

# **Investor Presentation**

**Building a Significant Rare Earths Company**



**Hastings**  
Rare Metals Limited

# Important Information

All currency amounts are in AUD\$ unless stated otherwise.

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*The information in this presentation that relates to Mineral Resources is based on information compiled by Simon Coxhell. Mr. Coxhell is employed as a consultant to the Company and a member of the Australian Institute of Mining and Metallurgy. Mr. Coxhell has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this presentation and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2004 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("**JORC Code**"). Mr. Coxhell consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.*

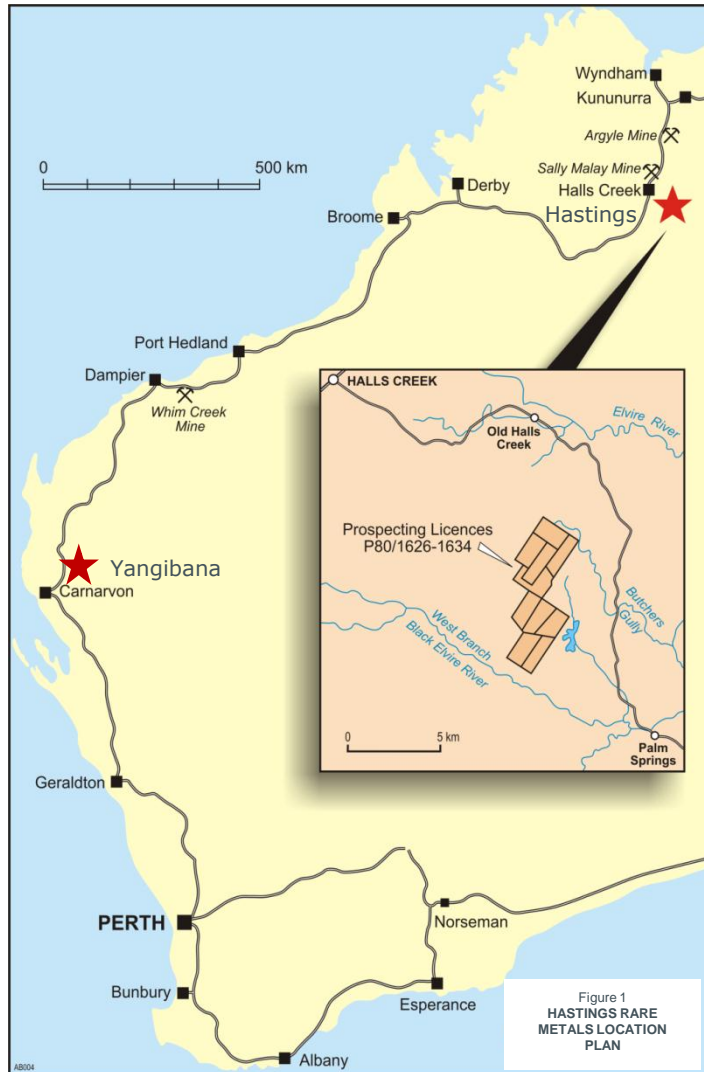
## **Exploration Targets**

*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 the JORC Code and therefore the terms have not been used 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.*

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# Hastings Overview



Hastings Projects, Western Australia

Two Rare Earth Projects in WA

## Hastings Project 100%

- Hastings Project (WA) contains one of Australia's largest Heavy Rare Earth resources, including significant Dysprosium and Yttrium, with Niobium and Zirconium
- 2011 drilling defines JORC-compliant Indicated and Inferred Resources totalling:

36.2 million tonnes @

2102ppm (0.21%) Total Rare Earth Oxides ( <b>TREO</b> ) including 85% Heavy Rare Earth Oxides ( <b>HREO</b> )
3546ppm (0.35%) Nb <sub>2</sub> O <sub>5</sub>
8913ppm (0.89%) ZrO <sub>2</sub>

- Over \$10m previously spent on the project
- Historical metallurgical results from pilot plant tests show recoveries of around 75% for Yttrium and Dysprosium, 80% for Niobium and Zirconium
- Metallurgical test work ongoing on samples prepared from the 2011 drilling programme

## Yangibana 60%

- Yangibana Project (WA) (206 sq. km under Exploration Licences) average grades of circa all 1.7%- 2.0% TREO with high grades of Neodymium
- **Recognised by GeoScience Australia as two of Australia's key REO deposits**
- **Both deposits remains open at depth and along strike**

# Board & Advisers

## Board Members

### **David Nolan (Chairman)**

Mr Nolan is a corporate lawyer with over 13 years experience advising on corporate acquisitions, capital raisings and financing for mining companies. Mr Nolan leads the Sydney corporate advisory practice of Mills Oakley Lawyers and was previously a senior adviser at the London Stock Exchange. Mr Nolan has extensive experience advising on corporate governance and legal compliance for small to medium cap listed companies.

### **Steve Mackowski (Technical Director)**

Mr Mackowski joined Hastings after serving at rare earths company Arafura Resources Ltd as General Manager Project Development & Technology. Mr Mackowski is a qualified engineer in mineral processing with over 30 years technical and operational experience in rare earths, uranium, industrial minerals, nickel, kaolin and iron ore. He has also worked at a number of major mining companies including, Iluka, TiWest, WMC, Comalco, Hamersley Iron and Mary Kathleen Uranium Ltd.

### **Tony Ho (Non-Executive Director)**

Mr Ho is an experienced company director having held numerous executive directorships and chief financial officer roles including Brazil Ltd. Mr Ho is currently a non-executive Director of Dolomatrix International Limited and a non-executive Director of rare earths and uranium development company Greenland Minerals and Energy Limited. He is also the non-executive Chairman of Apollo Minerals Limited.

### **Guy Robertson (Chief Financial Officer/Company Secretary)**

Mr Robertson is an experienced Company Director with over 25 years experience as a CFO and Company Secretary for mining exploration companies. Mr Robertson's previous roles include Finance Director of Jardine Lloyd Thompson, Chief Operating Officer of Collier Jardine Asia Pacific and General Manager of Franklins Limited.

## Advisory Board

### **Tony Grey**

Mr Grey is a corporate advisor and professional company director specialising in the provision of strategic advice. His corporate career spans numerous appointments including a diverse range of highly successful rare metal companies. He is presently the Chairman of International Ferro Metals Limited and a Director of International Potash Corporation. He is the former Managing Director of Pancontinental Mining Limited and Chairman of Kingsgate Consolidated Limited. He was also the former Chairman of the World Nuclear Association (previously called the Uranium Institute).

### **Dr Tony Mariano**

Dr Mariano is a geological consultant to the rare metal and rare earth mineral industry and is considered the preeminent authority on the geology and mineralogy of rare earths, niobium, tantalum, and other rare metals. Dr Mariano has a PhD in geology from Boston University, has consulted to the United Nations, the United States Government, many of the world's rare metal and rare earth explorers and developers including Union Carbide Corporation and Molycorp Inc., and has authored and co-authored many technical publications on rare earths. During his time with Molycorp, Dr. Mariano spent time evaluating the Hastings Project.

# Hastings Project

## *A Highly Experienced Project Team*

### **Steve Mackowski (Technical Director)**

Mr Mackowski joined Hastings after serving at rare earths company Arafura Resources Ltd as General Manager Project Development & Technology. Mr Mackowski is a qualified engineer in mineral processing with over 30 years technical and operational experience in rare earths, uranium, industrial minerals, nickel, kaolin and iron ore. He has also worked at a number of major mining companies including, Iluka, TiWest, WMC, Comalco, Hamersley Iron and Mary Kathleen Uranium Ltd.

### **Consultants under contract**

- ANSTO (Australian Nuclear Science Technology Organisation) - recently concluded the successful development of the flow sheet and pilot plant for Dubbo Zirconia. (Developer of Alkane pilot plant).
- Jacobs – A world leader in process and project development
- AMMTEC – Analytical laboratory and technical services
- NAGROM – Mineral processing and metallurgical testing
- SGS – Laboratory and environmental services

### **Andy Border (Exploration Manager)**

Mr Border is a geologist with over 30 years experience in the exploration and mining industry covering a wide range of commodities and projects from grass-roots exploration through to development and mining. Previous exploration roles include evaluation of significant gold, copper, rare metals and industrial mineral projects. Andy has been managing the exploration efforts together with Simon Coxhell.

# Capital Structure

## ASX Code - HAS

Ordinary Shares	71 million
Unlisted Options	15m at 40 cents
Unlisted Options	37m at 25 cents
Cash as at 31/12/11	\$437,000

## Trading Summary

Market Capitalisation (A\$) (as at October 2011 at 16 cents)	\$15m
52-week trading range	13c to 42c

## Major Shareholders

Kongoni	32%
Board/Management	7%
Top 20	70%

# Rare Earths and Rare Metals

Periodic Table of the Elements

<http://chemistry.about.com>  
 © 2009 Todd Helmenstine  
 About Chemistry

1A 1 H 1.00794 Hydrogen	2A 4 Be 9.012182 Beryllium																	8A 2 He 4.002602 Helium
3 Li 6.941 Lithium	12 Mg 24.3050 Magnesium																	10 Ne 20.1797 Neon
11 Na 22.989769 Sodium	19 K 39.0983 Potassium	3B 21 Sc 44.955912 Scandium	4B 22 Ti 47.867 Titanium	5B 23 V 50.9415 Vanadium	6B 24 Cr 51.9961 Chromium	7B 25 Mn 54.938045 Manganese	8B 26 Fe 55.845 Iron	27 Co 58.933195 Cobalt	28 Ni 58.6934 Nickel	1B 29 Cu 63.546 Copper	2B 30 Zn 65.38 Zinc	3A 13 Al 26.9815386 Aluminum	4A 14 Si 28.0855 Silicon	5A 15 P 30.973762 Phosphorus	6A 16 S 32.065 Sulfur	7A 17 Cl 35.453 Chlorine	18 Ar 39.948 Argon	
37 Rb 85.4678 Rubidium	38 Sr 87.62 Strontium	39 Y 88.90585 Yttrium	40 Zr 91.224 Zirconium	41 Nb 92.90638 Niobium	42 Mo 95.96 Molybdenum	43 Tc [98] Technetium	44 Ru 101.07 Ruthenium	45 Rh 102.90550 Rhodium	46 Pd 106.42 Palladium	47 Ag 107.8682 Silver	48 Cd 112.411 Cadmium	49 In 114.818 Indium	50 Sn 118.710 Tin	51 Sb 121.760 Antimony	52 Te 127.60 Tellurium	53 I 126.90447 Iodine	54 Xe 131.293 Xenon	
55 Cs 132.9054519 Cesium	56 Ba 137.327 Barium	57-71 Lanthanides	72 Hf 178.49 Hafnium	73 Ta 180.94788 Tantalum	74 W 183.84 Tungsten	75 Re 186.207 Rhenium	76 Os 190.23 Osmium	77 Ir 192.217 Iridium	78 Pt 195.084 Platinum	79 Au 196.966569 Gold	80 Hg 200.59 Mercury	81 Tl 204.3833 Thallium	82 Pb 207.2 Lead	83 Bi 208.98040 Bismuth	84 Po [209] Polonium	85 At [210] Astatine	86 Rn [222] Radon	
87 Fr [223] Francium	88 Ra [226] Radium	89-103 Actinides	104 Rf [267] Rutherfordium	105 Db [268] Dubnium	106 Sg [271] Seaborgium	107 Bh [272] Bohrium	108 Hs [270] Hassium	109 Mt [276] Meitnerium	110 Ds [281] Darmstadtium	111 Rg [280] Roentgenium	112 Cp [285] Copernicium	113 Uut [284] Ununtrium	114 Uuq [289] Ununquadium	115 Uup [288] Ununpentium	116 Uuh [293] Ununhexium	117 Uus [294] Ununseptium	118 Uuo [294] Ununoctium	
		Lanthanides	57 La 138.90547 Lanthanum	58 Ce 140.116 Cerium	59 Pr 140.90765 Praseodymium	60 Nd 144.242 Neodymium	61 Pm [145] Promethium	62 Sm 150.36 Samarium	63 Eu 151.964 Europium	64 Gd 157.25 Gadolinium	65 Tb 158.92535 Terbium	66 Dy 162.500 Dysprosium	67 Ho 164.93032 Holmium	68 Er 167.259 Erbium	69 Tm 168.93421 Thulium	70 Yb 173.054 Ytterbium	71 Lu 174.9668 Lutetium	
		Actinides	89 Ac [227] Actinium	90 Th 232.03806 Thorium	91 Pa 231.03588 Protactinium	92 U 238.02891 Uranium	93 Np [237] Neptunium	94 Pu [244] Plutonium	95 Am [243] Americium	96 Cm [247] Curium	97 Bk [247] Berkelium	98 Cf [251] Californium	99 Es [252] Einsteinium	100 Fm [257] Fermium	101 Md [258] Mendelevium	102 No [259] Nobelium	103 Lr [262] Lawrencium	
			Alkali Metals	Alkaline Earth	Basic Metal	Halogen	Noble Gas	Non Metal	Rare Earth	Semi Metal	Transition Metal							

# Value Drivers

**Hastings mix HREE (Dysprosium and Yttrium) at Hastings and LREE (Neodymium) at Yangibana. These are classified as “critical” rare earths by the US Department of Energy (December 2010)**

- **Dysprosium** has been highlighted as being among the highest priority and most critical strategic metals now consumed world-wide for **military, high technology and clean energy applications**. The December 2010 report by the US Department of Energy named dysprosium as the single most critically threatened strategic metal to the United States.
- **Yttrium** The most important use of yttrium is in making **phosphors**, such as the red ones used in television cathode ray tube displays and in LEDs. Other uses include the production of electrodes, electrolytes, electric filters, lasers and superconductors.
- **Neodymium** oxide is widely considered one of the three rare earth oxides with critical supply shortages looming in the **high performance magnet industry**.

## Also at Hastings

- **Niobium** and tantalum commonly occur in the associated minerals columbite  $(\text{Fe,Mn})\text{Nb}_2\text{O}_5$  and tantalite  $(\text{Fe,Mn})\text{Ta}_2\text{O}_5$ . Main source of niobium however is pyrochlore  $\text{NaCaNb}_2\text{O}_6\text{F}$ . Niobium is an important alloying element in steels and Fe-Ni-Co based **superalloys**. Lesser use in diverse areas such as camera lenses and coating of glass for computer screens.
- **Zirconium** occurs predominantly as the silicate mineral zircon  $\text{ZrO}_2$ . Used mostly in **ceramics**, foundry applications, opacifiers and **refractories**. Main growth areas are advanced ceramics and auto-exhaust catalysts. Significant use in nuclear energy industry in fuel rods and reactor vessel construction.
- **Tantalum** occurs in wide range of minerals but any tantalum-bearing concentrate is commonly termed tantalite. Highly corrosion resistant and refractory. Used in cutting tools, mobile phones, high temperature alloys and furnace parts to computer hard drive discs.

# Implications of Substitution and Recycling on Future Growth

Light Rare Earths

## Uses

## Market Direction

**Cerium**  
**Lanthanum**

Industrial Commodities  
Glass polishing  
Crude Oil cracking  
Rechargeable batteries

Current high prices will drive substitution. Proposed high volumes of new capacity will drive down prices and promote strong competition

**Neodymium**  
**Praseodymium**

Industrial Necessities  
Magnets used in wind turbines and electric / hybrid cars  
Energy efficient lights

Sustained good growth but recycling will occur soon in larger units

**Dysprosium**  
**Yttrium**

Hi-Tech and Clean Energy  
Military applications  
High Efficiency Magnets  
Phosphors (LCD's)

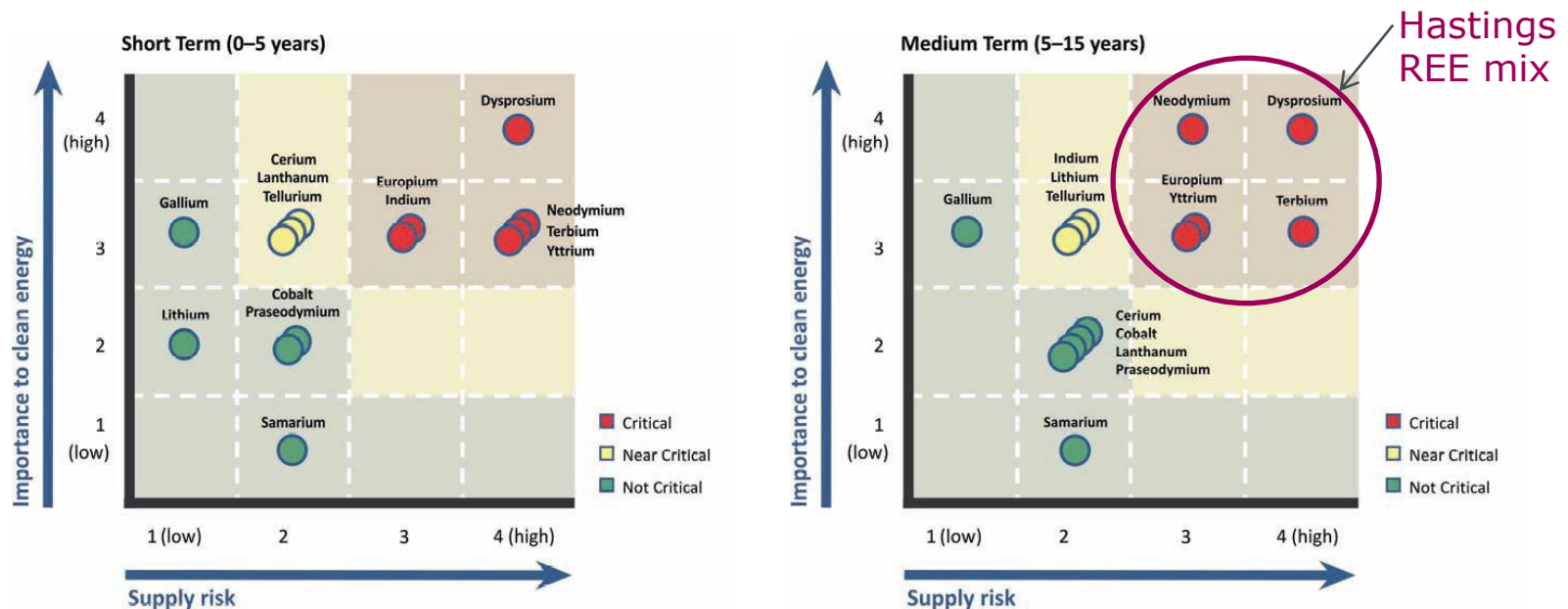
Prolonged high demand with no substitution or recycling due to high value applications but low use per item

Heavy Rare Earths



# Heavy Rare Earths in Serious Undersupply

Critical Supply Matrix (US Department of Energy, December 2010)



- Hastings projects include significant resources of Dysprosium and Yttrium and Yangibana contains Neodymium, three of the critical rare earths (CREO).
- The Hastings project mineralisation contains 85% HREO to TREO the highest percentage of all advanced exploration projects\*

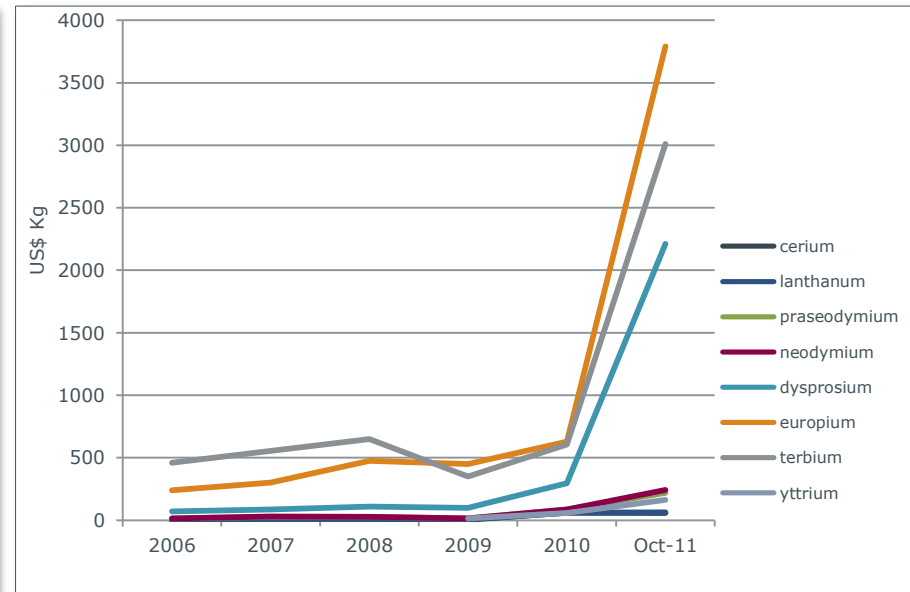
\* Defined as projects with formally defined mineral resources or reserves under the guidelines of a relevant scheme such as the JORC code or NI43-101

# Rare Earth Price History

## COMPARISON OF SELECTED REO PRICES

Rare Earth Price in US\$/kg FOB China

	Oxide of	2009*	2010*	Jun-11*	Sep-11*	Multiple price increase 2009-2011
Critical Light	Neodymium	14	87	317	262	12.9 x
Medium	Europium	450	630	2990	3790	8.5 x
Medium	Gadolinium	7	44	157	192	27.4 x
Heavy	Terbium	350	605	2910	3210	9.2 x
Heavy	Dysprosium	100	295	1485	2290	22.3 x
Heavy	Yttrium	14	57	155	162	11.6 x
Light	Cerium	4.50	61.0	149	71	15.7 x
Light	Lanthanum	6.25	60	151	64	10.2 x



- Continued restrictions on exports will support high HREO prices
- Further supply from new producers will threaten LREO prices and volume

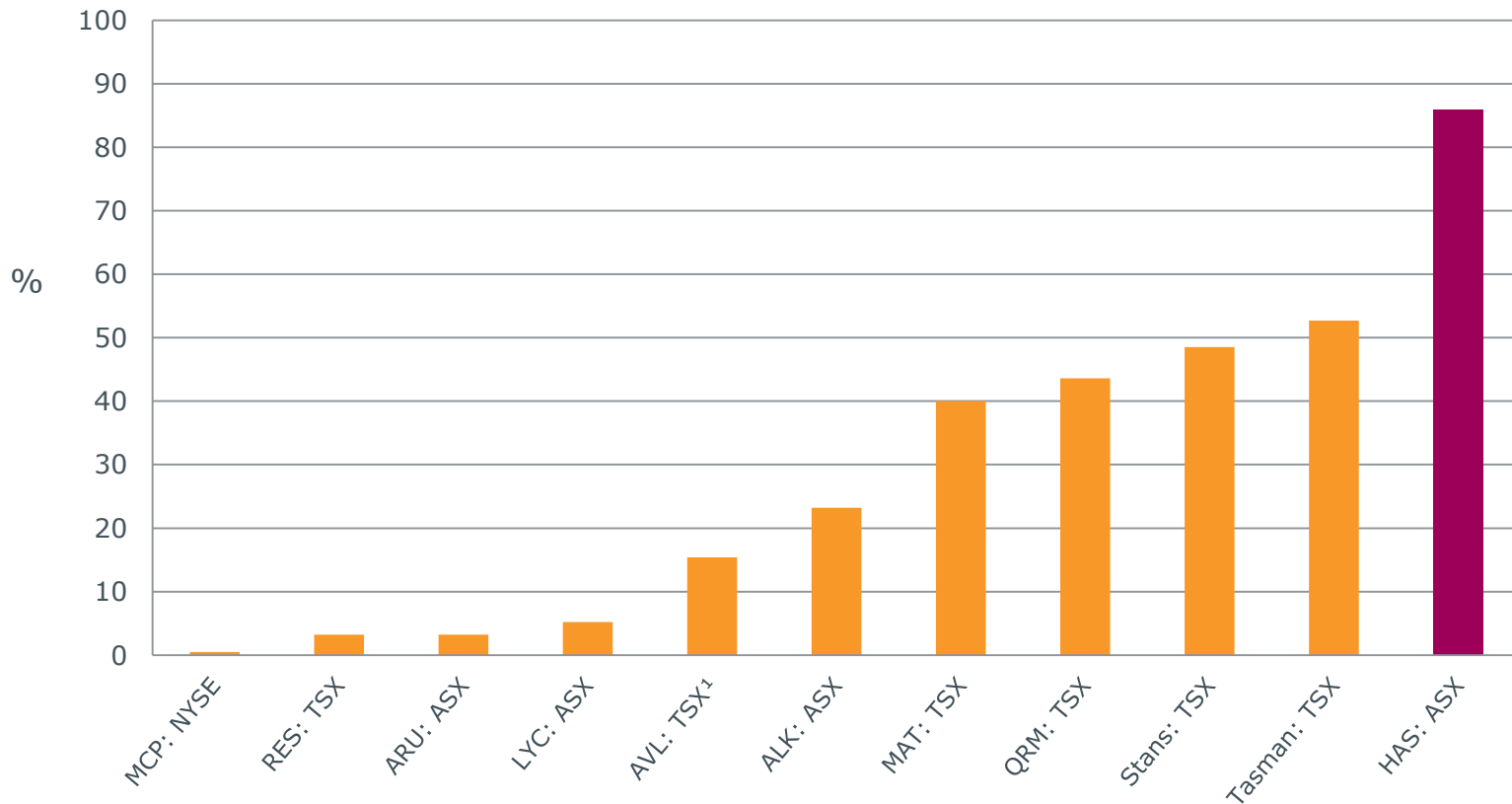
\* Source: Metal Pages price average for the respective period.

N.B prices are for a nominal 99% REO product, except for Europium which is reported at 99.9%

○ Key critical REO's as defined by US Dept. of Energy

# Hastings Project *HREO Ratio - A Clear Advantage*

**HREO:TREO (%)**



<sup>1</sup> Nechalacho HREO/TREO %

# Hastings Project Value Distribution

		HASTINGS (HAS)		NORRA KARR (TSM)		STRANGE LK (QRM)		NECHALACHO (AVL)		DUBBO (ALK)	
	\$/kg China fob*	In Situ		In Situ		In Situ		In Situ		In Situ	
		% Dist	\$/kg	% Dist	\$/kg	% Dist	\$/kg	% Dist	\$/kg	% Dist	\$/kg
Oxides											
Lanthanum	105	1.6	1.68	9.9	10.44	12.4	12.99	17.1	17.99	19.6	20.53
Cerium	97	6.0	5.85	21.6	21.01	27.0	26.30	39.5	38.51	36.9	35.93
Praseodymium	130	0.9	1.17	2.8	3.59	3.0	3.91	4.9	6.40	4.0	5.24
Neodymium	275	3.5	9.63	10.9	29.89	11.1	30.48	19.2	52.80	14.1	38.83
Samarium	130	2.2	2.86	2.2	2.87	2.7	3.46	3.8	4.90	7.2	2.82
<b>Total LREO Value/kg</b>			<b>21.19</b>		<b>67.80</b>		<b>77.14</b>		<b>120.60</b>		<b>103.35</b>
Europium	4959	0.1	4.59	0.4	16.98	0.2	7.89	0.5	21.11	0.1	3.67
Terbium	3600	1.1	39.60	0.7	26.64	0.6	21.65	0.4	14.76	0.3	11.16
Dysprosium	2400	8.8	211.20	4.8	114.96	4.0	96.91	1.8	43.44	2.0	48.48
Gadolinium	200	3.6	7.20	3.3	6.62	2.7	5.33	3.1	6.22	2.2	4.34
Yttrium	180	53.2	95.76	34.9	62.82	28.7	51.65	7.8	14.09	15.8	28.48
<b>Total HREO Value/kg</b>			<b>358.35</b>		<b>228.02</b>		<b>183.43</b>		<b>99.62</b>		<b>96.13</b>
<b>Total TREO Value/kg</b>			<b>379.59</b>		<b>295.82</b>		<b>260.57</b>		<b>220.22</b>		<b>199.48</b>

\* pricing as at 5/10/11

- The Hastings deposit has the highest in situ value per kg of REO versus its HREO peers
- The Hastings deposit has the least exposure to any potential decline in Light Rare Earth Oxides (LREO) prices
- Lynas TREO Value \$193/kg (as at 30 September 2011)

# Hastings Project *Positioning*

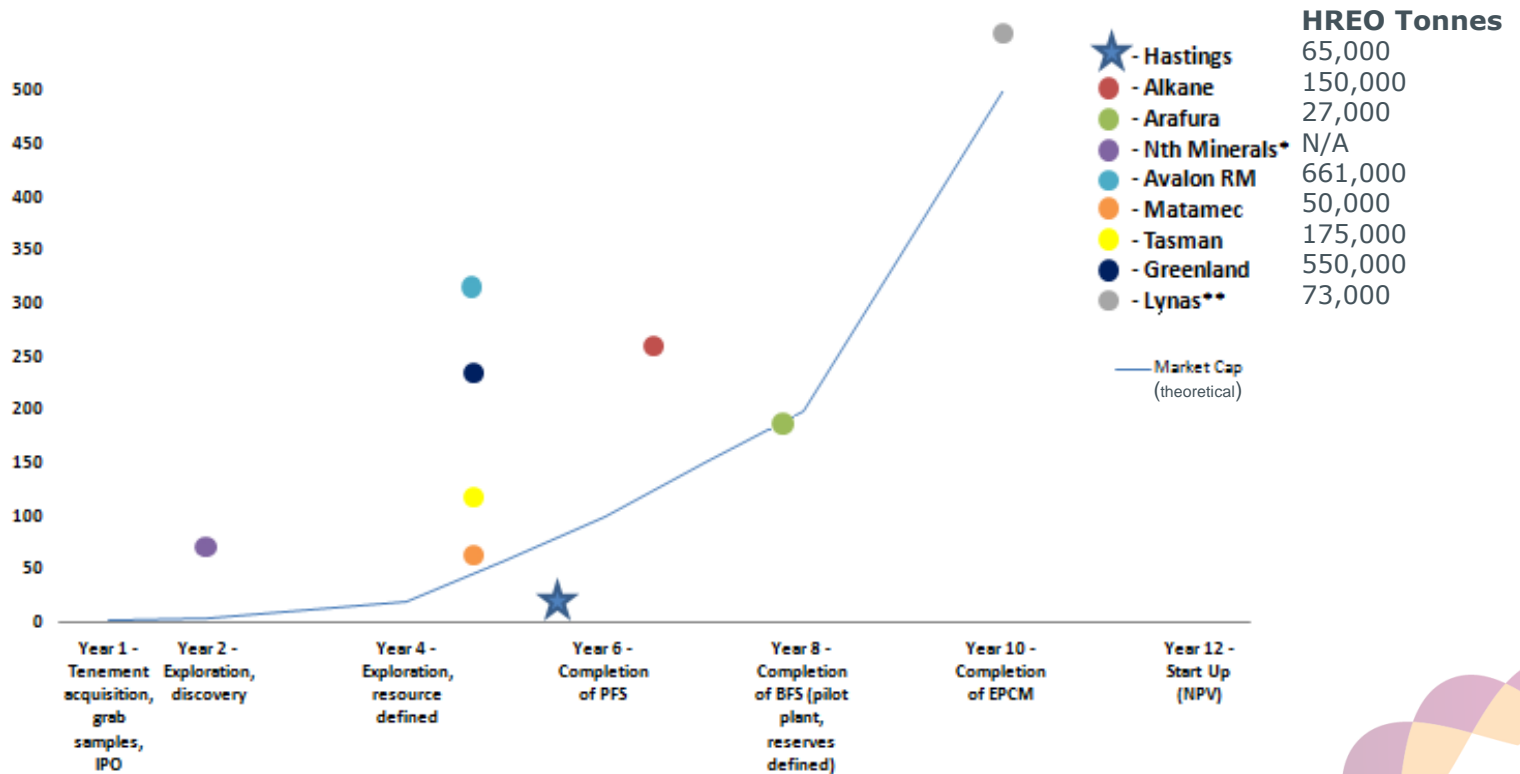
## Advanced REE projects, sorted by contained tonnes of HREO

Deposit	Company	Status	Con'd t	Resource	%	%	HREO:TREO
			HREO	mt	TREO	HREO	%
Nechalacho	AVL	I/I	661,518	315.01	1.36	0.21	15.4
Kvanefjeld	GGG	I/I	548,400	457.00	1.07	0.12	11.2
Strange Lake	QRM	I	505,221	114.82	1.01	0.44	43.6
Norra Karr	TSM	I	175,450	60.50	0.55	0.29	52.7
Dubbo	ALK	I/I	150,792	73.20	0.89	0.21	23.6
Mount Weld	LYC	M/I/I	73,475	17.49	8.07	0.42	5.2
<b>HASTINGS</b>	<b>HAS</b>	<b>I/I</b>	<b>65,270</b>	<b>36.20</b>	<b>0.21</b>	<b>0.18</b>	<b>85.7</b>
Zeus (Kipawa)	MAT	I/I	50,970	50.97	0.25	0.10	40.0
Kutessay II	RUU	I	28,800	18.00	0.33	0.16	48.5
Nolans Bore	ARU	M/I/I	27,180	30.20	2.80	0.09	3.2
Bear Lodge	RES	I	17,463	15.88	3.45	0.11	3.2
Mountain Pass	MCP	M/I/I	9,466	31.55	6.55	0.03	0.5
Sartarfoq	HUD	I	5,623	14.06	1.53	0.04	2.6
Cummins Range	NAV	I	2,919	4.17	1.71	0.07	4.1
Kangankunde	LYC	I	759	2.53	4.23	0.03	0.7

**Hastings contains one of the world's largest HREO resources**

### Market Cap v Project Stage

Market Cap A\$m



\* No JORC Resource  
 \*\* Lynas Market cap A\$2.1b

Project Stage



# Hastings Project

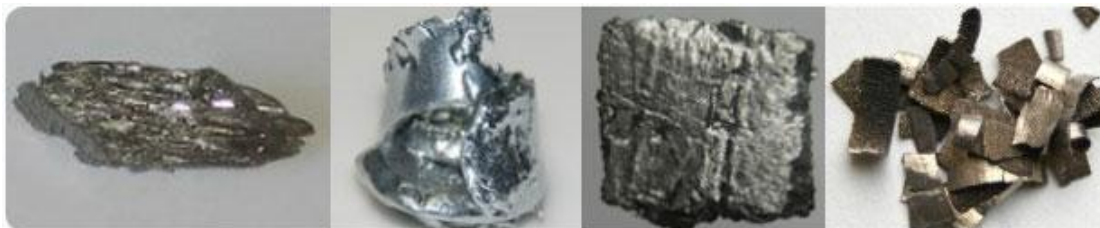
## *Path Forward*

- Validation and Verification of previous metallurgy
- Scoping Study to confirm economics
- Optimisation of product suite
- Pilot plant
- Bankable Feasibility study

# Hastings Project

## *Previous Exploration*

- Early exploration for uranium highlighted radiometric anomalies.
- UNOCAL (previously parent co of Molycorp) (1982-85) carried out exploration including detailed mapping, sampling, trenching and 19 drillholes.
- Defined the “Niobium Tuff” as the rare metal-rare earth bearing horizon.
- Mineralogical studies at CSIRO confirmed fine-grained nature of mineralisation.
- West Coast Holdings (WCH) took over management and drilled a further 23 holes.
- Intensive metallurgical testwork undertaken including establishing a pilot plant at Warren Springs laboratory in the UK (1989).
- Testwork progressed positively but WCH fell into receivership and testwork and reporting was not completed.
- Various resource estimates carried out during the progress of exploration.



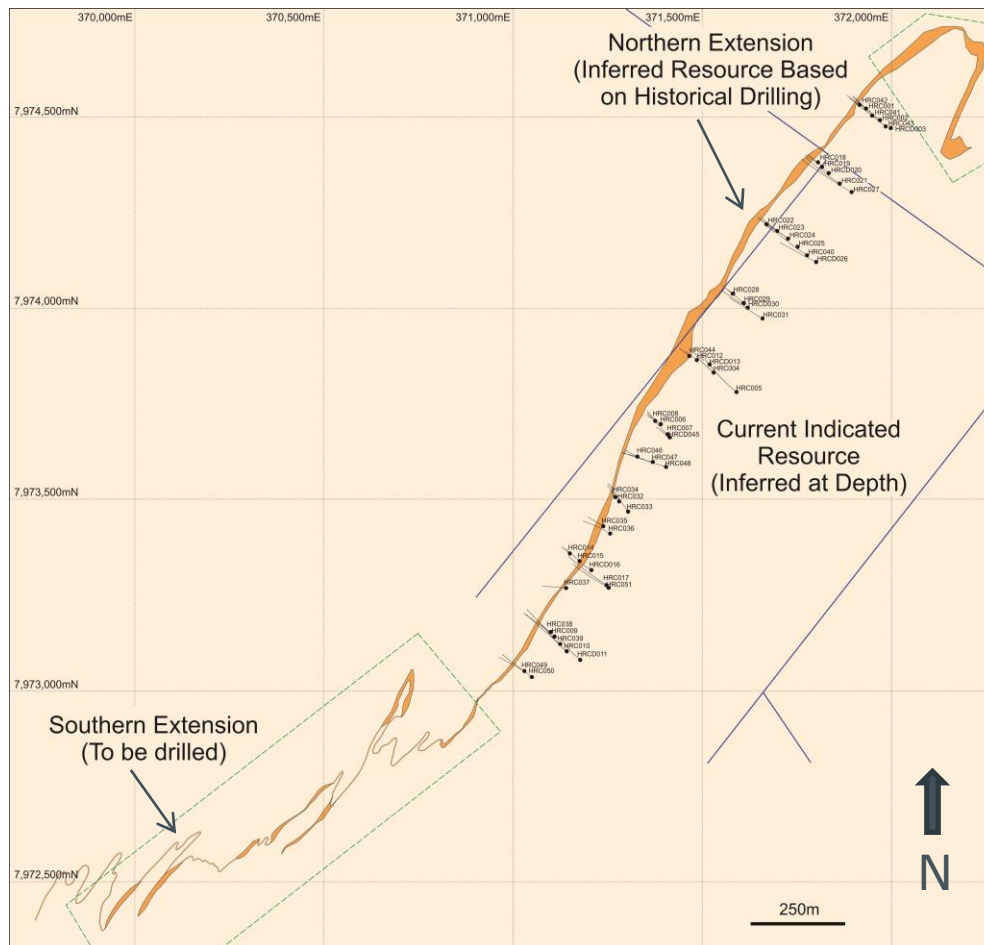
# Hastings Project Resources

- In 2011 Hastings drilled 51 reverse circulation holes (7443m) and 8 diamond drill tails (HQ3) (739m).
- This tested the central 1.8km of strike to a maximum depth of 290m.
- This enabled a detailed interpretation and resource estimation to be carried out, leading to the establishment of JORC-compliant resources of:

Lens/zone	Category	Oxide/ Primary	Tonnes	ppm								
				ZrO <sub>2</sub>	Nb <sub>2</sub> O <sub>5</sub>	Ta <sub>2</sub> O <sub>5</sub>	Ga <sub>2</sub> O <sub>5</sub>	HfO <sub>2</sub>	TREO	HREO	Dy <sub>2</sub> O <sub>5</sub>	Y <sub>2</sub> O <sub>3</sub>
Main	Indicated	Oxide	1,400,000	8860	3507	183	113	322	2151	1828	190	1132
	Indicated	Primary	25,400,000	8914	3547	182	110	318	2100	1802	186	1120
H/Wall	Indicated	Primary	300,000	9080	3625	183	104	311	2130	1772	185	1096
Total	Indicated		27,100,000	8913	3545	183	110	318	2103	1803	186	1120
Nth Extension	Inferred	Oxide	250,000	8860	3507	182	113	322	2151	1828	190	1132
	Inferred	Primary	2,100,000	8914	3547	183	110	318	2100	1802	186	1120
Main Deep	Inferred	Primary	6,750,000	8914	3547	183	110	318	2100	1802	186	1120
Total	Inferred		9,100,000	8914	3547	183	110	318	2100	1802	186	1120
<b>TOTAL</b>			<b>36,200,000</b>	<b>8913</b>	<b>3546</b>	<b>182</b>	<b>110</b>	<b>318</b>	<b>2102</b>	<b>1802</b>	<b>186</b>	<b>1120</b>

# Hastings Project

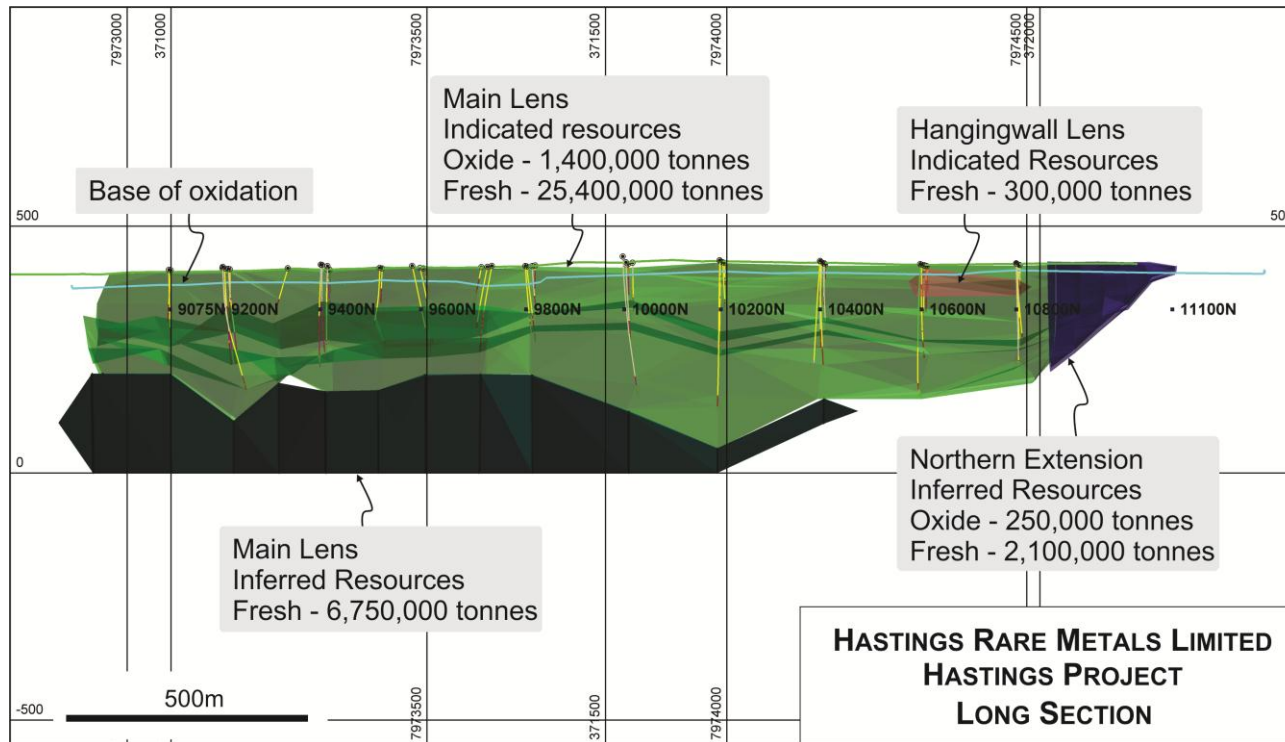
## *Significant Potential to Increase Resource*



Hastings Project – Resource and Target Areas

- Current Indicated resources confined to central 1.9km of sub-cropping mineralisation
- Inferred Resources at depth below Indicated Resources and around the northern fold closure
- Southern Extension locally returns high scintillometer readings over significant widths (to 40m) and warrants drilling (strike length of 750 metres)
- Long mine life potential > 30 years

# Hastings Project Resources



- Indicated and Inferred Resources extend to the base of the south – plunging syncline at the north end and to a maximum depth of around 400m
- Mineralisation remains open at depth down to the base of the syncline
- Mineralisation remains open to the south where it becomes tightly folded but can be traced for at least a further 750m

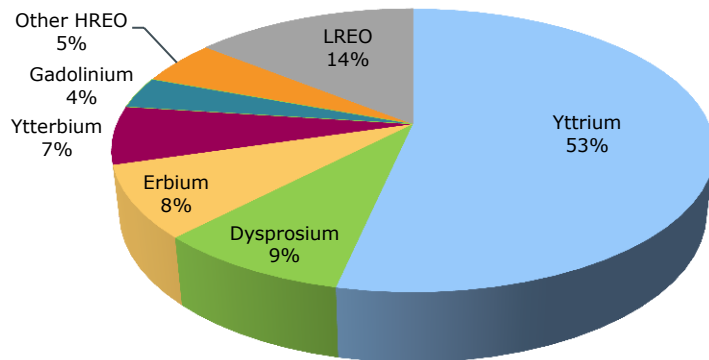


# Hastings Project Rare Earth Distribution

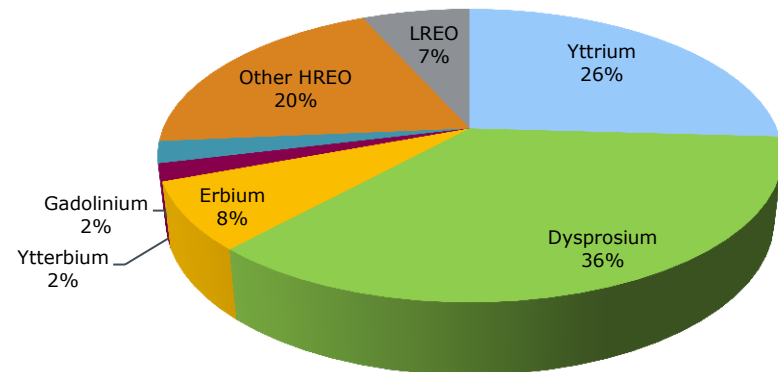
	La <sub>2</sub> O <sub>3</sub>	Ce <sub>2</sub> O <sub>3</sub>	Pr <sub>2</sub> O <sub>3</sub>	Nd <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Tb <sub>2</sub> O <sub>3</sub>	Dy <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>
Grade ppm	34	127	19	73	46	3	75	24	186	43	173	22	139	18	1120

● Critical Rare Earths (US Department of Energy December 2010)

**Distribution of REOs by Volume**



**Distribution of REOs by \$ Value**



- Hastings has highest HREO to TREO of all advanced projects\* at 85%
- Significant value contained in Y and Dy (HREO) component

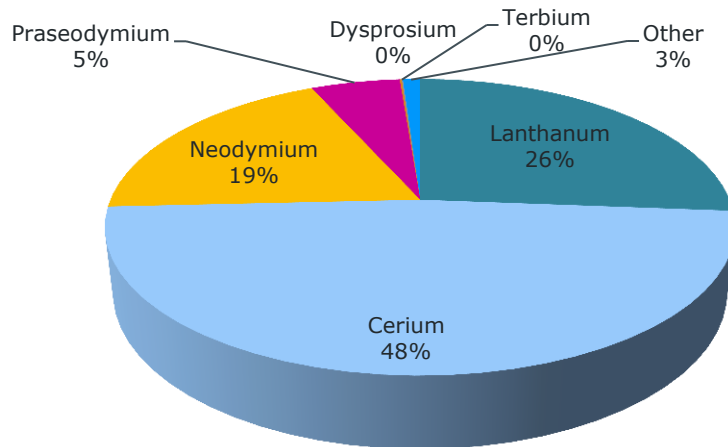
\* Defined as projects with formally defined mineral resources or reserves under the guidelines of a relevant scheme such as the JORC code or NI43-101

# Lynas Project Rare Earth Distribution

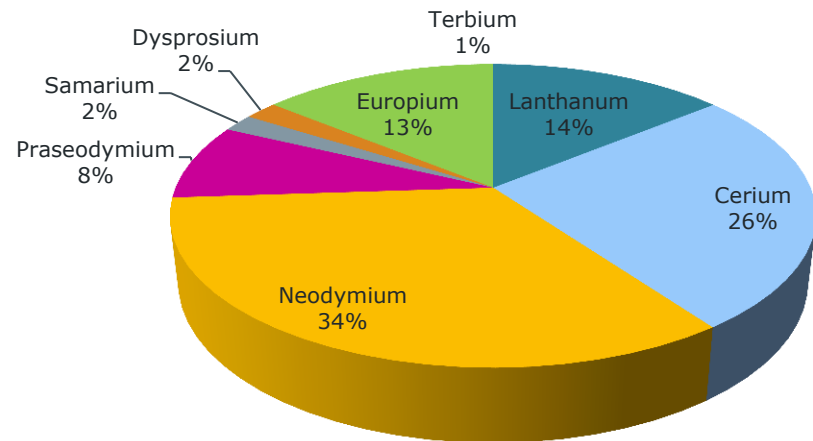
	La <sub>2</sub> O <sub>3</sub>	Ce <sub>2</sub> O <sub>3</sub>	Pr <sub>2</sub> O <sub>3</sub>	Nd <sub>2</sub> O <sub>3</sub>	Sm <sub>2</sub> O <sub>3</sub>	Eu <sub>2</sub> O <sub>3</sub>	Gd <sub>2</sub> O <sub>3</sub>	Tb <sub>2</sub> O <sub>3</sub>	Dy <sub>2</sub> O <sub>3</sub>	Ho <sub>2</sub> O <sub>3</sub>	Er <sub>2</sub> O <sub>3</sub>	Tm <sub>2</sub> O <sub>3</sub>	Yb <sub>2</sub> O <sub>3</sub>	Lu <sub>2</sub> O <sub>3</sub>	Y <sub>2</sub> O <sub>3</sub>
Grade ppm	20655	37859	4309	14985	1839	359	0	55	100	0	0	0	0	0	0

Source: (Lynas Corporation website)

**Distribution of REOs by Volume**



**Distribution of REOs by \$ Value**



- Majority of value contained in LREO's

# Hastings Project *Processing Testwork*

- West Coast Holdings (WCH) undertook significant amounts of processing test work in the 1980s culminating in the establishment of a pilot plant at the Warren Springs laboratory in UK.
- 100 tonnes of oxidised mineralisation was sent to UK and test work was proceeding well when WCH entered receivership and the test work was halted.
- Hastings has commenced validation and verification processing test work with a number of experienced rare earth processing groups in Australia, with both oxidised and primary mineralisation. Optimisation test work will follow to reflect the changes in market conditions from 1990 to today.
- Previously optimised metallurgical test work resulted in extraction efficiencies of around 75% for Yttrium and Dysprosium, and 80% for Nb and Zr.
- Financial assessment of product suite and form is underway to reflect current and future market requirements

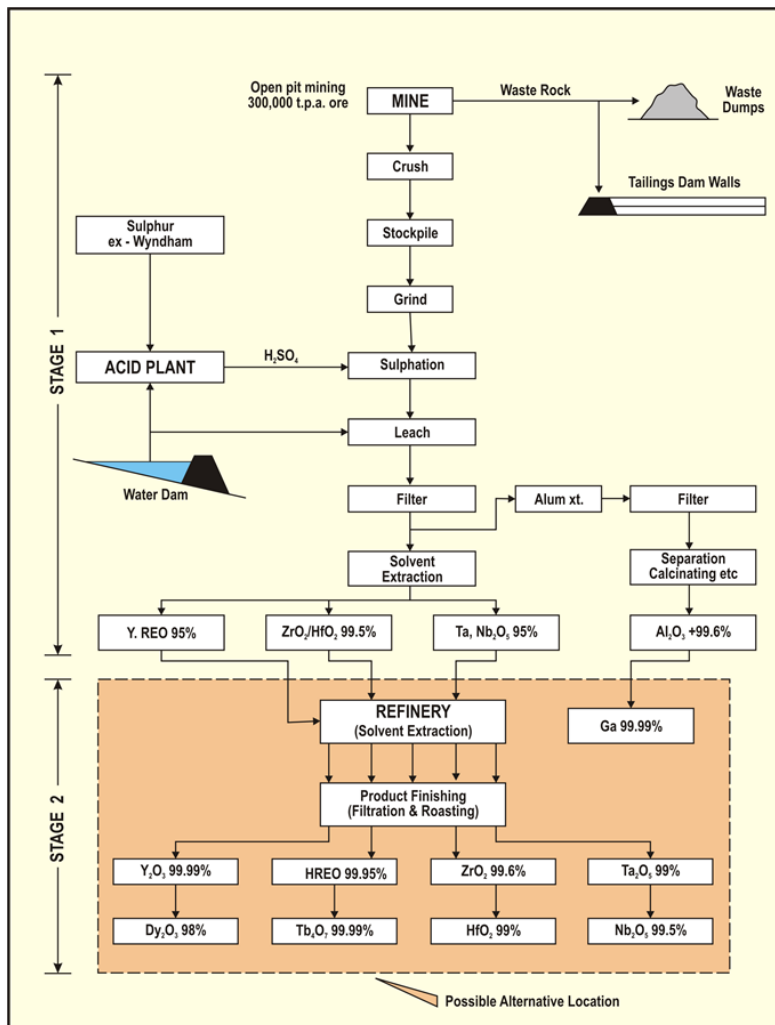


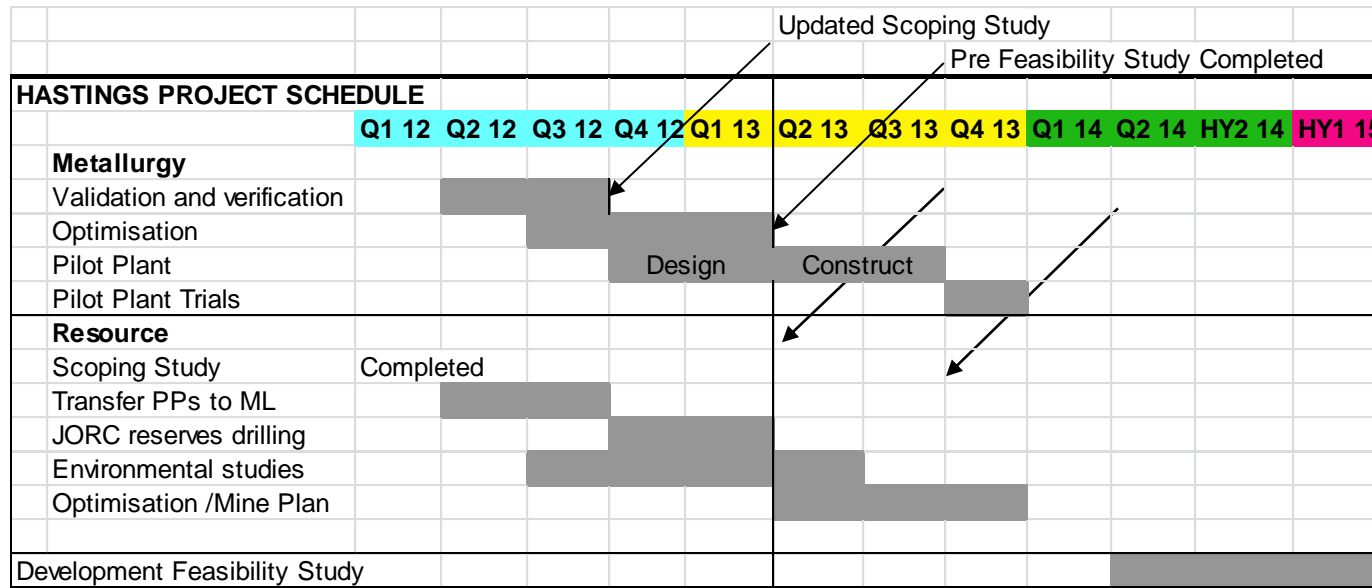
Figure 6  
HASTINGS PROPOSED PROCESS FLOW SHEET

Source: West Coast Holdings Limited

AB003

Flow Sheet (1990) to be verified and validated

# Hastings Project Schedule



# Hastings Project *News Flow*

## Next 6 months

- Appointment of Jacobs, a world acknowledged leader in process engineering, to manage the Hastings process development at ANSTO
- Results of scoping study indicating economics of Hastings Project
- Validation and Verification of historical data
- Road Map to Pre-Feasibility Study
- Begin Process Optimisation Program

## Next 12 months

- Completion of Stage One of Optimisation Study
- Analysis of Yangibana Project and importance

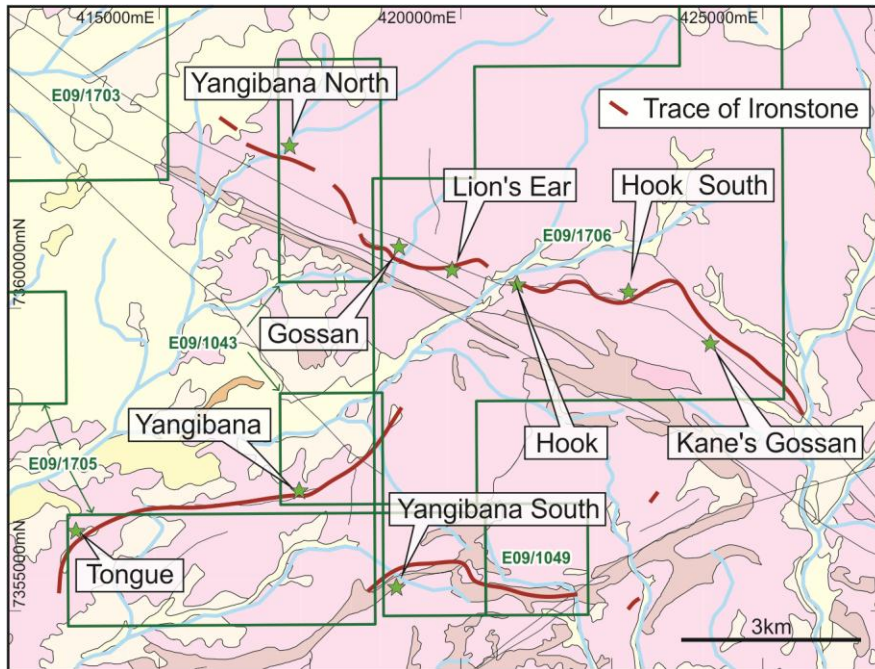


# Yangibana Project *History*

- Known mineralisation is associated with long linear, narrow ironstone outcrops
- Early exploration based on elevated radio metrics assessed the ironstones for uranium, but also base metals
- Rock chips returned elevated rare earth values and the ironstones were drilled in the late 1980s
- 80 reverse circulation holes tested the ten main outcropping bodies
- Almost all holes intersected shallow oxidised mineralisation over widths from 2 to 6m
- Rare earth values associated with the mineral monazite
- Rare earths are heavily biased to LREO, with HREO averaging only 600ppm
- However, the deposit contains unusually high neodymium values, averaging 4000ppm Nd<sub>2</sub>O<sub>5</sub>
- Drilling and resource estimation tested only 2.2km of the potential strike length of the main mineralised zone that exceeds 7km within Hastings' ground
- Subsequent surface sampling has returned TREO values up to 19.4%, with an arithmetic average of 56 samples taken from four areas in 2008 being 2.84%TREO

# Yangibana Project

## *Previous Exploration*



Yangibana – REO Mineralisation zones

### RC DRILLING RESULTS INCLUDED

Prospect	m	%TREO
Yangibana North	7	2.21
	8	2.78
	4	1.83
	6	2.40
Gossan	3	2.12
The Lion's Ear	4	1.80
	4	2.05
	4	2.73
	3	1.78
	4	1.77
Hook South	2	1.65
Kane's Gossan	8	1.43
	5	1.18
Yangibana	2	1.25

### ROCK CHIP SAMPLES INCLUDED

Prospect	No of Samples	Av. %TREO grade
Yangibana North	22	3.88
Hook	5	1.00
Kane's Gossan	9	3.22
Yangibana	10	1.50
Yangibana South	15	1.97

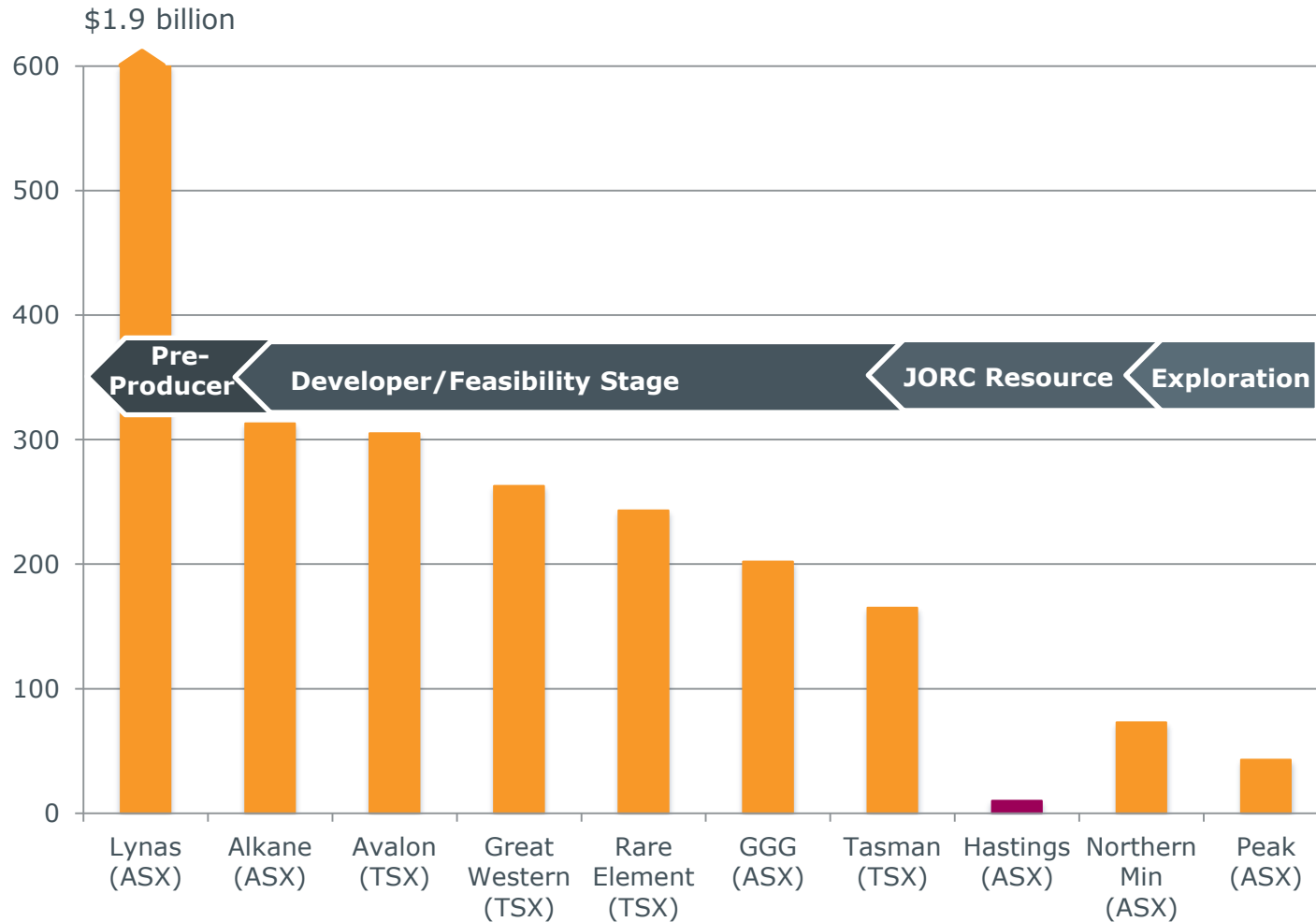
# Yangibana Project

## *Proposed Exploration*

- The obvious initial target is to pattern drill the exposed ironstone outcrops and the intervening ground along strike, with only 2.2km of the main mineralised zone tested to date. This zone has a strike length of around 7km within Hastings' ground.
- Closer spaced drilling over the 7km of strike could define resources of up to 10 million tonnes of oxidised mineralisation at grades comparable to those indicated by previous drilling
- All previous drilling has tested only the oxidised portion of these linear structures. Deeper drilling is required to determine whether the grades within the oxidised portion of the lenses are enriched or whether similar grades extend to depth in the primary zone
- The Yangibana ironstones are known to be of ferrocarnatite composition. They are presumably sourced from a large ferrocarnatite body at some depth. Widespread fenitisation (K-feldspar alteration) of the surrounding granites has been identified by previous explorers and the Geological Survey of Western Australia (GSWA)
- The GSWA is undertaking mapping in the Yangibana region and is very positive regarding the potential for a large buried rare earth-bearing body to be present in this area
- Ongoing discussions with GSWA will lead to a detailed programme to evaluate this potentially large target

## Market Comparisons

*Significant upside at current levels*



# Hastings Project

## *Advantages of Hastings Project*

- JORC Compliant - Long term operations
- 85% Heavy Rare Earths as a percentage of TREO
- Indicated JORC resource of >30 years operations at 1m tonnes per annum – potential to expand
- Historic pilot plant operation will significantly reduce development and optimisation timeline
- Schedule savings in Exploration and Metallurgy Development are significant compared to other potential HREO developers (4-5 years).

# Contact Details



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