



## Future Producer of Neodymium & Praseodymium to the Permanent Magnet Industry

**All currency amounts are in A\$ unless stated otherwise.**

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#### **Exploration Targets**

The terms “Target” or “Exploration Target” where used in this presentation should not be misunderstood or misconstrued as an estimate of a Mineral Resource as defined in this context. Exploration Targets are conceptual in nature, there has been insufficient exploration to define a Mineral Resource and it is uncertain further exploration will result in the determination of a Mineral Resource.

#### **Competent Persons’ Statement**

The information in this presentation that relates to Resources is based on information compiled by Lynn Widenbar. Mr Widenbar is a consultant to the Company and a member of the Australasian Institute of Mining and Metallurgy. The information in this presentation that relates to Exploration Results is based on information compiled by Andy Border, an employee of the Company and a member of the Australasian Institute of Mining and Metallurgy.

Each has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this announcement and DFS and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’ (“JORC Code”). Each consent to the inclusion in this announcement and DFS of the matters based on his information in the form and context in which it appears.

The information in this presentation that relates to the Fraser’s and Bald Hill Ore Reserve is based on information reviewed or work undertaken by Mr Frank Blanchfield, FAusIMM, and an employee of Snowden Mining Industry Consultants. Mr Blanchfield has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the preparation of mining studies to qualify as a Competent Person as defined by the JORC Code 2012. Mr Blanchfield consents to the inclusion in this announcement and DFS of the matters based on his information in the form and context in which it appears.

The scientific and technical information in this presentation that relates to process metallurgy is based on information reviewed by Mr Dale Harrison MAusIMM, who is a metallurgical consultant and employee of Wave International. Mr Harrison has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined by the JORC Code 2012. Mr Harrison consents to the inclusion in this announcement and DFS of the matters based on his information in the form and context in which it appears.

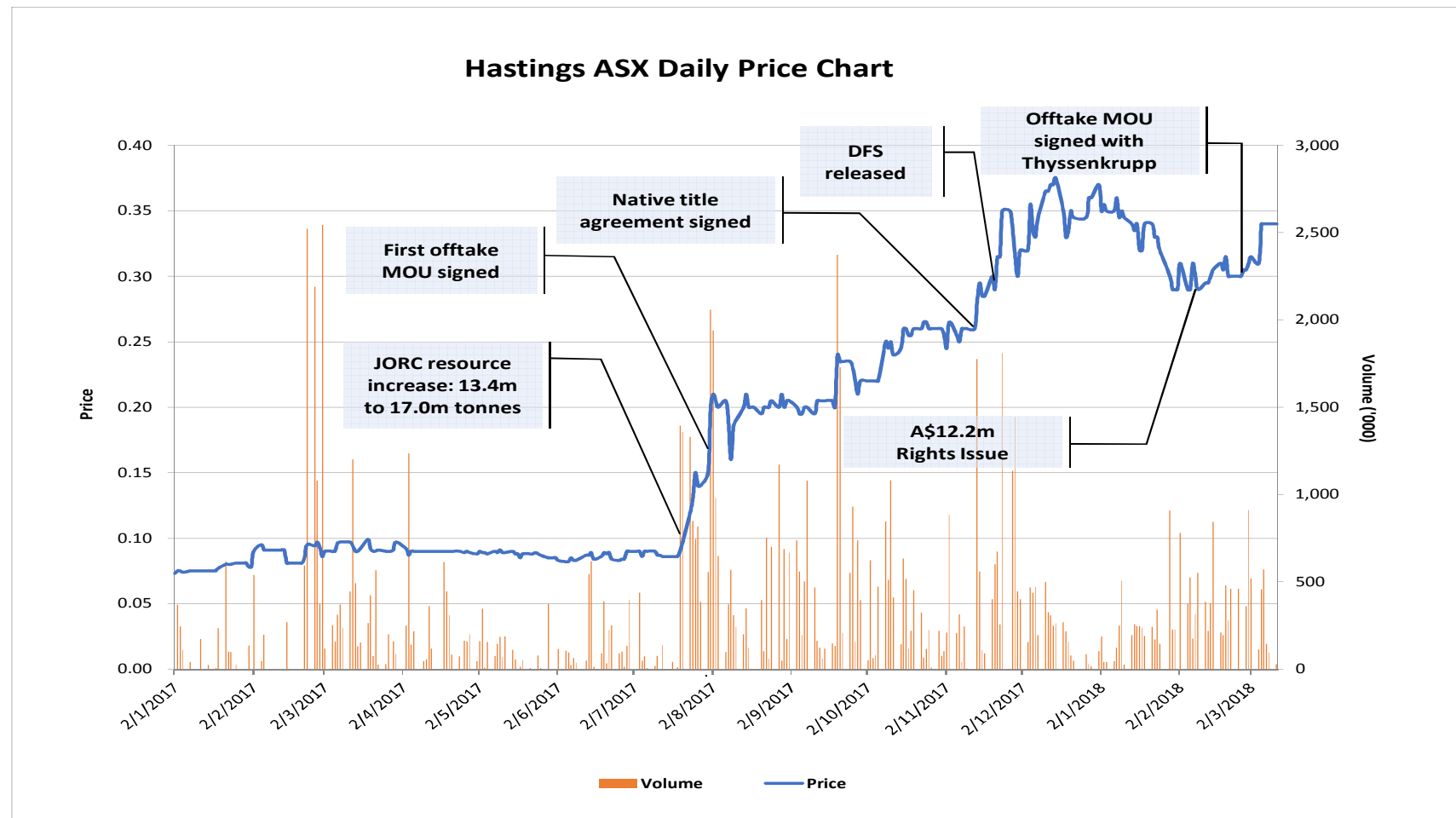
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# Hastings Equity Statistics

## Steady growth in market cap since Jan 2014

- Market Cap ~ **A\$ 240m**
- ~ 1200 Shareholders  
**+55%** in 2017
- Top 10 shareholders owns  
~ 70%
- **A\$ 59m** raised since 2014
- **Cash: A\$25m** post rights issue
- **No Debt**



# Definitive Feasibility Study (DFS) – Yangibana

## Independent Study by Wave International and Snowden

- JORC resource of **21m tonnes** supports an initial 8 years mine life on 100% held ground
- Maiden JORC Probable Ore Reserves of **5.15 million tonnes** on 100% owned ground
- Highest known Neodymium & Praseodymium (Nd-Pr) content at **41% of TREO**
- Mining 1m tonnes pa to produce up to **15,000 tpa** of Mixed Rare Earths Carbonate
- Nd-Pr metallurgical recovery **75.6%** achieved in pilot test plant
- Financial Highlights:
  - **NPV (after tax) = A\$466m at 8% discount rate**
  - **IRR = 78%**
  - **EBITDA payback of 2.3 years** from average equity drawdown period
  - Pre-production **CAPEX – A\$335m ; OPEX - A\$17.06/kg TREO (US\$12.8/kg)**
- Significant scope to expand production and mine life beyond 8 years



# Yangibana Region



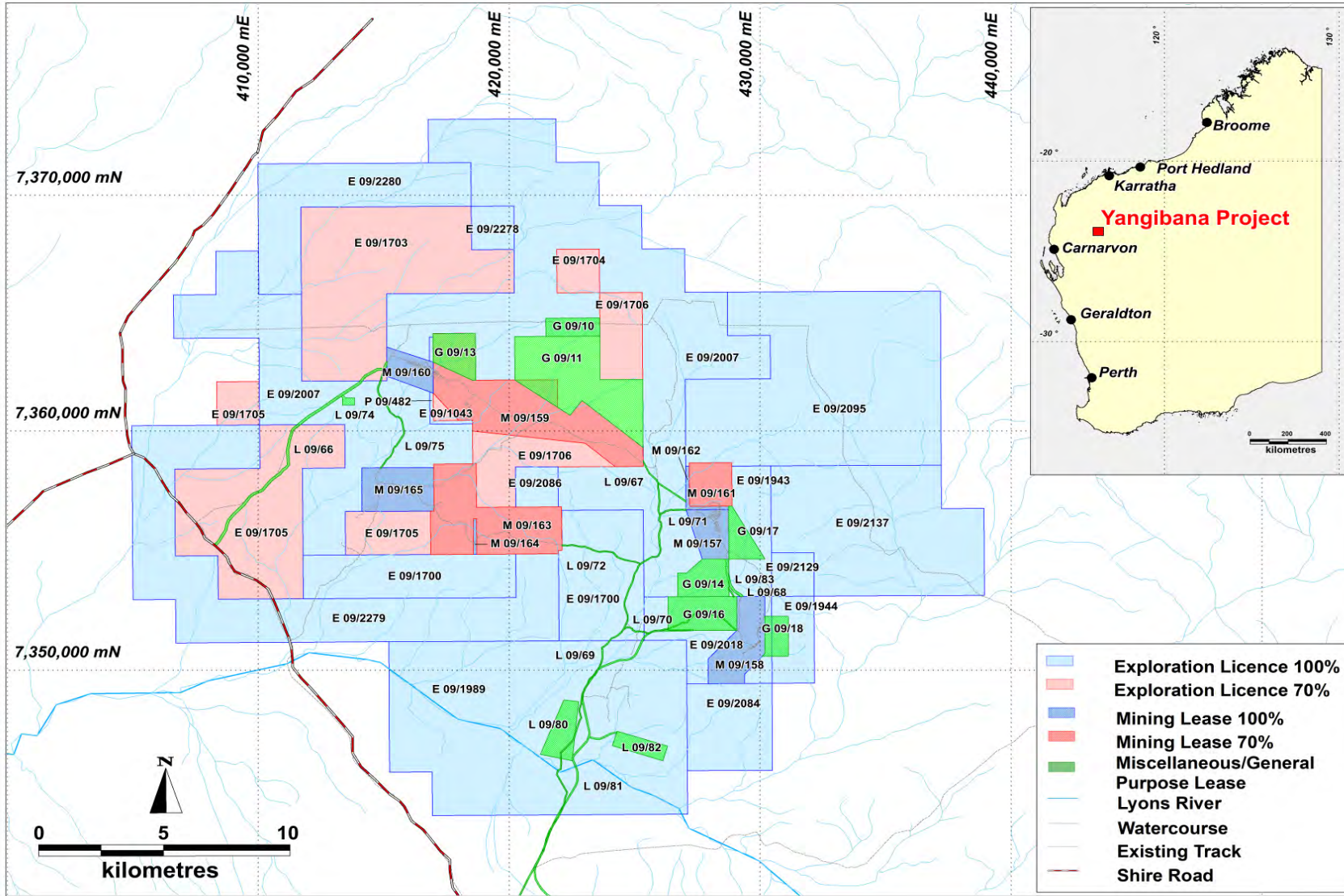
- Gascoyne Junction – good support from local community for mining at Yangibana
- Gifford Creek Airstrip – FIFO services
- Carnarvon – high unemployment hence availability of casual labour
- Geraldton, Onslow or Exmouth – ongoing economic assessment for inbound and outbound freight





# Yangibana – Western Australia

AAA Sovereign Rating, Established Mining Region  
Outcrops and level terrain, easy to mine



- Total Yangibana area ~ 650 km<sup>2</sup>
- 21 years Mining Leases Granted since March 2016 ~ 50 km<sup>2</sup>
- Native Title Agreement signed November 2017 covering all tenements
- Various Miscellaneous and General Purpose Leases granted supporting infrastructure
- Application lodged for permits to commence mine construction

# JORC Resources

## High Neodymium and Praseodymium content



- **Total Measured, Indicated and Inferred Resources now at 21m tonnes\***
- In-ground ratio of Nd-Pr as % of TREO ranges from **34% (0.40%/1.18%) to as high as 57%** locally at Simon's Find deposit
- Most resources contained on Hastings 100% owned ground and smaller portion on 70% JV ground

**Total Yangibana JORC Resources (rounded)**

Category	Tonnes	Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>
		%	%	ppm	ppm
Measured	3,900,000	0.42	1.19	3,372	851
Indicated	8,600,000	0.42	1.25	3,368	858
Inferred	8,400,000	0.36	1.09	2,829	740
<b>TOTAL</b>	<b>21,000,000</b>	<b>0.40</b>	<b>1.17</b>	<b>3,152</b>	<b>809</b>

**Hastings 100% owned ground**

Category	Tonnes	Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>
		%	%	ppm	ppm
Measured	3,000,000	0.42	1.06	3,404	809
Indicated	6,600,000	0.41	1.09	3,324	794
Inferred	5,800,000	0.35	0.93	2,840	684
<b>TOTAL</b>	<b>15,400,000</b>	<b>0.39</b>	<b>1.03</b>	<b>3,158</b>	<b>756</b>

**Hastings 70% owned JV ground**

Category	Tonnes	Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>
		%	%	ppm	ppm
Measured	900,000	0.43	1.64	3,258	997
Indicated	2,100,000	0.46	1.76	3,507	1,061
Inferred	2,700,000	0.37	1.42	2,806	860
<b>TOTAL</b>	<b>5,600,000</b>	<b>0.41</b>	<b>1.58</b>	<b>3,134</b>	<b>955</b>

\* Hastings ASX release 22 Nov 2017;



# Maiden JORC Ore Reserves

## High Neodymium and Praseodymium content

JORC Probable Ore Reserves (rounded)

Deposit	Tonnes	Nd <sub>2</sub> O <sub>3</sub> +Pr <sub>6</sub> O <sub>11</sub>	TREO	Nd <sub>2</sub> O <sub>3</sub>	Pr <sub>6</sub> O <sub>11</sub>
		%	%	ppm	ppm
Bald Hill	4,380,000	0.41	1.04	3,330	783
Fraser's	780,000	0.67	1.58	5,320	1,380
<b>TOTAL</b>	<b>5,160,000</b>	<b>0.45</b>	<b>1.12</b>	<b>3,630</b>	<b>873</b>

\* Hastings ASX release 28 Nov 2017;

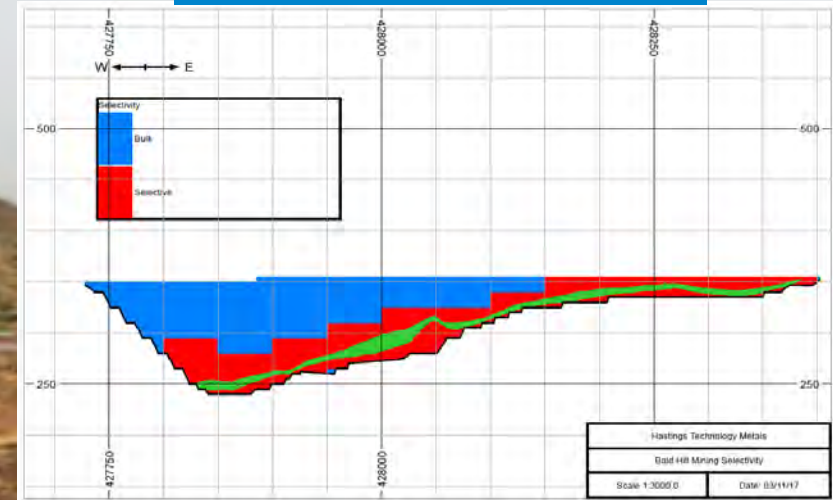
- **Total Probable Ore Reserve at 5.15m tonnes** supporting first 5.5 years of LoM and Additional Production Target for another 2.5 years
- Drilling programme currently in place to upgrade known Resources to Reserves by 2019 to > 10.0 m tonnes.



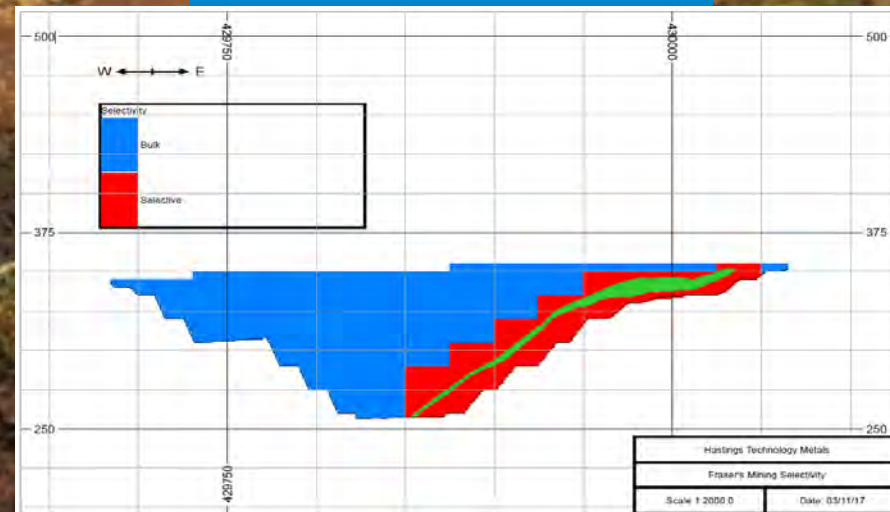
# Favourable Terrain

Mineralised out crops, shallow open pit mining

Selective Mining – Bald Hill



Selective Mining – Fraser's





# Native Title Agreement signed



Agreement reached with Thiin-Mah Warriyangka, Tharrkari and Jiwarli

- Signed 9th November 2017
- < 1% **royalty** based on sales for the LoM
- Applicable to all rare earth and niobium mined
- Provision of jobs and training for the community





# Yangibana Advantage – Highest Nd-Pr ratio

**Comparison of REO Distribution & Basket Value Between Hastings and Major Light RE Producers**

RE Oxide/TREO	Unit	Hastings	China		Outside of China	
			Baotou	Sichuan	Mt Weld	Mountain Pass
Lanthanum	%	9.99	25.94	36.50	25.16	33.22
Cerium	%	39.59	50.69	47.90	46.36	49.10
Praseodymium	%	8.01	5.15	4.10	5.38	4.30
Neodymium	%	33.80	15.90	10.00	18.79	12.00
Samarium	%	3.88	1.21	0.70	2.27	0.80
Europium	%	0.84	0.22	0.08	0.47	0.12
Gadolinium	%	1.80	0.39	0.23	0.85	0.17
Terbium	%	0.15	0.05	0.04	0.06	0.04
Dysprosium	%	0.50	0.11	0.06	0.16	0.07
Yttrium	%	1.14	0.25	0.31	0.45	0.10
Other	%	0.29	0.10	0.08	0.05	0.09
Economic Value Factor		1.90	1.00	0.72	1.14	0.81

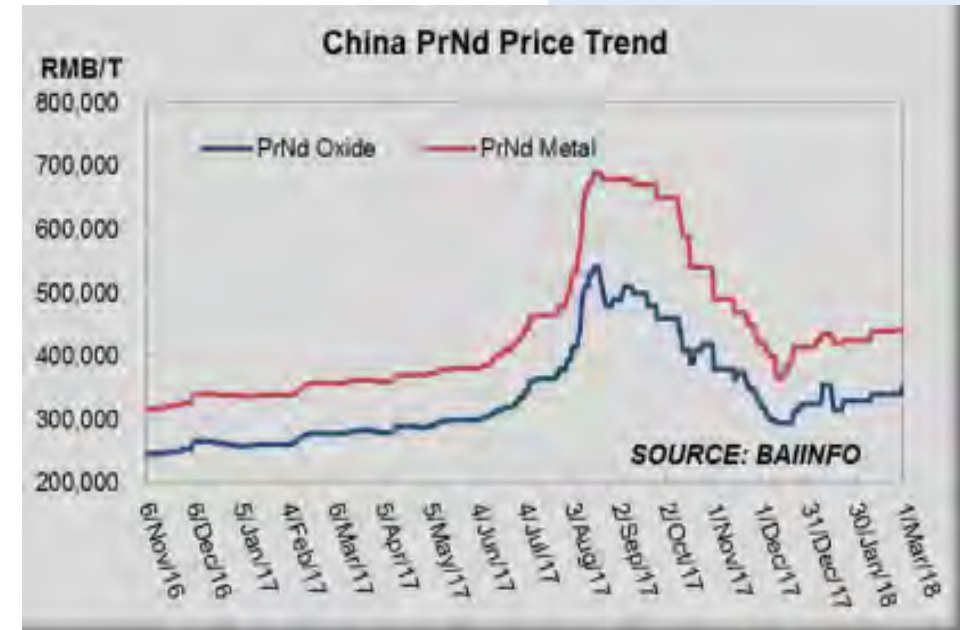
**Basket Price USD/kg      29.20      15.35      11.15      17.45      12.40**

- Nd-Pr /TREO composition is validated by customers in the MREC
- Economic Value Factor calculated on individual % of REE in the ore body x REO prices
- Yangibana: high Nd-Pr content of 41%
- **Yangibana basket price @ USD30.50/kg (Oct 2017) used in DFS**
- 9th Mar 2018 basket price is \$29.20

# Spot Prices of Rare Earth Oxides (Mar 2017)

China F.o.B. Export prices 09-Mar-2018 (USD/kg) & YTD change

Lanthanum oxide	La2O3	\$ 2.37	1 %
Cerium oxide	CeO2	\$ 2.30	0 %
<b>Praseodymium oxide</b>	<b>Pr6O11</b>	<b>\$ 70.50</b>	<b>+11 %</b>
<b>Neodymium oxide</b>	<b>Nd2O3</b>	<b>\$ 58</b>	<b>+22 %</b>
<b>Dysprosium oxide</b>	<b>Dy2O3</b>	<b>\$ 190.50</b>	<b>+9 %</b>
<b>Terbium oxide</b>	<b>Tb4O7</b>	<b>\$ 517.50</b>	<b>+22 %</b>
Samarium oxide	Sm2O3	\$ 2.25	-2 %
Europium oxide	Eu2O3	\$ 59.50	- 9 %
Erbium oxide	Er2O3	\$ 26	+2 %
Holmium oxide	Ho2O3	\$ 64.35	+3 %
Lutetium oxide	Lu2O3	\$ 671.10	+3 %
Yttrium oxide	Y2O3	\$ 3.35	0 %

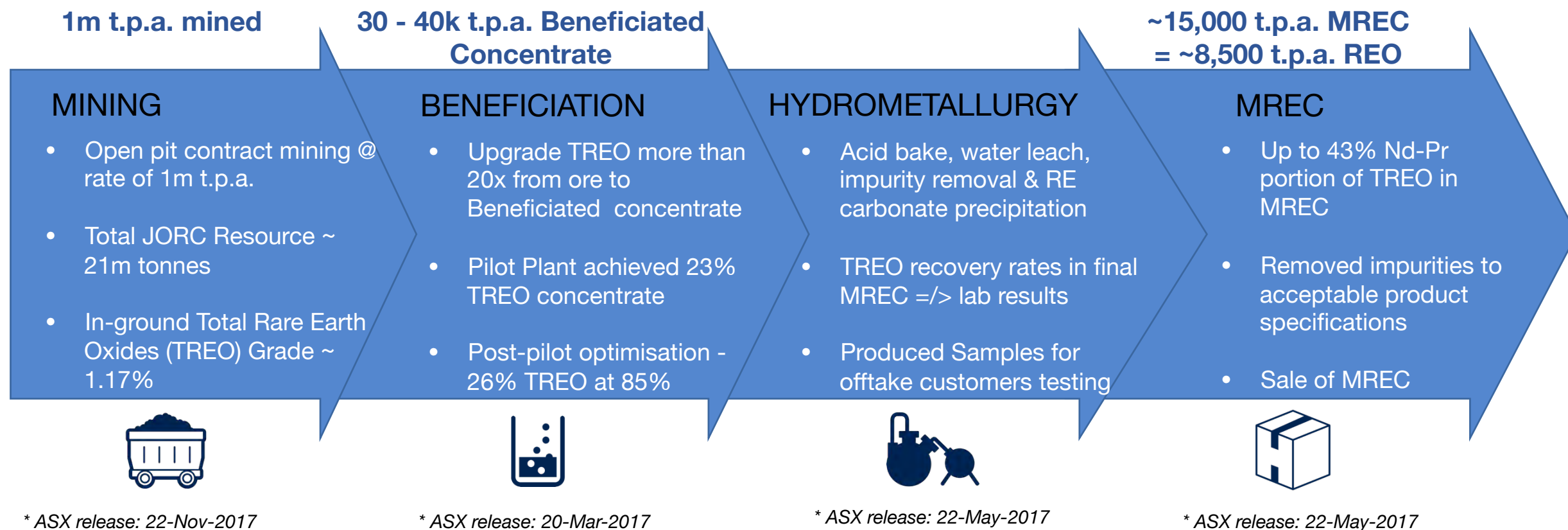




# The Yangibana Process and Product

## From Mining to Mixed Rare Earth Carbonate (MREC)

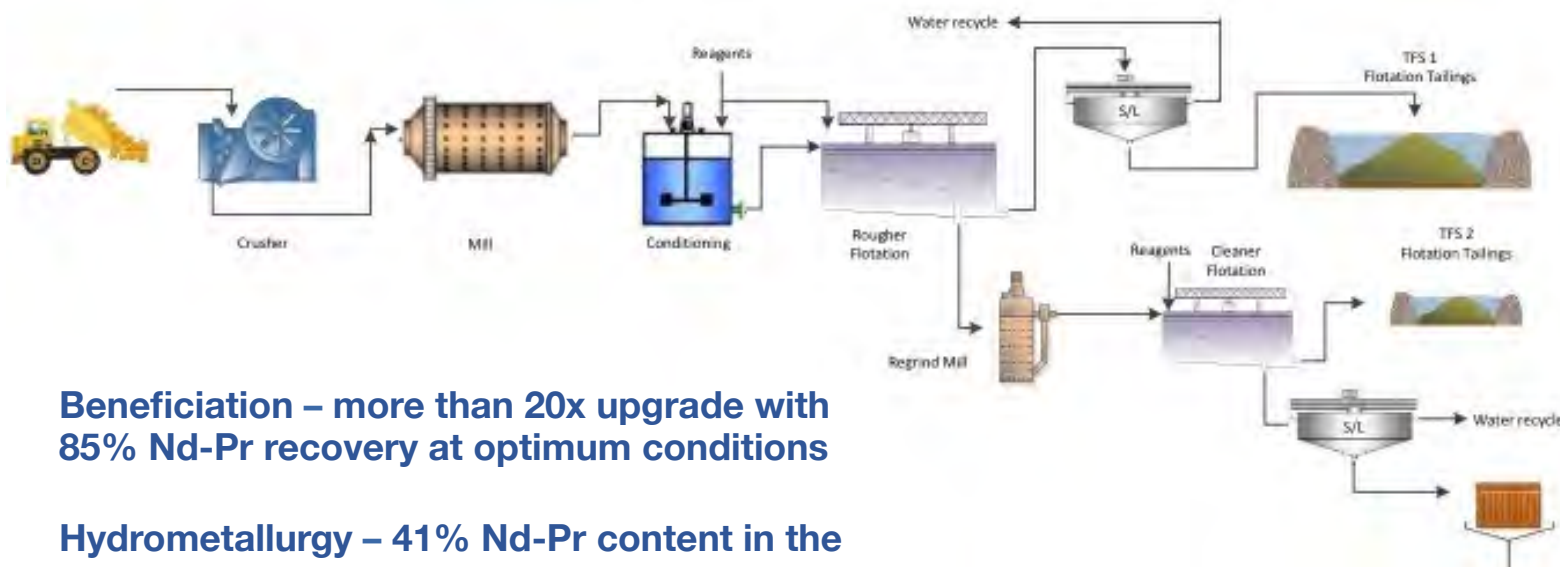
Successful Beneficiation and Hydrometallurgy pilot plan test-work proves simple and effective production process flow sheet.



\* See Company ASX releases for additional information on all processes.

# Yangibana Flowsheet

## Pilot test work at ALS and ANSTO confirms production process

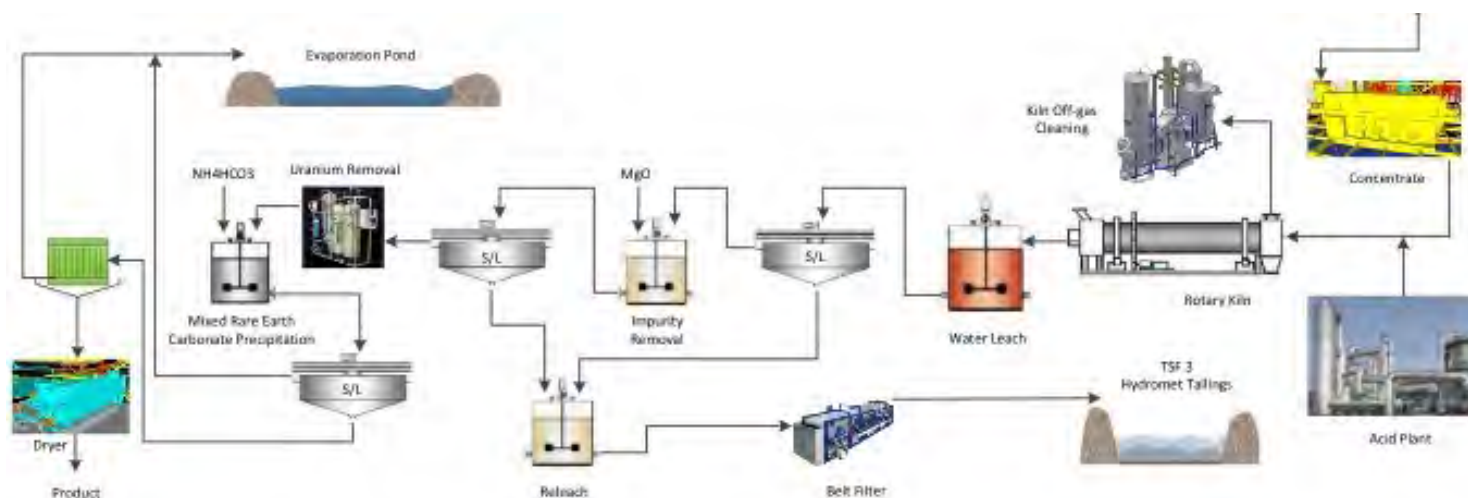


Flotation Pilot Plant Operation at ALS, Perth

- **Beneficiation** – more than 20x upgrade with 85% Nd-Pr recovery at optimum conditions
- **Hydrometallurgy** – 41% Nd-Pr content in the Yangibana MREC



Final flotation concentrate from beneficiation pilot



Neutralisation & Precipitation Circuit – Hydromet - ANSTO



# Downstream Toll Treatment

Estimated Tolling cost USD 2.50/kg (based on 15,000 tons MREC)

Mixed Rare Earths  
Carbonate (MREC)



MREC Dissolving



Separation with  
Solvent Extraction



Separated REE  
Precipitation



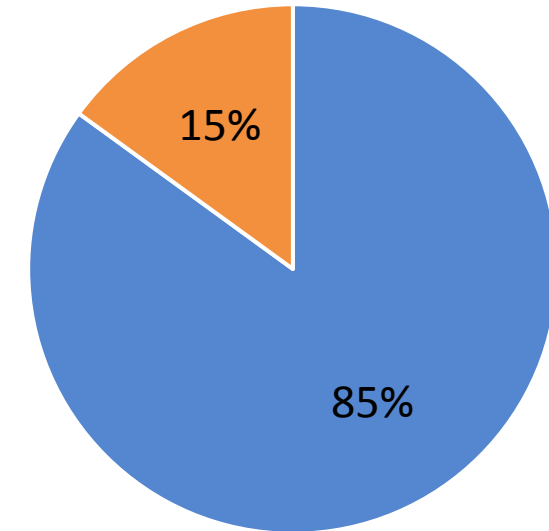
Dewatering of Precipitated Solids



Calcination of Precipitated Solids

Separated RE Oxides to  
RE Metal/Magnet Maker

Global Separation Capacity

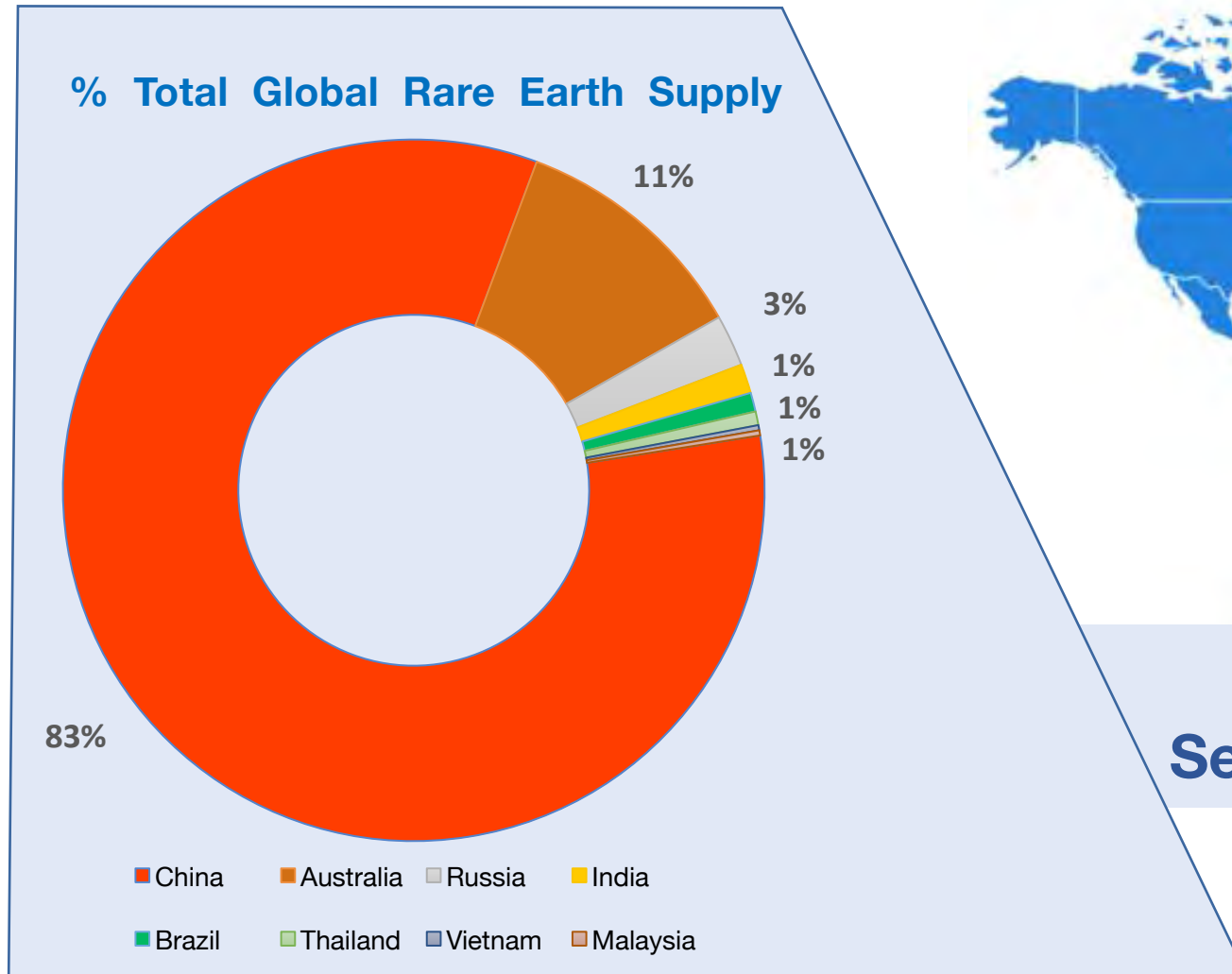


■ China ■ Outside of China

Excess Separation capacity outside of China includes the separators in Malaysia, India, Vietnam, Kazakhstan/eastern EU, etc.

# Global Rare Earth Supply 2016

Supply diversification increasingly strategic



Source: US Geological Survey, Mineral Commodity Summaries 2017



**HASTINGS**  
**Second source Supply outside of China**

**2016 Global Supply 126,000 MT**  
Excluding Illegal Supply  
China aggressively targeting illegal mining in 2017 – expected to reduce global supply.



# Major Growth Applications

## Demand drivers for permanent magnets from new technologies



### Wind turbines

GWEC projects wind capacity to reach 2,110 GW – 5X increase from today.  
est. ~ 10,000 to 15,000 t.p.a. additional Nd-Pr\*



### Electric Vehicles

Policy changes, Manufacturer EV Targets  
est. ~ 10,000 to 15,000 t.p.a. additional Nd-Pr



### Magnetocaloric Refrigeration

30% to 50% more energy efficient & zero CFC usage  
**NdPr usage ~ 1kg per unit**  
Additional demand 6,300 t.p.a. by 2025

# Early Works Programme

Commenced Q1 2018



Bulk earthworks contracts scope developed and contractors under evaluation



Accommodation village sourced and contract under negotiations



Civil engineering design being finalised for:

- Access roads
- Village areas
- Laydown pad for core and Sample prep yard



Established an Owners Team for Early Contractor Involvement (ECI) for project construction to completion



Order Critical Path Long lead time items ie. Rotary Kiln, Sulphuric Acid Plant, SAG mill

# Operational Readiness

1

Establish Critical Path for execution and establish monitoring process to eliminate deviations

2

Develop Maintenance Strategies in parallel to Engineering design works

3

Review Risk management protocols and establish systems for health and safety, environment and legal compliance

4

Establish and enter into supply agreements (parts, consumables etc)

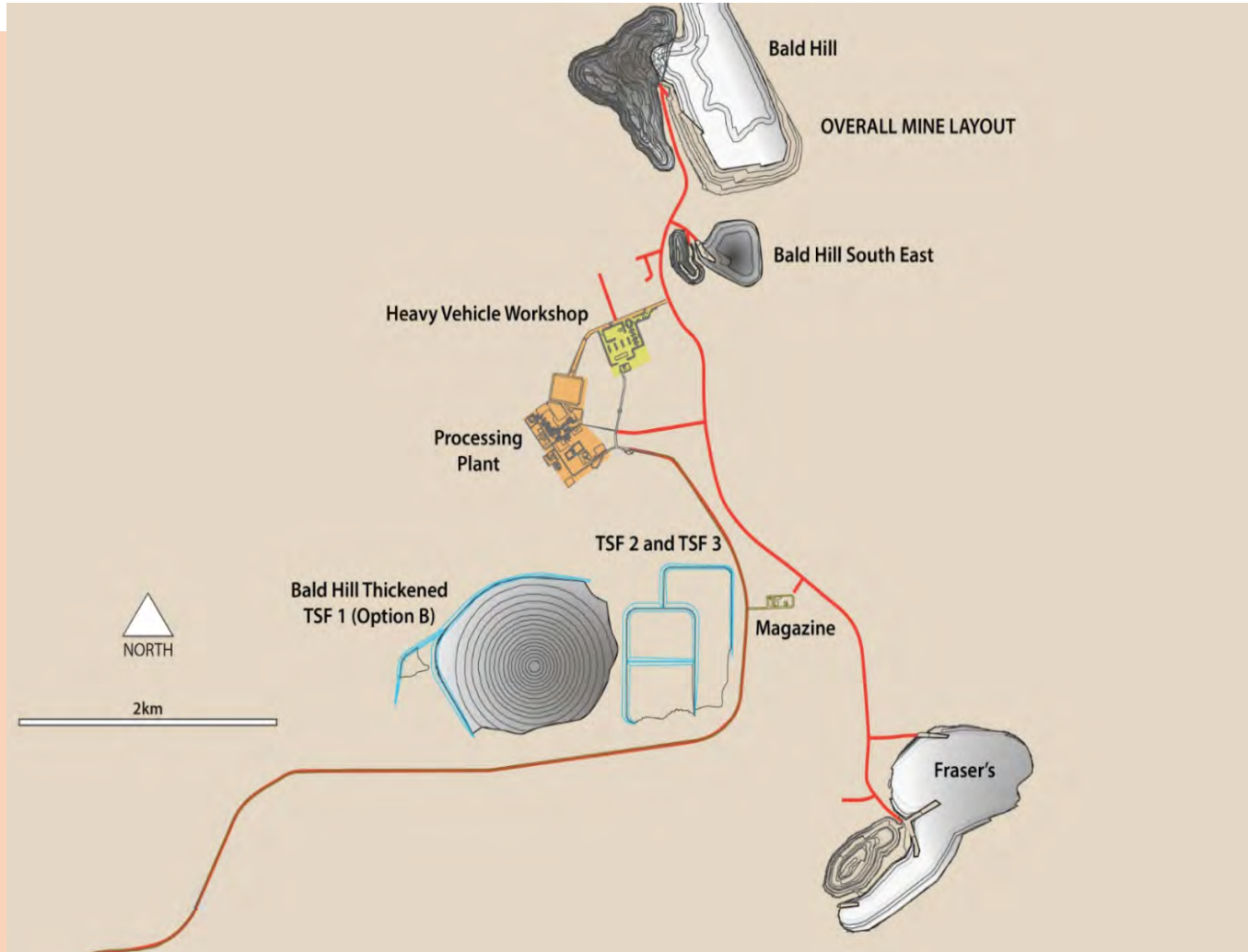
5

Community Engagement via signed Native Title Agreement  
Engagement with Shire, State authorities, local pastoralists



# Overall Mine Layout

## Optimising logistics between deposits



- Mining by conventional drill and blast
- Pit optimisations were completed to determine the economic mining limits for each deposit
- Waste dumps located to minimise haulage distances
- Mining schedule based on value creation and waste reduction
- Water supply – sourced from bore-field near to process plant



- Purchase Order placed for Accommodation Village (240 rooms), contract negotiations underway
- Tenders prepared for Bulk Earthworks
- Tenders issued for Long Lead Items (Rotary Kiln and Sulphuric Acid Plant)



# Capital Cost for Infrastructure A\$50-60m

Expected Completion 4Q 2018



- Roads /Bulk Earthworks - Access Roads & and River Crossings
- Accommodation Village and support infrastructure
- Upgrade airstrip at Gifford Creek
- Power Plant – Diesel, LNG and Solar being evaluated
- Alternative Trucking & Shipping Logistics
- In discussion with NAIF for partial funding support on infrastructure





## Milestones to production by Q1 2020

### PROJECT IMPLEMENTATION SCHEDULE FOR YANGIBANA RARE EARTHS PROJECT

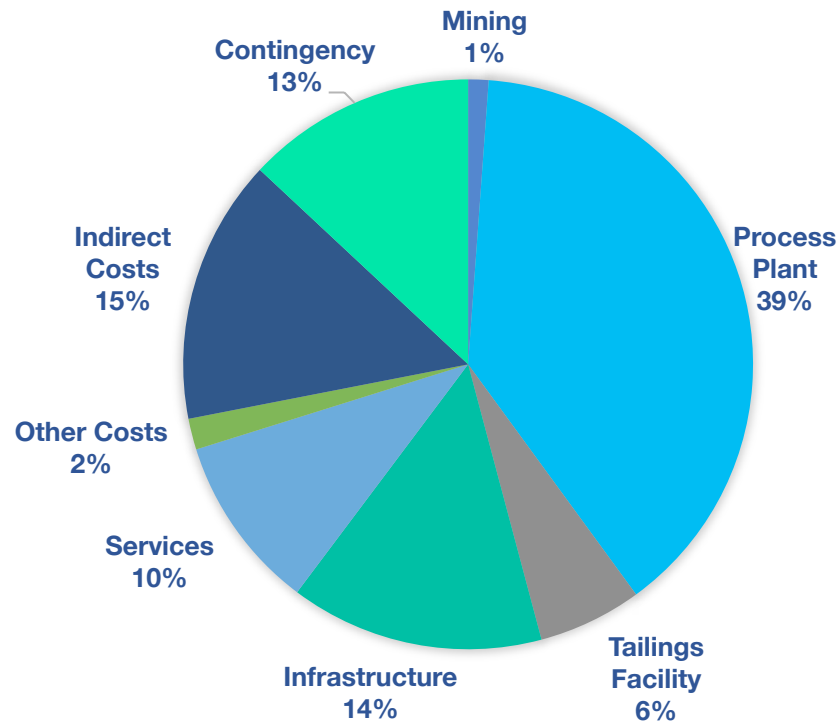
	2017		2018												2019												2020			
Activities	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A
Definitive Feasibility Study (DFS)																														
Permitting & Approvals																														
Design for Access Road & Bulk Earthwork for Accom Camp																														
Construct Access Road & Accommodation Camp																														
Basic Engineering Design (BED)																														
Detailed Engineering																														
Procure Long Lead Equipment - Rotary Kiln																														
Procure Long Lead Equipment - Sulphuric Acid Plant																														
Procurement (other equipment & bulk material)																														
Production Plant Construction																														
Commissioning																														
Commercial Production Start																														

Above shows only the main Tender Packages

Critical Path

# DFS Capital Cost A\$335m

An improvement of 20% from PFS

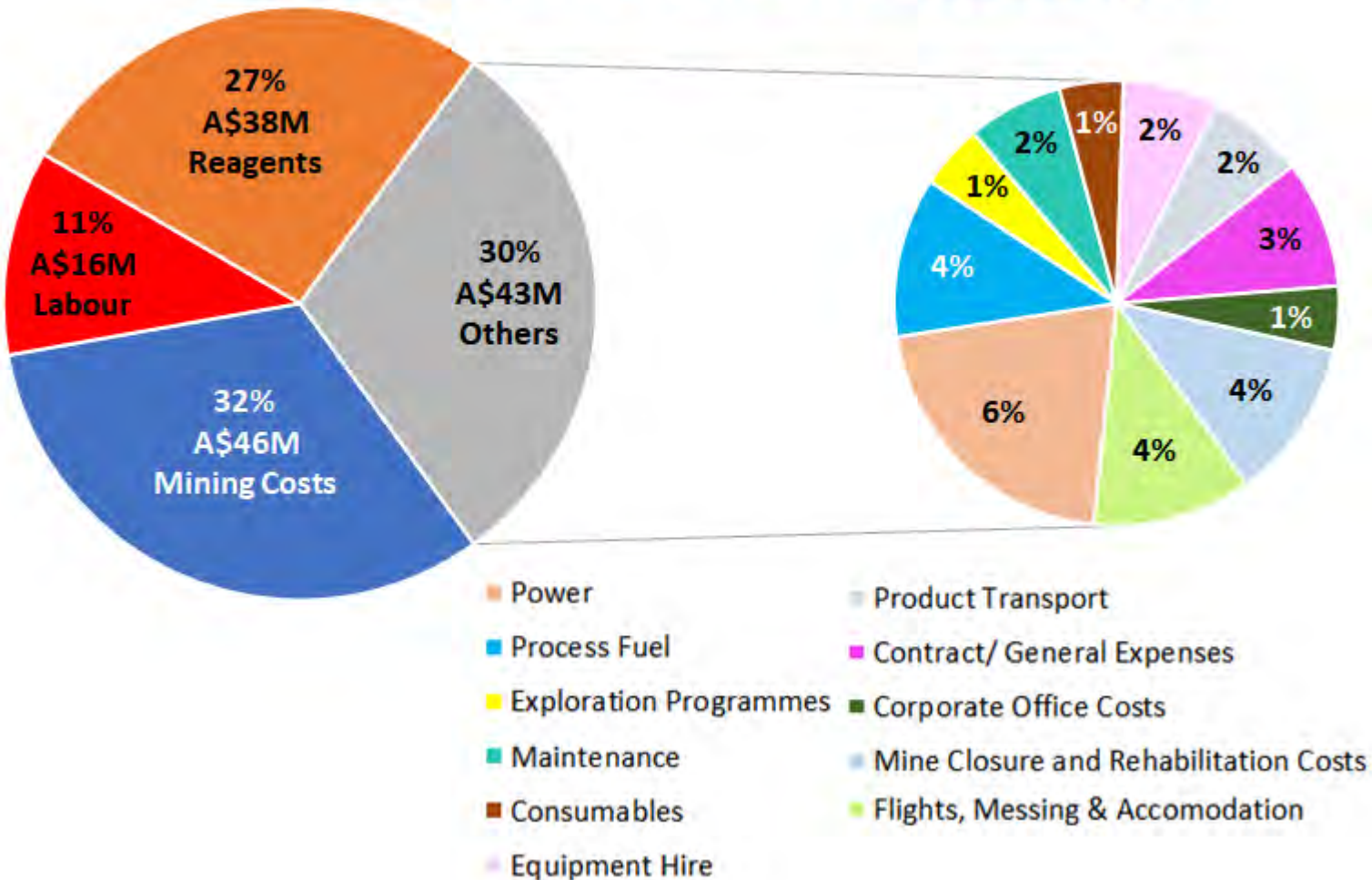


Cost Centre	A\$ Million	Cost Centre	A\$ Million
<b>Process Plant</b>	<b>\$130.2</b>	<b>Non Process Infrastructure</b>	<b>\$105.1</b>
Crushing and Screening	3.6	Mine Infrastructure	3.9
Grinding	14.1	TSF 1,2 and 3	19.5
Flotation	27.0	Evaporation Pond	0.3
Beneficiation	4.1	Accommodation Village	14.6
Hydrometallurgy	50.9	Roads	22.3
Hydrometallurgy Reagents	8.1	Air strip	1.6
Reagents Plants	19.7	Plant / Mining Buildings	9.8
Pipe Racks	2.7	Water Supply	9.2
		Power Supply	17.0
		ICT	0.9
<b>Cost Centre</b>	<b>A\$ Million</b>	Other Services	6.2
<b>Indirect Costs</b>	<b>\$56.3</b>		
Spares & First Fills	5.9	<b>Contingency</b>	<b>43.7</b>
EPCM Costs	37.6		
Owners Costs / Pre Production	7.9		
Vendor Support / Commissioning	3.6		
Project Insurances	1.2	<b>Total Pre-Production CAPEX</b>	<b>\$335.3</b>

# DFS Operating Cost A\$17.06/kg of TREO

An improvement of 30% from PFS

## A\$142m / year split by cost category

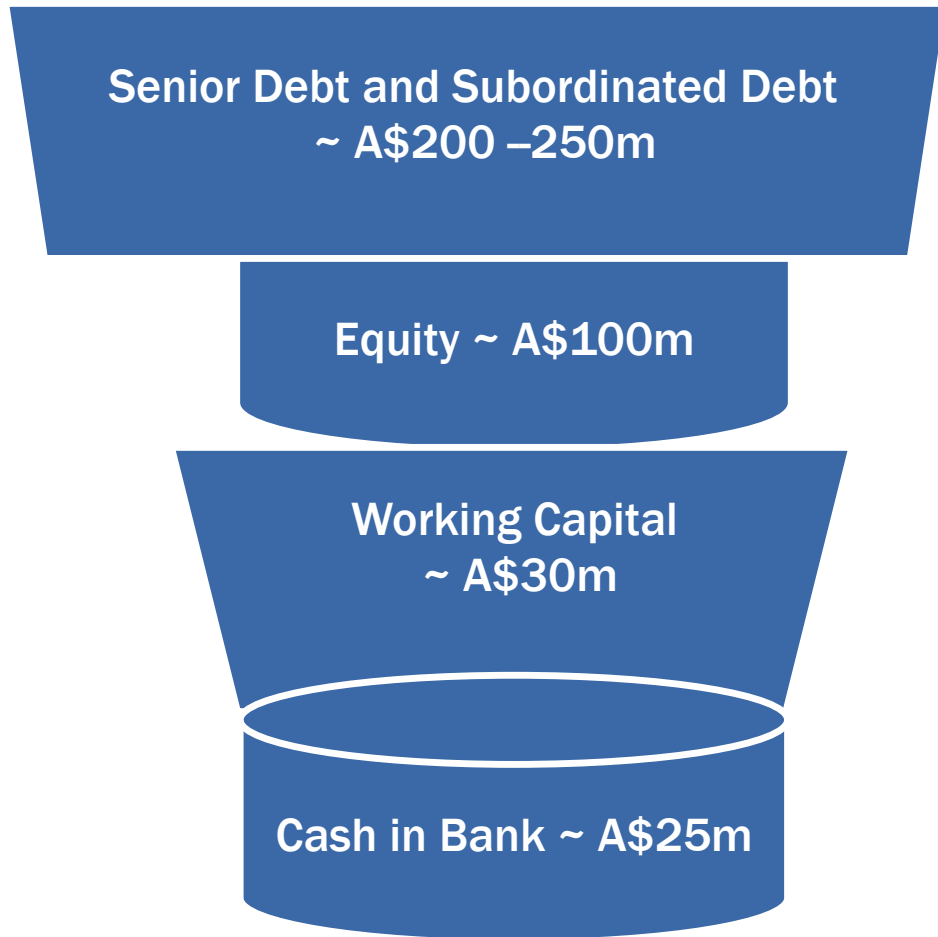


- Processing Costs – significant gains achieved in metallurgical process resulted in lower reagent consumption and costs decrease by 47%
- Minor increases in General & Admin costs mainly reflecting corporate admin expenses
- Resource increase in OPEX – scope to further increase in future
- Mine closure costs included to LoM of 8 years – these will be diluted if LoM is extended beyond this period



# Funding Programme

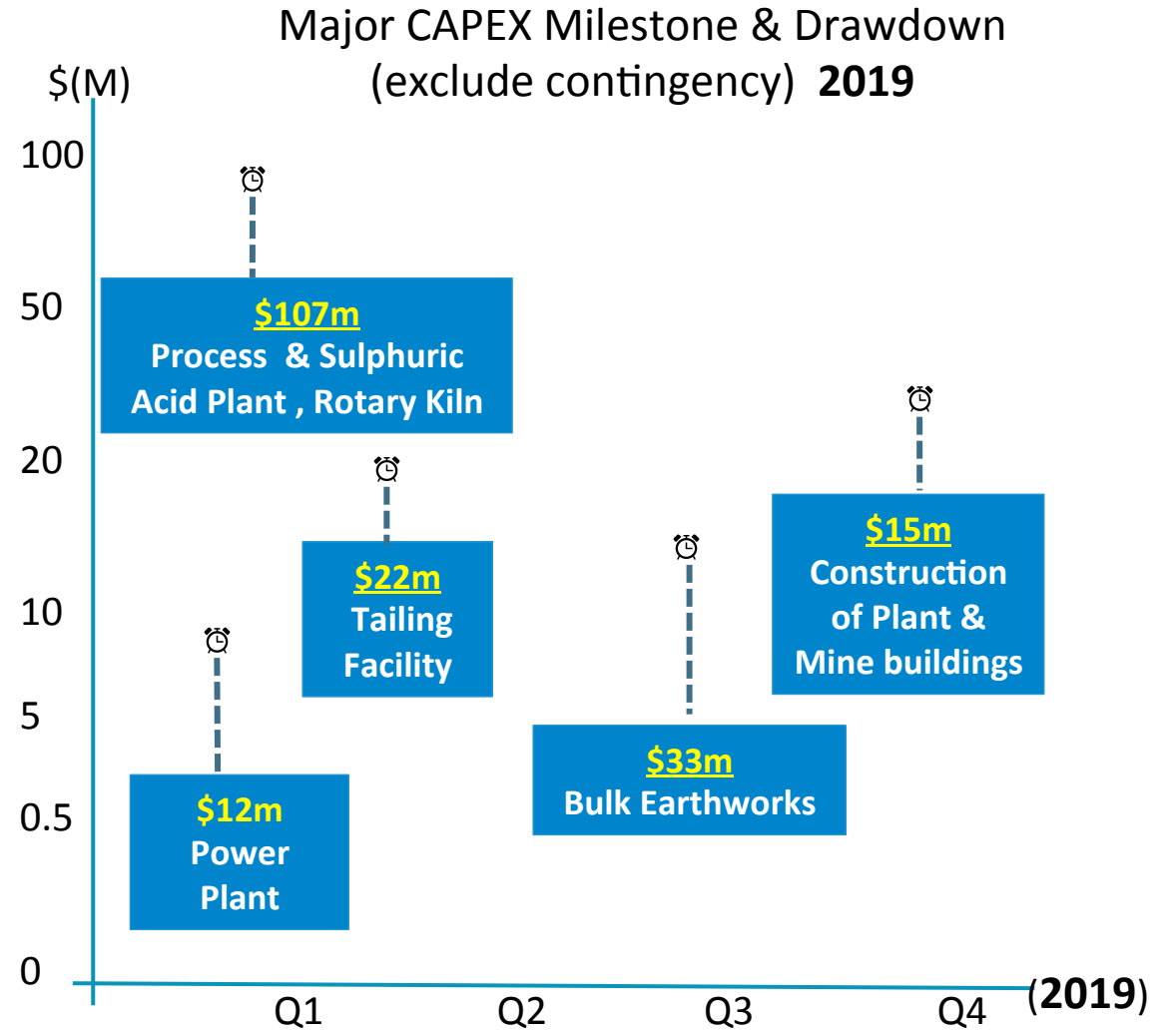
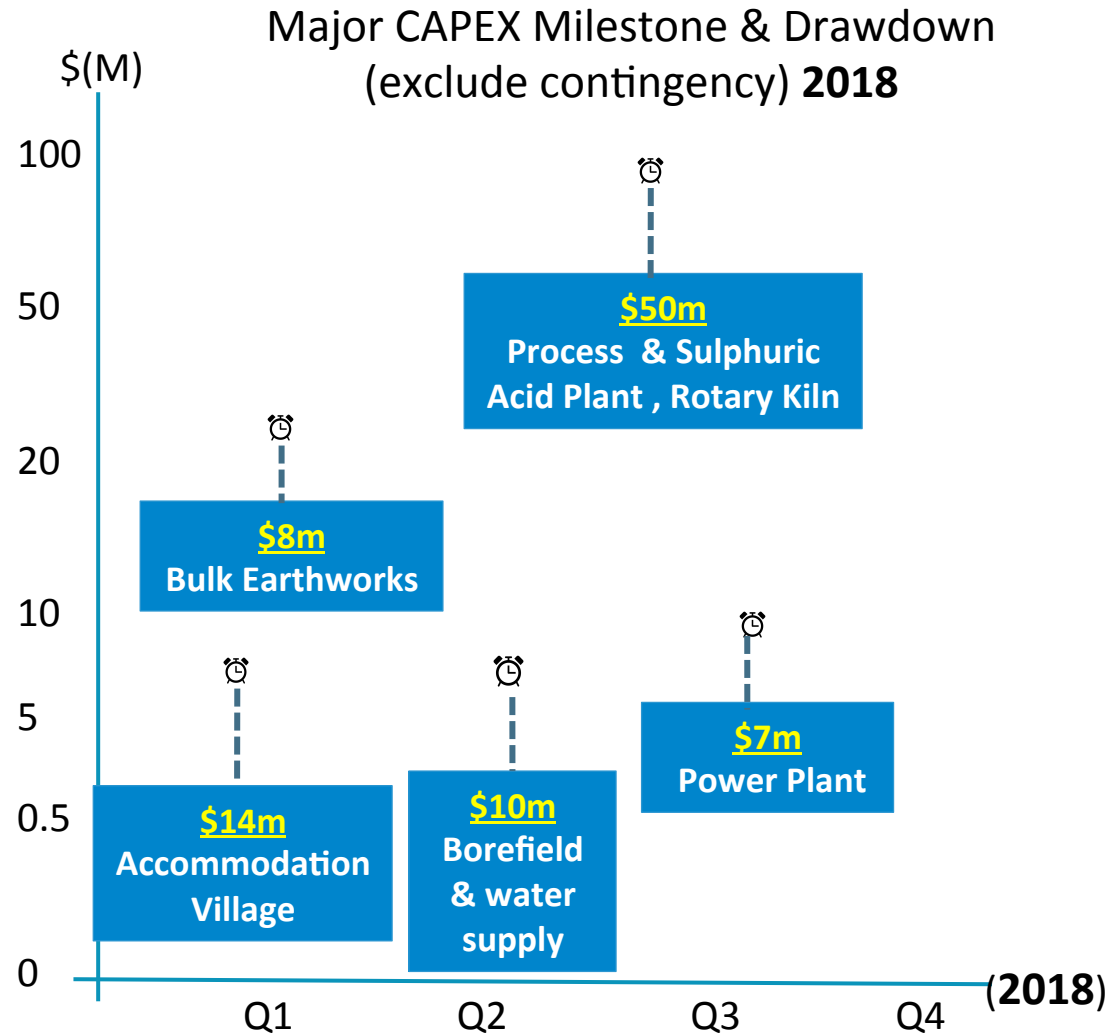
Commenced Q1 2018



- Project Finance funding – 65% Debt : 35% Equity
- Senior & Subordinated Debt financing - potential sources:
  - ✓ Export Credit Agencies ie. Euler Hermes, JBIC, Government loan guarantee programs
  - ✓ Australian Government funded loan agencies ie. NAIF, CEFC
  - ✓ Short term Bridging Loan
  - ✓ Off take customer finance
- Working capital financing and trade lines
- Equity – Private Placement, Rights Issue
- Cash post rights issue – A\$25m (zero debt)



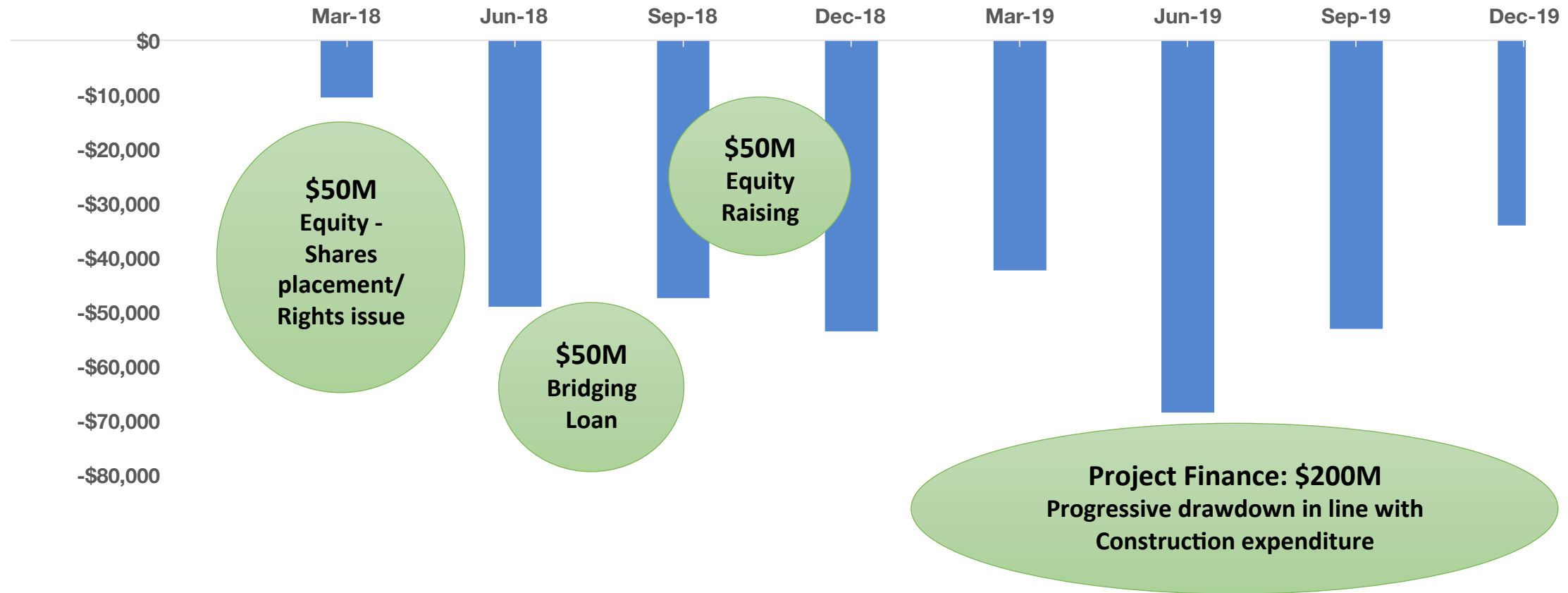
## Milestones, Timeline & Expenditure



# Projected Funding Drawdown

## Schedule to determine funding requirement

### HAS Projected Quarterly Drawdown and Proposed Cash Raising (A\$M)





## Experienced Directors and Management Team



**Guy Robertson**

**Finance Director & Company  
Secretary**

- 30+ years CFO experience
- CFO for various ASX listed junior mining companies
- Senior finance executive in Jardine Matheson Group in Hong Kong and Australia including Jardine Lloyd Thompson, Colliers Jardine, and Franklins Limited



**Charles Lew**

**Executive Chairman**

- Corporate Finance Director HG Asia Securities 1990 - 1997
- MD of ABN Amro Investment Bank Singapore 1997 - 2000
- Independent Director of RHB Banking Group 2004 - 2016
- 30+ years experience in investment banking in London (HSBC & Robert Fleming) and in Singapore
- Private investor and entrepreneur in F&B, real estate, financial services, etc



**Jean Claude Steinmetz**

**Non-Exec. Director /  
Commercial Director**

- Previously Chief Operating Officer for Lynas Corporation
- 25+ years Involved in the chemical industry with Rhodia and General Electric
- Chairman of the Auto Plastic and Innovative Materials Committee of Sino-EU Chemical Manufacturers Association

# Management Team

In depth experience and specialised skills



**Andy Border**

**General Manager Exploration**

- 40+ years experience as a geologist
- Rare earths, copper, gold and industrial minerals
- Recent roles include Exploration Manager, COO and MD of a number of ASX-listed companies with projects in Australia and elsewhere



**Pit Wah Chung**

**Chief Financial Officer**

- 18+ years experience in financial reporting and tax
- Regional Financial Controller of Lifestyle Investment Group. CFO of Muddy Murphy's Holdings and Breadtalk Group Ltd
- Chartered Accountant of Singapore & fellow member of The Association of Chartered Certified Accountants (ACCA)



**Hannes Zandberg**

**Project Director**

- 30 years experience in mining, metallurgy, chemical refinery, infrastructure, power generation and advanced control systems; 10 years in operations and 20 years in projects
- Area Manager – SNC-Lavalin Project Services, Project Director - Dundee Precious Metals, Engineering Manager – Moly Mines



**Robin Zhang**

**Process Engineering Manager**

- 20+ years experience in R&D, project engineering, plant commissioning & operations
- 8 years at Lynas Corporation - Senior Technical Services & Project Development Manager
- 11 years with Gansu Rare Earth Group, China - Deputy Director of Technical Centre



## Dr Kwan Wong

### KYSPYmet Mineral Processing Consultants - Flotation Specialist

- 50+ years practicing metallurgist with extensive flotation treatment experience in rare earth
- Evaluation of beneficiation flotation test work, plant performance & commissioning; pilot plant test programme design and execution
- Specialist speaker in flotation workshops.
- Worked on 9 REO oxide development projects in Australian and overseas



## Narelle Marriott

### Principal Engineer – Beneficiation

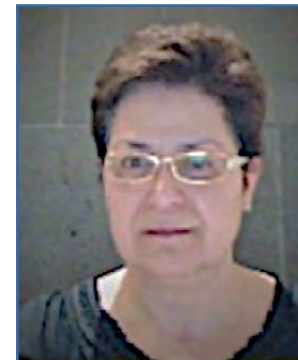
- 14+ years experience in the minerals processing and mining industry
- Experienced in process and flowsheet development for beneficiation plants
- Worked on 5 pilot plant operations in comminution and flotation of nickel, copper, uranium, iron ore and RE industries



## Valerie Quay

### Legal Counsel

- Trained & Qualified Lawyer, Barrister at Law, Middle Temple UK
- 2 years at Herbert Smith, London
- Focus area and experience in corporate and commercial law
- Management & Strategy consulting at McKinsey & Co, London
- Deputy Director – Strategy and Corporate Governance, National Philanthropic Centre, Singapore



## Dr Nursen Guresin

### Senior Metallurgist

- 30+ years in mining industry
- Expertise in physical (crushing, grinding concentration processes) and chemical (hydrometallurgy, pyro-metallurgy electrometallurgy) ore processing
- Experienced in engineering studies metallurgical test work, site work (optimisation, trouble shooting, trials), audits, due diligence, Competent Person and NI 43-101 Reports, consultancy, research and lecturing





## 73% of Yangibana production under offtake MOUs to German and Chinese customers

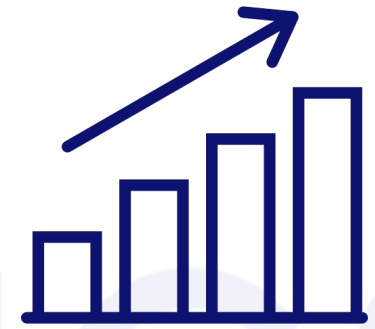
- **Thyssenkrupp Raw Materials GmbH** – 5,000 tonnes per annum of Yangibana MREC for 10 years; for the German and European automotive and other industries
- **Baotou Sky Rock Rare Earth New Material Co. Ltd** – 2,500 tonnes per annum (*1 Aug 2017*)  
Sky Rock produces high tolerance NdFeB permanent magnets. Main products include
  - Sintered Neodymium Magnets
  - Sintered Samarium Cobalt Magnets
- **China Rare Earth Holdings Ltd** – 2,000 tonnes per annum (*1 Sept 2017*)
  - CREH started business in 1987 and listed on HKEX in 1999
  - Established manufacturer of rare earth derived and refractory products
- **Qiandong Rare Earth Group (GQD)** – 1,500 tonnes per annum (*13 Sept 2017*)
  - GQD founded in 1988
  - Through 11 subsidiary companies involved in all parts of the rare earth product supply chain.
- ✓ Chinese offtake - Selling price will be set at average of 3 months market prices prior to shipment
- ✓ On going negotiations for off-take agreements with Japanese customers



- Experienced management team with rare earth production experience
- Definitive Feasibility Study (DFS) completed Nov 2017
- Off-take MOUs signed with Thyssenkrupp, Germany and 3 Chinese RE producers
- Native Title Agreement signed
- Mining Lease granted for 21 yrs since March 2016



- MREC with high NdPr content
- DFS basket price:USD29.20/kg
- Mine construction 2Q 2018  
Production Q1 2020
- Probable Ore Reserves 5.15m tonnes
- JORC Resource Estimate currently @ 21.0m tonnes



- Market Cap A\$240m
- NPV A\$466m
- IRR 78%
- EBITDA payback 2.3yrs
- Cash post rights issue A\$25m
- No debt
- EVs exponential growth of 5x from 2020 to 2040

**Thank you.**

**Q & A**

