cultural heritage protection and conservation co-existing
- 420 Breeding age cattle (self replacing & terminal breeding – Wagyu)
- Trading sheep and cattle
- 500 Ha's cropping for forage and cereal production
- Agistment livestock



# Dubbo Project is Development Ready

## Key Permitting Complete

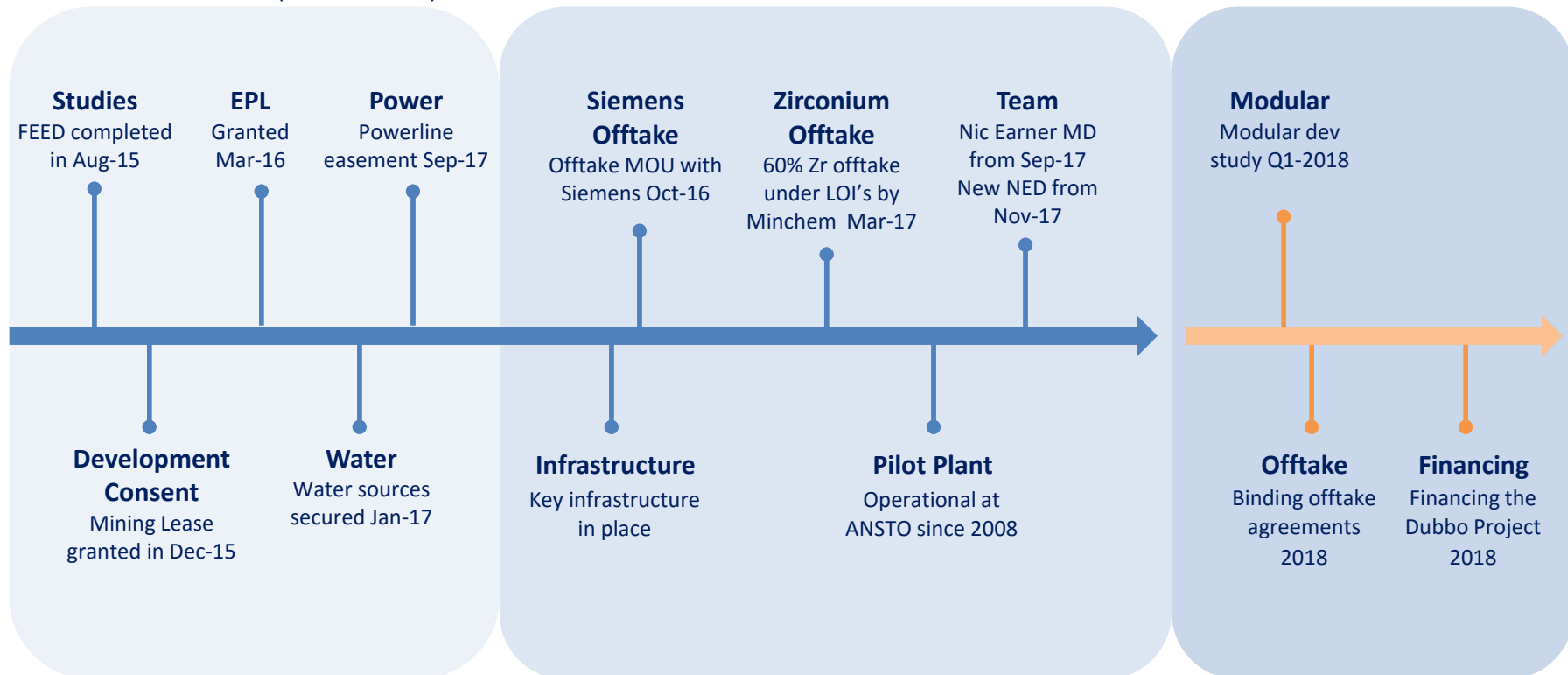
- Front End Engineering Design (FEED)
- Fully Permitted: Mining Lease 1724 (18 Dec 2015), Environment Protection Licence (14 Mar 2016)

## Development Ready

- Long history of pilot plant
- Provisional offtake in place
- Team evolving ready for construction

## Pathway to Construction

- Low capex modular study due Q1 2018
- Binding offtakes and financing throughout 2018



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# Project Financials

- FEED completed in Aug 2015
- Outotec undertaking a review of modular staging approach
  - Scoping Study completed in Oct 2016
- Updated financials, cost and execution plan due Q1 2018

## FEED (Aug 2015)

- 1.0Mtpa (base case)
- CAPEX – \$1.3B
- Revenue – A\$580m
- Operating Costs – A\$260m
- EBITDA – \$320Mpa
- IRR – 17.5%
- NPV – A\$1.22B

## Modular – Scoping Study (Oct 2016) – Update due Q1 2018

### Stage 1

- 0.5Mtpa
- CAPEX – A\$600 - 700m
- Revenue – A\$290m

### Stage 2

- 0.5Mtpa
- CAPEX – A\$400 - 600m
- Revenue – A\$290m

### Advantage

- Large elements of construction occur offsite
- Significantly reduces initial start-up capex
- Reduces construction period
- Allows Alkane to develop and grow with its customers and the target markets for its products

Note: As per ASX announcements of 27 August 2015 and 27 October 2016.

# Products from Dubbo

DP Process Plant @ 1mtpa	Product Stream	Specification	Tonnes	Revenue %
		Rare earth chemical concentrate	95% REO	6,667 tpa (REO units)
		REO for magnet production	1,294 tpa (REO units)	25%
		REO for other applications	5,373 tpa (REO units)	5%
	Zirconium as Zr chemicals & zirconia	99% ZrO <sub>2</sub>	16,374 tpa (ZrO <sub>2</sub> units)	43%
	Hafnium as HfO <sub>2</sub>	HfO <sub>2</sub>	50 tpa (Hf units)	10%
	Niobium as ferro-niobium	65% Nb	1,967 tpa (Nb units)	17%

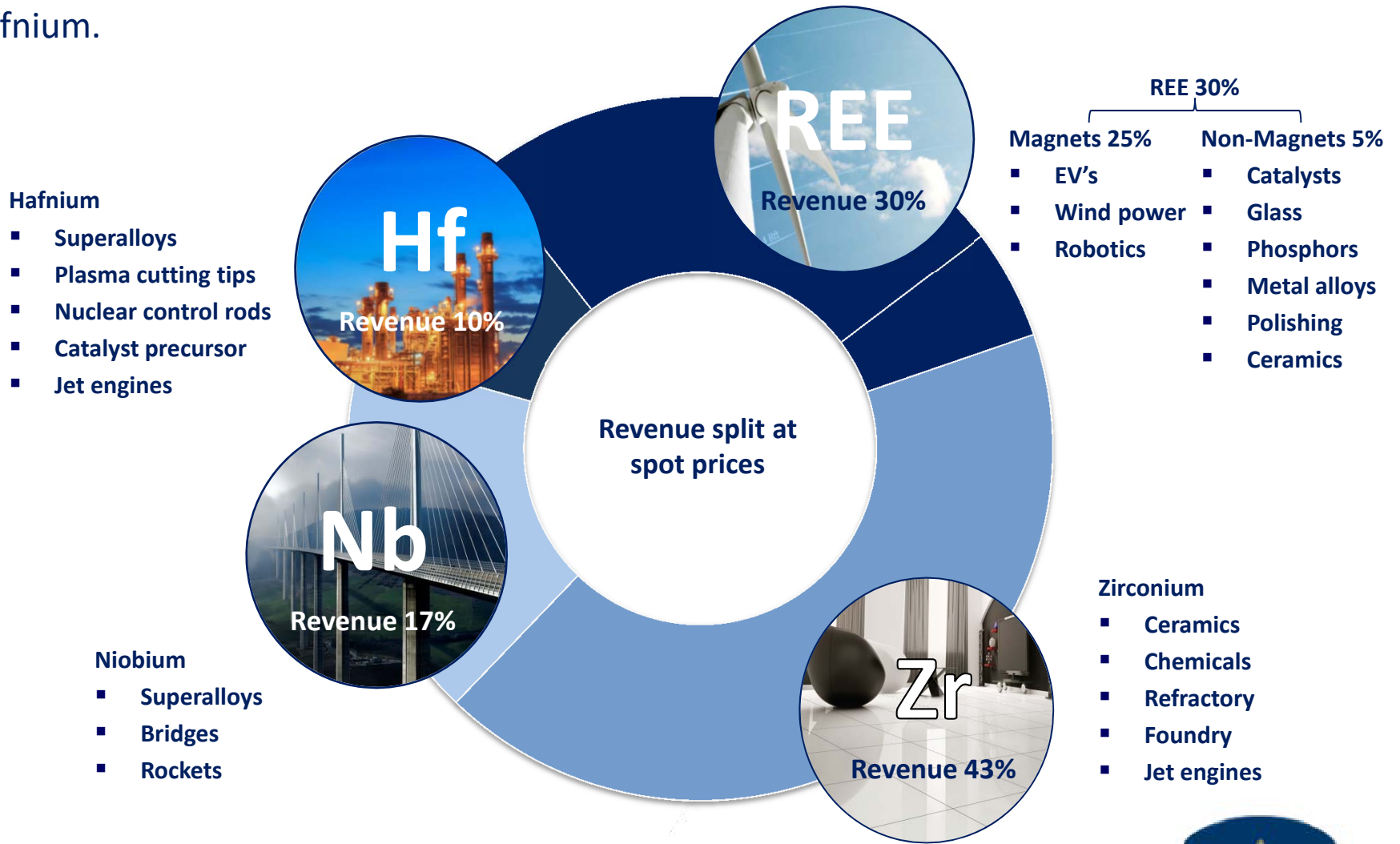
**Total = 25,058 tpa**

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# Products from Dubbo Project

The Dubbo Project provides a strategic source of zirconium, rare earths, niobium and hafnium.

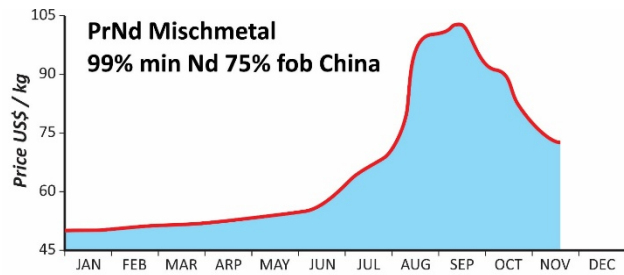


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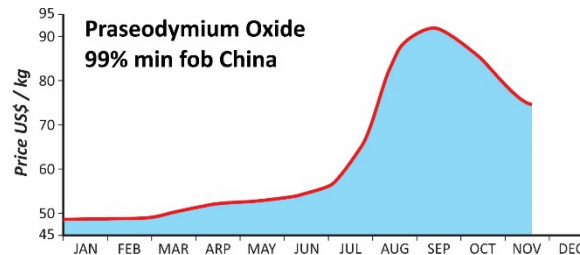


# Key Product Pricing - 2017

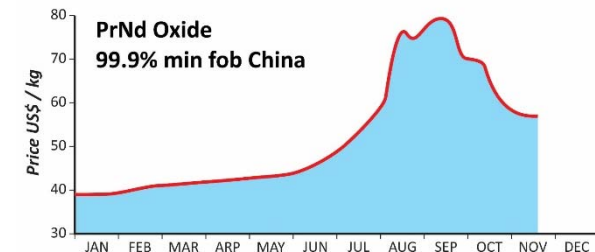
## PrNd Mischmetal



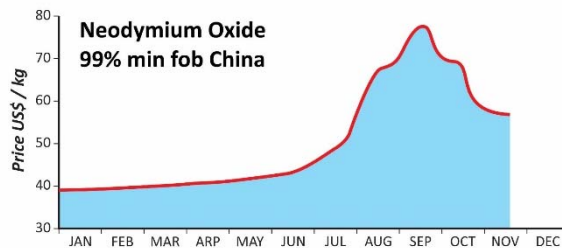
## Pr Oxide



## PrNd Oxide



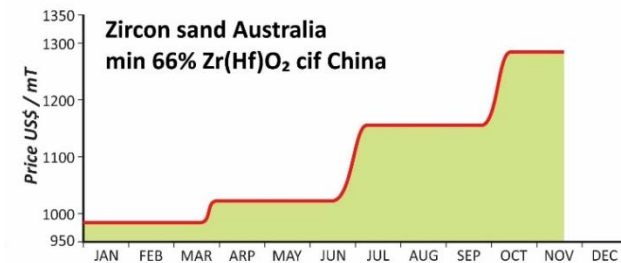
## Nd Oxide



## ZOC



## Zircon Sand



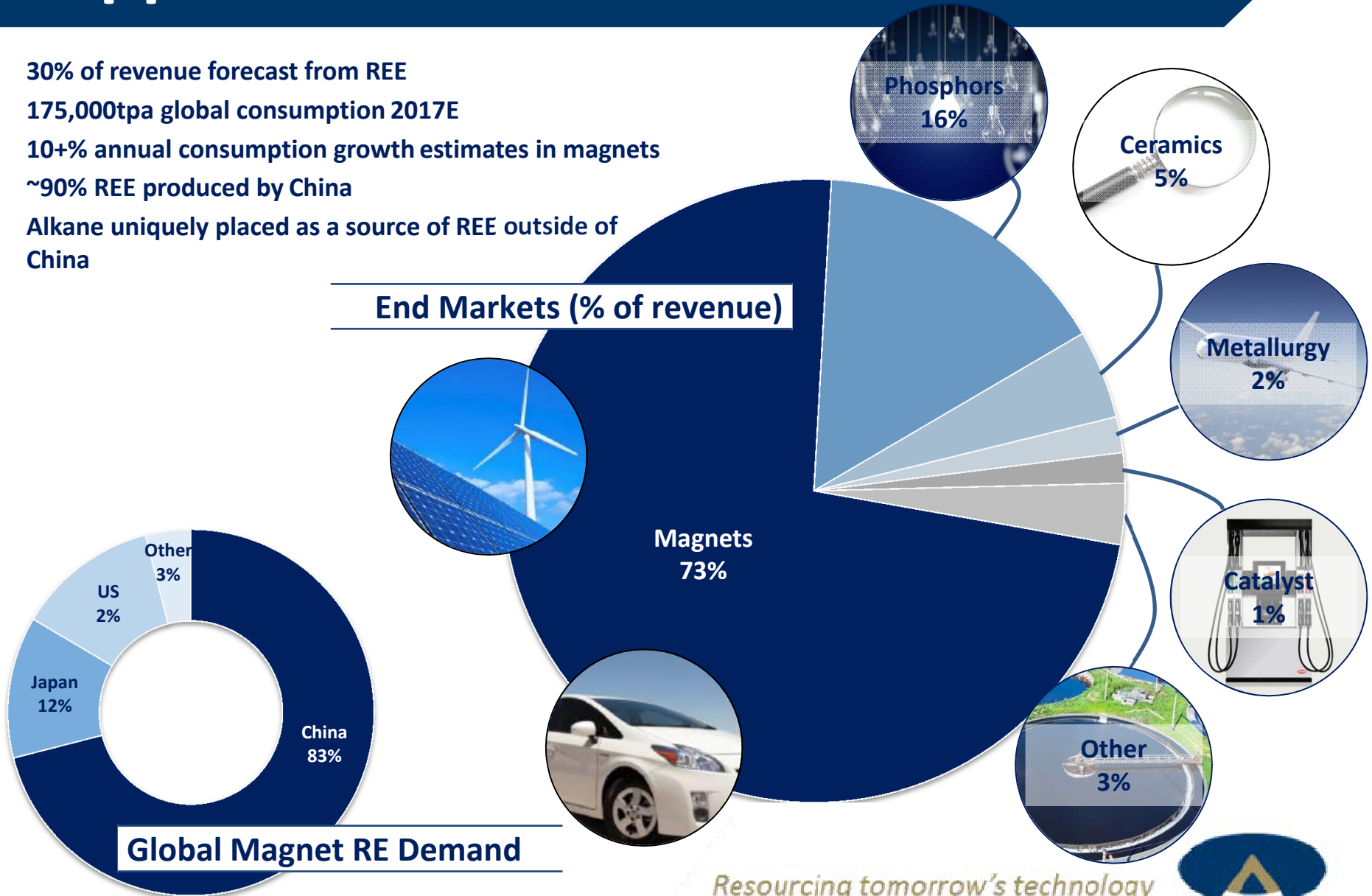
Source: Argus Metals

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# Applications of Rare Earth Elements

- 30% of revenue forecast from REE
- 175,000tpa global consumption 2017E
- 10+% annual consumption growth estimates in magnets
- ~90% REE produced by China
- Alkane uniquely placed as a source of REE outside of China



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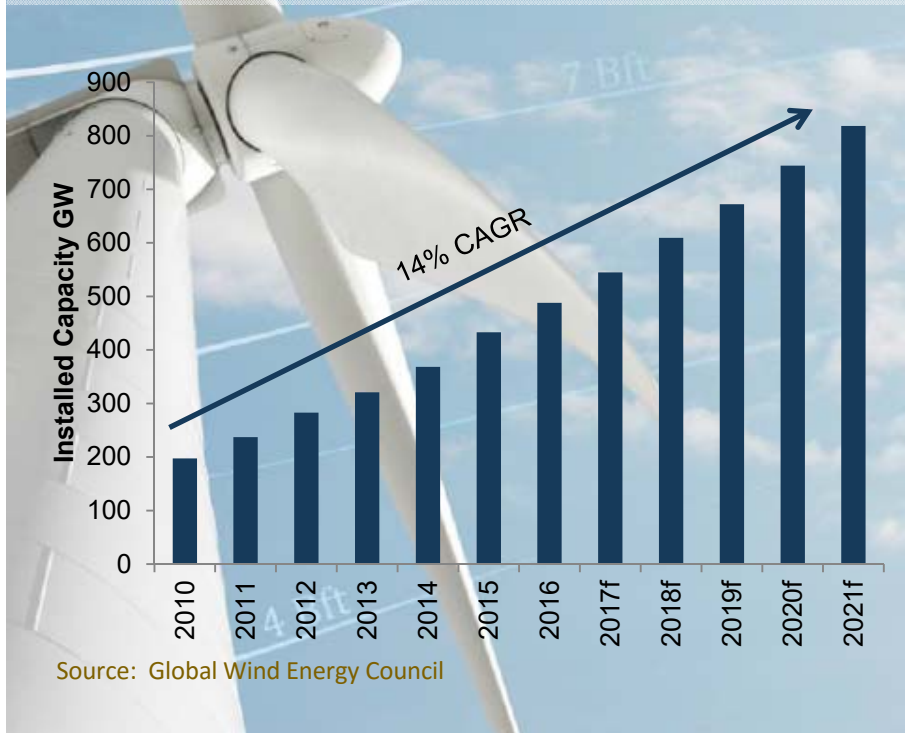


# Rare Earth Permanent Magnets (REPM)

Demand for rare earth permanent magnets is intense from fast growing sectors such as electric vehicles, renewable energy and consumer electronics.

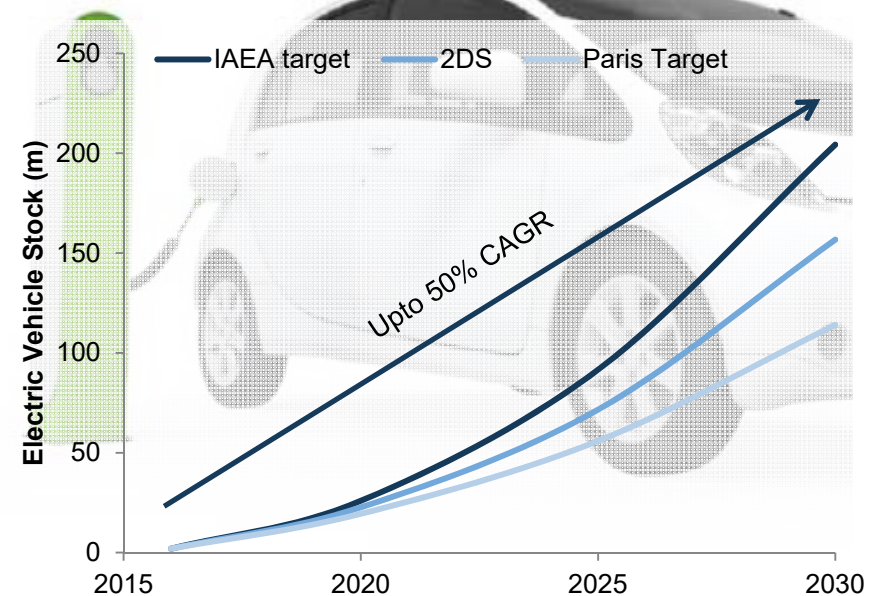
## Wind Power

- Growing at 14% CAGR
- 196kg of REE used per MW
- Additional 10-15ktpa of Nd-Pr required



## Electric Vehicles

- Growing at up to 50% CAGR
- 0.7kg of REE for traction motor
- 0.8kg of REE for other motors (windows/seats)
- Additional 10-15ktpa of Nd-Pr required



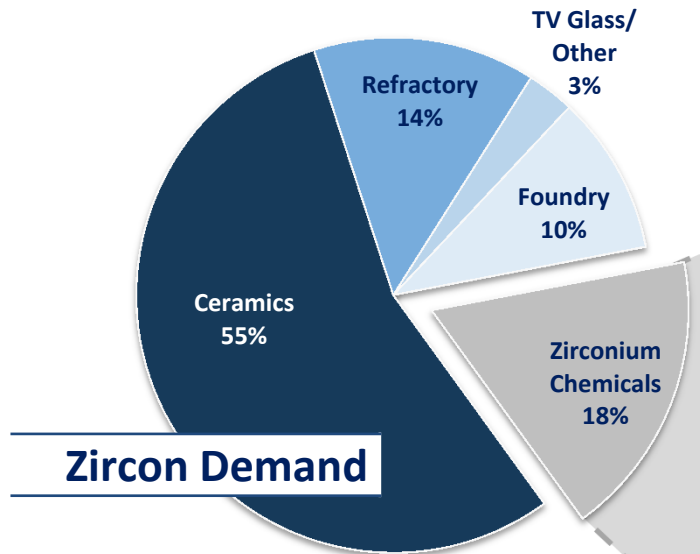
Source: International Energy Agency

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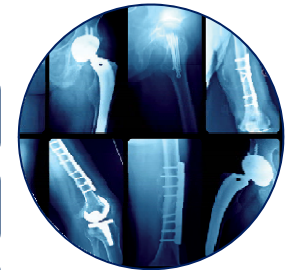
# Applications of Zirconium

- 42% of revenue forecast from zirconium
- Zirconium price leveraged to the zircon market which is benefiting from a recent rally in prices



## Zirconium Chemicals Demand

- 38% Advanced Ceramics
- 18% Ceramic Pigments
- 14% Cubic Zirconia
- 15% Catalysts
- 4% Paper Coatings
- 2% Paint Drier
- 5% TiO<sub>2</sub> Pigment Coatings
- 2% Tanning
- 2% Other Coatings



## Zirconium materials typically traded as:

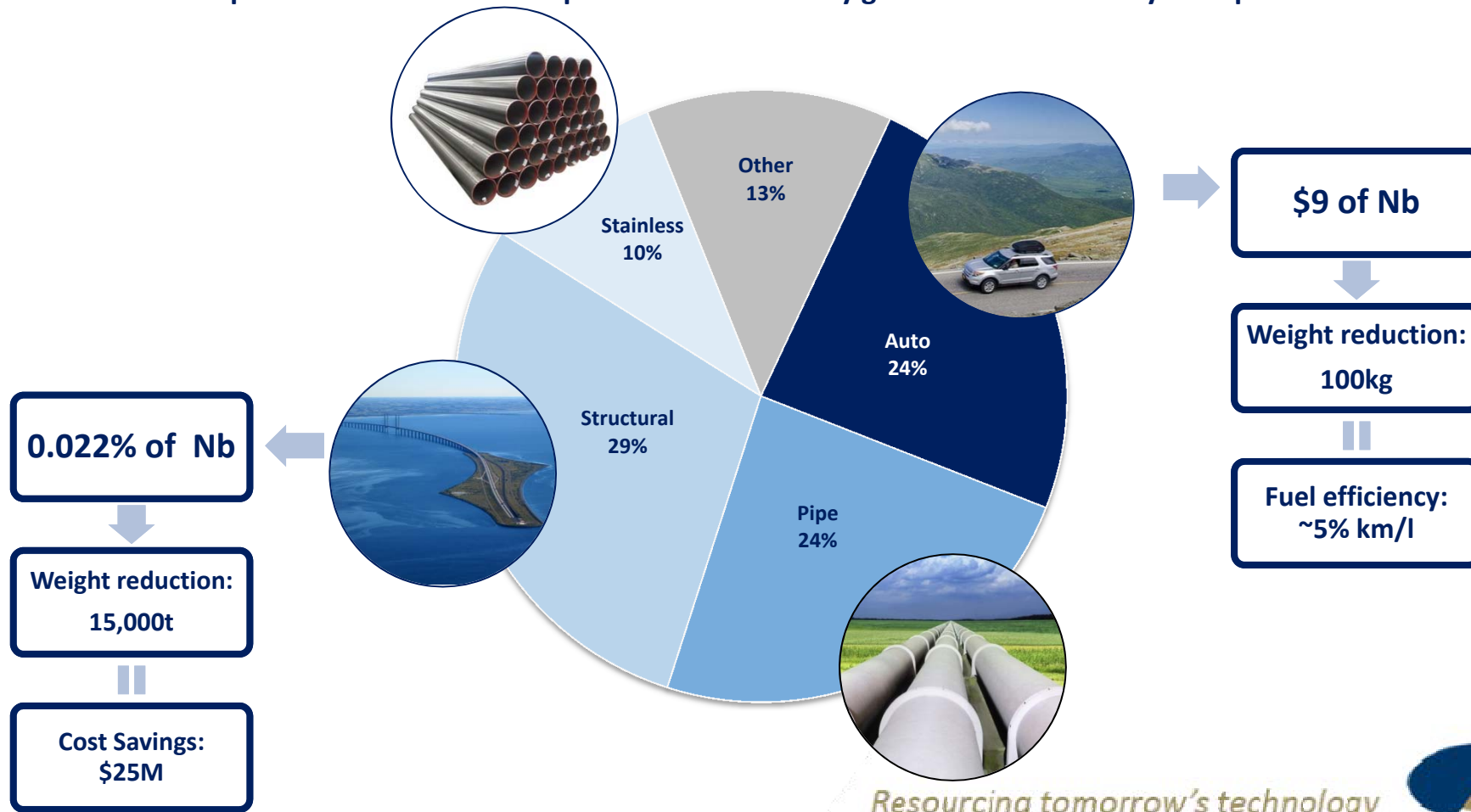
- **fused zirconia** – zirconium oxide (ZrO<sub>2</sub>), typically produced from zirconium silicate (zirconia sands)
- **zirconium chemicals** – including zirconium oxychloride (ZOC), zirconium basic carbonate (ZBC), zirconium sulphate (ZBS) and zirconium hydroxide (ZHO)
- **zirconium bar** – metallic zirconium, typically produced from either fused zirconia or zirconium chemicals.

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# Applications of Niobium

- 17% of revenue forecast from niobium
- 90% of Nb used in the production of high strength low alloy (HSLA) steels.
- World production estimated at 80,000t Nb with a global market of US\$3-4B.
- CAGR anticipated at 10%. Demand expected to be driven by greater use in steels by BRIC producers.

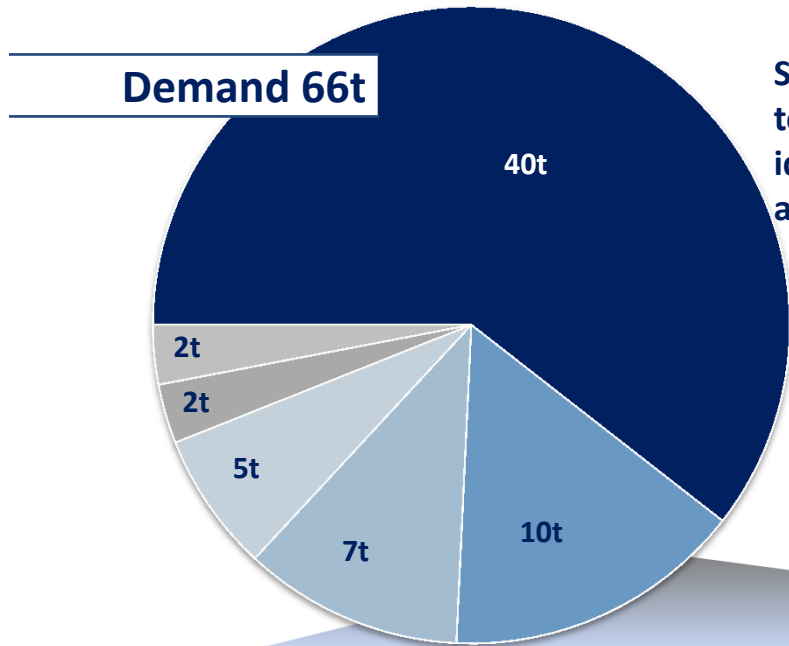


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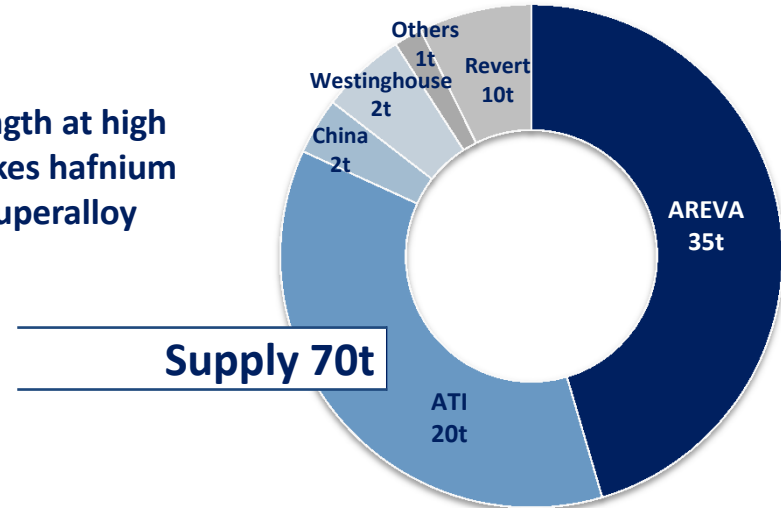


# Applications of Hafnium

- 10% of revenue forecast from hafnium

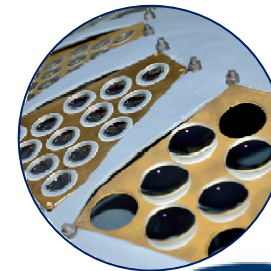
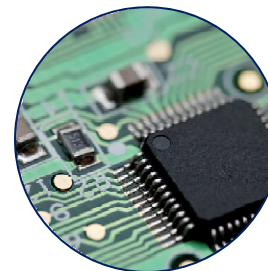
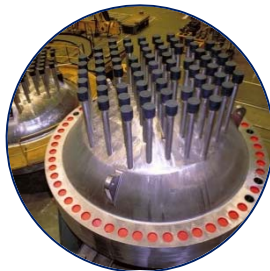
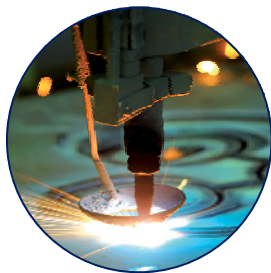


Stability and strength at high temperatures makes hafnium ideally suited to superalloy applications



80% of hafnium metal is produced by France and the USA (~10t recycled)

- Superalloy (60%)
- Plasma cutting tips (15%)
- Nuclear control rod (11%)
- Catalyst precursor (7%)
- Semiconductors (3%)
- Oxide for Optical (3%)



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# Why Invest in the Dubbo Project?

## STRATEGIC METALS

Zr

REE

Nb

Hf

## DUBBO PROJECT

One of the most advanced strategic metals projects in Australia

### DEVELOPMENT READY

All key permits and infrastructure in place

### MODULAR DEVELOPMENT

Reduces capital and lead time to production

### STRATEGIC JURISDICTION

Valuable source of supply outside of China

## OFFTAKE AND FINANCING TO REALISE VALUE

- Price and supply environment sees customers taking action to secure supply
- Offtake discussions entering renewed intensity
- Diversified revenue streams assist in reducing concentrated risk
- Long life scaleable asset allows major strategic partners access to supply
- Strong cash generation in operation

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# Next 12 Months

## Dubbo Project

- Updated hafnium product development
- Updated speciality zirconium product development
- Updated business case for modularisation, including financial and marketing
- Securing and negotiation of offtake
- Progression of financing
- Commencement of early works and detailed engineering

## Tomingley

- Safe and stable operation to end of open cut life
- Decision on underground opportunity
- Continue near mine regional exploration

## Regional Exploration

- IP and drilling programs, particularly in the Northern Molong Porphyry Project
- Evaluation of remaining tenements

# Disclaimer

This presentation contains certain forward looking statements and forecasts, including possible or assumed reserves and resources, production levels and rates, costs, prices, future performance or potential growth of Alkane Resources Ltd, industry growth or other trend projections. Such statements are not a guarantee of future performance and involve unknown risks and uncertainties, as well as other factors which are beyond the control of Alkane Resources Ltd. Actual results and developments may differ materially from those expressed or implied by these forward looking statements depending on a variety of factors. Nothing in this presentation should be construed as either an offer to sell or a solicitation of an offer to buy or sell securities.

This document has been prepared in accordance with the requirements of Australian securities laws, which may differ from the requirements of United States and other country securities laws. Unless otherwise indicated, all ore reserve and mineral resource estimates included or incorporated by reference in this document have been, and will be, prepared in accordance with the JORC classification system of the Australasian Institute of Mining, and Metallurgy and Australian Institute of Geosciences.

## **Competent Person**

Unless otherwise stated, the information in this presentation that relates to mineral exploration, mineral resources and ore reserves is based on information compiled by Mr D I Chalmers, FAusIMM, FAIG, (director of the Company) who has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Ian Chalmers consents to the inclusion in the presentation of the matters based on his information in the form and context in which it appears.

# Dubbo Project Resources & Reserves

## Dubbo Project – Mineral Resources

Resource Category	Tonnes (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	TREO* (%)
Measured	42.81	1.89	0.04	0.45	0.03	0.14	0.74
Inferred	32.37	1.90	0.04	0.44	0.03	0.14	0.74
<b>Total</b>	<b>75.18</b>	<b>1.89</b>	<b>0.04</b>	<b>0.44</b>	<b>0.03</b>	<b>0.14</b>	<b>0.74</b>

\*TREO% is the sum of all rare earth oxides excluding ZrO<sub>2</sub>, HfO<sub>2</sub>, Nb<sub>2</sub>O<sub>3</sub>, Ta<sub>2</sub>O<sub>5</sub>, Y<sub>2</sub>O<sub>3</sub>,

## Dubbo Project – Ore Reserves

Reserve Category	Tonnes (Mt)	ZrO <sub>2</sub> (%)	HfO <sub>2</sub> (%)	Nb <sub>2</sub> O <sub>5</sub> (%)	Ta <sub>2</sub> O <sub>5</sub> (%)	Y <sub>2</sub> O <sub>3</sub> (%)	TREO* (%)
Proved	18.90	1.85	0.04	0.440	0.029	0.136	0.735
Probable	0						
<b>Total</b>	<b>18.90</b>	<b>1.85</b>	<b>0.04</b>	<b>0.440</b>	<b>0.029</b>	<b>0.136</b>	<b>0.735</b>

\*TREO% is the sum of all rare earth oxides excluding ZrO<sub>2</sub>, HfO<sub>2</sub>, Nb<sub>2</sub>O<sub>3</sub>, Ta<sub>2</sub>O<sub>5</sub>, Y<sub>2</sub>O<sub>3</sub>,

**Note:** Full details including Competent Person statements in ASX announcement 19 September 2017 - the Company confirms that all material assumptions and technical parameters underpinning the estimated Mineral Resources and Ore Reserves, and production targets and the forecast financial information as disclosed continue to apply and have not materially changed

# TGO Resources and Reserves

TOMINGLEY GOLD OPERATIONS MINERAL RESOURCES (as at 30 June 2017)									
DEPOSIT	MEASURED		INDICATED		INFERRED		TOTAL		Total Gold (Koz)
	Tonnage (Kt)	Grade (g/t Au)	Tonnage (Kt)	Grade (g/t Au)	Tonnage (Kt)	Grade (g/t Au)	Tonnage (Kt)	Grade (g/t Au)	
Open Pittable Resources (cut off 0.50g/t Au)									
Wyoming One	1,716	1.7	400	1.6	625	1.1	2,741	1.6	137
Wyoming Three	86	2.0	16	1.3	33	1.4	135	1.7	8
Caloma One	954	1.6	1,016	1.2	824	1.2	2,794	1.3	120
Caloma Two	-	0.0	956	2.1	927	1.1	1,883	1.6	97
Stockpiles	762	1.0					762	1.0	23
<b>Sub Total</b>	<b>3,518</b>	<b>1.6</b>	<b>2,388</b>	<b>1.73</b>	<b>2,409</b>	<b>1.3</b>	<b>8,315</b>	<b>1.4</b>	<b>385</b>
Underground Resources (cut off 2.50g/t Au)									
Wyoming One	169	4.8	206	4.4	363	4.2	738	4.4	104
Wyoming Three	10	3.6	6	3.1	4	3.1	20	3.4	2
Caloma One	-	0.0	5	3.0	16	2.9	21	2.9	2
Caloma Two	-	0.0	80	3.4	53	3.2	133	3.3	14
<b>Sub Total</b>	<b>179</b>	<b>4.7</b>	<b>297</b>	<b>4.1</b>	<b>436</b>	<b>4.0</b>	<b>912</b>	<b>4.2</b>	<b>122</b>
<b>TOTAL</b>	<b>3,697</b>	<b>1.8</b>	<b>2,685</b>	<b>1.9</b>	<b>2,845</b>	<b>1.7</b>	<b>9,227</b>	<b>1.7</b>	<b>508</b>

TOMINGLEY GOLD OPERATIONS ORE RESERVES (as at 30 June 2017)							
DEPOSIT	PROVED		PROBABLE		TOTAL		Total Gold (Koz)
	Tonnage (Kt)	Grade (g/t Au)	Tonnage (Kt)	Grade (g/t Au)	Tonnage (Kt)	Grade (g/t Au)	
Open Pittable Reserves (cut off 0.50g/t Au)							
Wyoming One	1,033	1.7	134	1.5	1,167	1.6	63
Wyoming Three	0	0	0	0	0	0	0
Caloma One	58	2.2	0	0	58	2.2	4
Caloma Two	-	-	167	2.7	167	2.7	14
Stockpiles	762	1.0	-	-	762	1.0	22
<b>Sub Total</b>	<b>1,853</b>	<b>1.4</b>	<b>301</b>	<b>2.2</b>	<b>2,154</b>	<b>1.5</b>	<b>104</b>
Underground Reserves (cut off 2.50g/t Au)							
Wyoming One*	224	4.0	300.5	3.4	524.4	3.7	62
<b>Sub Total</b>	<b>224</b>	<b>4.0</b>	<b>300.5</b>	<b>3.4</b>	<b>524.4</b>	<b>3.7</b>	<b>62</b>
<b>TOTAL</b>	<b>2,077</b>	<b>1.7</b>	<b>602</b>	<b>2.8</b>	<b>2,678</b>	<b>1.9</b>	<b>166</b>

Note: Full details including Competent Person Statements in ASX announcement 3 September 2017 - the Company confirms that all material assumptions and technical parameters underpinning the estimated Mineral Resources and Ore Reserves, and production targets and the forecast financial information as disclosed continue to apply and have not materially changed

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